



Urban Garden ing Handbook







Urban Gardening Handbook



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INTRODUCTION

Dear friend,

the handbook you are about to read includes general information about Digging Deep, a project funded by the Youth in Action programme from the European Commission, Action 3.2. Apart from containing info about the project, it includes a lot of graphical examples, tips and ideas about urban gardening in the framework of youth work. So you can take some inspiration and start Digging Deep wherever you are, if you are willