“Before, we had to go far away to our fields or gardens to get vegetables, but now if I cook in the evening I can just quickly step out of the kitchen hut and pick something fresh from the keyhole garden.”

Lead farmer in Zimbabwe
Gardens

Encouraging individuals, households or groups to grow fruit and vegetables in small plots or containers close to people’s homes.

What does the activity look like?

Gardens are usually as close to home as possible. This allows people to work and check the garden. They can also use leftover water from the house and food waste to improve the soil.

People do not need to own land in order to grow a garden. Gardens can grow in any area of ground, backyard or roof space, however small – such as under the eaves of houses, growing up walls, trees or fences, or planted into sacks, old containers, buckets or simple hand-built structures.
What are the main benefits?

- Gardens help people to grow food close to home, so can suit children, the elderly or others with mobility issues or confined to the home.

- Uses water people might otherwise throw away.

- Produces more food to eat and saves money by not having to purchase the vegetables.

- Provides more healthy nutritious diets, especially for children, the chronically ill or people with HIV.

- Allows people to grow foods that can tolerate bad weather, produce quickly after a crisis or to have food during the lean season.

- Makes people feel good about themselves, gain confidence, self-respect and self-worth.
"We had an issue of water shortage, but now that we have the keyhole gardens and can reuse the water from the house, we have vegetables easily available to eat."

Farmer in Zimbabwe

Key messages

01. You can try planting demonstration gardens near to schools, health centres or other busy places to help spread the new ideas to other people.

02. Plant lots of different types of foods of different colours that will be rich in diverse nutrients to help keep people healthy.

03. Plant to produce extra goods that can be sold or made into things that can be sold for good prices.

04. Plant crops of different heights to capture all the light and intercrop different plants that like growing together to protect the soil and help conserve soil moisture.

05. Plant many different types of crops to reduce the risk that weather, pests or diseases will damage everything. With luck some crops will survive to provide food for families.

06. Plant specific herbs and plants that keep away pests.

07. Plant crops that produce well even when the weather is bad.
What types of people does this activity suit?

- Gardens suit individuals, households or extended families working together.
- Gardens activities can be started with existing or new community groups; women, men’s groups or school or health facility support groups, but working in groups needs careful management and agreement.
- Gardens can particularly benefit those who need extra nutritious foods like pregnant and breastfeeding women, infants and children, the elderly or people with chronic illnesses and HIV/AIDS.

How to adapt gardens to different environments and contexts?

- Drought prone, mixed agriculture & livestock – small gardens close to home help people to work intensively to keep crops well looked-after even when the rains do not come.
- Drought prone mostly livestock – can still be suitable but the garden will need to be protected from animals.
- Flood & cyclone prone – can still be suitable but people will need to decide which plants will survive floods and high winds (such as tree crops), or select crops that can grow back quickly.
- Insecurity or post conflict – can still be suitable and may help people produce food closer to home where it can be safer.
- Rural or urban - even urban homes can sometimes find room for small containers or sacks. Some people put them on the roof to hold down the roofing sheets!
- Mobile populations – gardens can still be suitable for refugees, displaced or nomadic people, as some plants grow very quickly and sometimes people end up staying much longer than they intended.

Preparations

Timing tips

✓ Try to start the Garden activity at times of the day or at times of the year that are less busy for the specific group of people you are targeting. It is worth starting well before the planting season, so that you can prepare the plot or container in advance and start gathering resources, making composts and mulches to add fertility to the soil (section 2 has useful advice on compost and section 4 describes how to make homemade fertilisers).

✓ You can start a garden at any time of year. If gardens are watered, they can grow even in the dry season and outside of the usual planting season. Gardens can improve nutrition in seasons when not much food is available.

✓ Some plants take only four weeks to give food. A garden can usually produce food in three months, but try to keep it going as long as possible.
What does the volunteer need to do before the activity can start?

1. Follow the advice in the ‘Essential guidance’ of the Introduction and refer to the ‘Resources and skills needed’ at the end of this section.

2. Ask people or hold a meeting in the community to see if people think this garden idea is a good one and to see who is interested to be involved.

3. Ask people if they would rather work as individuals or in a group. Sometimes helping one another can make it easier and more fun. But sharing work needs to be managed and agreed by everyone.

4. Ask people to identify places where they think small gardens could be located. Will any permission be needed to garden there? If people cannot think of a space to grow things, do people think that they could find old containers or sacks that they could fill with soil to grow things in?. Some people put containers on their roof to grow things (make sure they aren’t too heavy though!).

5. If people cannot use land of their own, is there communal land or other land that may be available that people can grow things on (and perhaps share any rental costs)?

6. Gain agreement or permissions with any landowners or landowners, authorities, community leaders, or other family and community members.

How to avoid risks

It is important to discuss risks before you start the activity:

- Discuss what are the most likely things that could go wrong.

- What ways can people think of to avoid these risks?

- If floods or droughts occur, can you avoid flooded drought prone areas, or grow drought tolerant trees, shrubs or crops (such as root-vegetables like carrots, potatoes or beets, or pulses, beans, peas, garlic, onion, shallots and herbs)?

- Can you avoid water shortages by adding manure or crop wastes and mulches to the soil or shade the plants (see Section 2 ‘Compost’)?

- If strong winds are a problem, can you plant tree or shrub hedges to act as barriers? Are there crops that grow very quickly (onions, chilli, tomatoes, potatoes or paw paw/papaya etc.) that can be planted and can produce food or income more quickly after a disaster or flood or cyclone?

- Can you capture rain when it does fall to use when droughts occur (e.g. in containers, tanks or by digging depressions in the ground in places where water runs off. See ideas in ‘Water harvesting and Conservation’).
## How to implement the activity?

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Step 1: Organise a meeting

Organise a meeting to discuss some of these ideas with people, and listen to what they say. You may need to discuss these over several meetings:

- Gardens can grow in very small places around the home (in old containers or sacks on the ground or on roofs, in a yard, close to a washing area, near a school or clinic).
- Some basic tools will be needed – can they be made, borrowed or purchased by people slowly saving money and sharing the cost so everyone can share in using the tools?
- Seeds will be needed – can people gather and share seeds or can people get together to share buying a few seeds to start with? Can people ask the government extension officer for advice and help getting seeds? Always try and buy seeds hat, when they are grown, will give you more seeds to use next season.
- People can choose to grow foods that are extra nutritious (see section 9 Nutrition Awareness) or foods or other items that can be sold or made into other things that can be sold for good prices.
- People can choose to grow foods and produce goods that will withstand difficult conditions (such as droughts, floods, high winds, high or low temperatures) and/or foods that can grow quickly after a shock or disaster.
- Do people have ideas or know of anybody who may have good ideas that they think can work? Sometimes older people know things from the past that might work well.
- Lead or model farmers – is there anyone in the community who is already good at growing foods in gardens? Would they be willing to advise people? Can you encourage government extension services to advise people? See Section 6 ‘Lead Farmers and Demonstration Farming’ for ways to share good ideas.

If you are using old containers or sacks for your garden, then remember to make drainage holes in the base.
- Water will be needed – but people can use leftover water from the home.
- Good soil will help – see Section 2 on ‘Compost’ and Section 4 on ‘Homemade Liquid Fertilisers’ which will give you ideas of how you can help improve the soil.
- Discuss what to grow – what grows well? What survives difficult weather? What is most nutritious? What sells well or gets a high price at market (chilli, onion, herbs, spices, flowers etc.)? What fruits, shrubs or trees might grow? What will produce quickly (chilli, tomatoes, potatoes)? Can you grow things one after another in succession throughout all the seasons?
- What pests and diseases are common and who can advise how to avoid or overcome the problem? The ‘Essential guidance’ in the Introduction gives advice on ‘linking to other service providers’ and will give you some ideas on this. Usually removing the pests by hand is easy, or covering the plants with protective clothes at key times.

**Step 2: Squeeze in your gardens anywhere and everywhere!**

Decide where to position gardens. If people do not have access to land, then advise them to gather together old containers or sacks (making small drainage holes in the bottom) or build something that will hold the soil. These can be small areas or you could try building a ‘key-hole garden’ (see photos) and fill with crop or food waste, manure, old bones, urine or ash from fires and then a layer of soil on top (these will add goodness and turn into soil eventually).
Step 3: Dig over the soil lightly

Dig over the soil lightly and add ash or old manure mixed with urine (yes, human or animal urine is a good fertiliser!). Digging the soil as little as possible will reduce the amount of water that it lost from the soil. This will also maintain the structure of the soil so that it will erode less when heavy rains fall.

Step 4: Advise people about planting lots of different crops to reduce their risks

Advise people to plant small numbers of lots of different types of crops to start with, so that they can start to see which types grow best and which they like. Growing lots of different plants, trees and shrubs helps reduce the risk of losing crops to pests and diseases or bad weather conditions. Encourage people to share seeds and try new things. They may choose to plant things that they can sell or make into something that they can sell.

Step 5: Advise people to plant the most nutritious foods

There is lots of detailed information on “Nutritional Awareness” in section 9 but in general try to encourage people to:
- Grow a wide mix of fruits, vegetables, roots, tubers and nuts and seeds.
- Grow orange, yellow, red and green vegetables such as carrots, peppers, tomatoes, and red and orange sweet potatoes and pumpkins. Fresh green leafy vegetables such as spinach, broccoli, watercress and cabbage are nutritious too.
- Grow orange, yellow, red and green fruits such as oranges, mangoes, papayas, bananas, pineapples, apples, strawberries, guavas, avocados, etc.
- Grow pulses such as dried beans, peas and lentils, etc.
Step 6: Advise people about water conservation

- Advise on watering the garden – the best time to water is in the evening when the sun is going down or first thing in the morning. This gives the water time to soak down into the soil before the sun gets a chance to burn it all off!

- Use leftover water from the house. Water used for washing the family, clothes or cooking pots etc, can be used on gardens. But be careful, if the water is very dirty or full of soap or chemicals, you should try to make sure it is not used directly on the parts of the plants that will be eaten, such as the leaves of lettuce, spinach or other greens like cabbage or skins of cucumber or tomatoes. It is worth having some fruit trees or fodder plants, where you can use very dirty water on the soil without worrying about any damage the very dirty water may cause. Some people plant papaya/pawpaw, banana or other trees and fodder crops close to where people wash themselves and get great and perfectly healthy crops to eat.

- It is best to apply the water as directly to the soil as possible (especially if it is leftover water from the house). You can advise people to make their own watering can by making holes in the bottom of an old container or attach a pipe to an old bucket/container. You can bury a porous clay pot, or a plastic bottle with small holes, into the ground close to crops - when the pot or bottle is filled with water, it will irrigate the plants (see the picture below). Section 7 gives lots of ideas for ‘Water Harvesting’ and soil and water conservation.

- Protect the garden from animals and birds - with a barrier, fence, thorny branches or planting a hedge (the spikier the better!). Some people use reflective/shiny things or scare birds by making a rattle that will make a loud noise when shaken or blown by the wind.
Step 7: Encourage shading and seedling nursery areas

You can find lots more detail on this in Section 3 on “Shaded seedling nurseries”.

1. Select a shady place or container with good soil which can be well protected and is close by. It should be easy to keep an eye on, for regular care and watering.

2. Shade seedlings so they need less watering and are not over-watered.

3. Use this nursery area to plant seeds very close together and look after them carefully. With regular watering, the nursery can help get seedlings started early, ready for planting in a bigger area when the rains are more certain.

4. Encourage people to always save a few seedlings, just in case the rains do fail, and people will then still be able to plant a few seedlings later.

Build a simple low cost shade nursery.

Step 8: Encourage composting, mulching and manures

Section 2 provides lots of detailed information on how to produce compost. The activities in section 2 will show you how to use mixtures of easily available local natural materials such as harvest leftovers, crop remains, waste from farming, animal and human waste or kitchen remains mixed with ash to produce nutrient rich soils, so that you can increase the size and amounts of the food and crops that you grow. Composts can help crops tolerate droughts by making the soil more able to hold water for plants for a longer time.

Volunteers demonstrating a simple compost structure.
Things to watch out for

⚠️ If working in groups and sharing resources, disagreements can occur. Discuss some of these matters at the beginning and try to write down what you agree. What will people do about:

- How work and crops will be shared?
- People who do not contribute as much as others?
- People who do not share what is produced equally?
- Tools that are broken, lost or stolen?
- Animals that damage the garden?
- Other problems?

⚠️ When people are ill or at clinics, their waste water can spread disease. Only use this waste water on fodder crops or at the vase of tree crops.

⚠️ If you are storing water, always try to keep it covered or it will encourage mosquitos which can spread disease!

⚠️ Costs of fencing and tools can discourage people from starting a garden, so try to find alternatives (use thorny branches and make tools from discarded materials or share tools between people).

⚠️ Don't forget to make drainage holes in bags and containers. Layer them with stones to start with, then put crop waste, manure and ash before topping with soil.

Photo: Zimbabwe, 2019 © Jordi Matas/British Red Cross

Build your own fences to protect your garden.
Top tips

✓ Encourage people to start small and increase the garden size slowly or they may get overwhelmed.

✓ Try to keep costs low by encouraging people to make use of the things they already have and share resources. Activities with high set-up costs can discourage the poorest people, and investing people’s precious savings in resources may increase their risks.

✓ Always try to buy seeds that when grown will produce seeds you can keep using from year to year. Try to learn which crops give seeds that are less effective from year to year.

✓ Planting in rows across the slope rather than up and down the slope will help trap rain water to soak into the soil rather than run down and erode the soil.

✓ Encourage people to share their ideas with others and neighbouring communities.

✓ Watering directly onto the soil either at the very end or very beginning of the day will help save water and use it most efficiently.

✓ Try to add goodness back to the soil by composting all crop waste and mixing with manures, ash and urine. Add compost to the soil when it has been kept for a while (see section 2 on composting).

✓ Get advice from extension officers and agricultural merchants. They may be willing to give you some seed samples to try.
Other ideas linked to this activity

- Encouraging people to plant more diverse crops to increase the diversity of nutrition for health; reduce the risk of pest or disease attacks or losing all the crop due to bad weather; roots access different parts of the soil and some crops grow low and others climb up to maximise use of the light.

- Demonstrating how to cook, process, preserve or sell different crops to generate income (see Section 10 on ‘Reducing Fuel Needed for Cooking’). If everyone grows the same, disease and pest risks are higher and people find it hard to get a good price for produce. Growing lots of different things or crops that are not commonly grown can help you get a good price.

- Demonstrating garden ideas at schools, prisons or health clinics and encouraging the institutions to purchase the produce from the gardens.

- Keyhole gardens - a structure is built to raise crops off the ground. This can help keep animals and poultry away and reduce erosion from runoff and damage from floods. It also gives the plants access to deeper soil and helps people concentrate care, water and fertiliser resources on the garden plot. The raised plot can help older or people with disabilities reach the garden.
Links to other sections in this handbook

This activity links well to the other activities in this handbook:

- **Section 2**: Compost
- **Section 3**: Shaded Seedling Nurseries
- **Section 4**: Homemade Liquid Fertilisers
- **Section 6**: Lead Farmers and Demonstration Farming
- **Section 7**: Water Harvesting and Conservation
- **Section 9**: Nutrition Awareness
Resources and skills needed

What resources are needed to run the activity?

Simple tools, soil or land, or old containers or sacks, seeds, water (clean water or collected from roof, leftover from use in the home), time and effort.

Optional:
- Occasional meeting space.
- Record keeping book (list members, record any payments for shared seed or tool purchase, etc.)
- Organise advice sessions or trainings from experienced gardeners or extension workers.
- Fertilisers and pesticides, or make your own from crop or food waste, ash, manure and urine (see Section 4 on ‘Homemade Liquid Fertilisers’).

Are there any resources that are critical?

To start this project participants will need to have access to a few key resources. If people do not have access to land, then they will need to be able to get access to some soil and collect old containers, sacks or bags.

Basic tools will be needed, but they can be shared or many can be made by hand from waste materials. Seeds will be needed, but sometimes people will be willing to share small amounts of seeds or people can get together to buy small amounts of seeds to share together (which makes them cheaper).

What needs to be monitored or followed-up?

Monitoring is optional, but gardening groups who use the same land and share resources and produce may decide to record time worked to help share out produce fairly.
**Approximate costs**

Garden activities can cost as little or as much as you have or want to invest. If you use leftover materials for fencing and containers and share and make your own tools then you can keep costs low.

A Swaziland Red Cross garden activity spent about USD$200 for fully equipping and fencing a large 10x10m garden with a rake, fork, watering can, metal drum for water storage and seedlings of 6 vegetables.

**What skills or knowledge do volunteers need?**

- No specialist knowledge is required by volunteers for gardening, but the confidence to ask successful gardeners or government extension officers for advice is useful. Can you persuade them to join you in running or supporting the activity?
- Some people in the community will already be good growers and can be asked to provide advice. If not, government extension officers or neighbouring community based or other NGO (non-government organisations) or international agencies may be able to provide advice and support.

**What skills do participants need?**

No specialist knowledge needed. People will get advice from the volunteer and learn together and teach each other.

Gardens may need physical capacity to set up, but less effort to keep running. If people with low levels of physical capacity want to be involved, perhaps they can have help from friends or family members at key times, or perhaps they can do some other tasks, that can be equally important (keeping animals and birds away, planting, picking or removing pests).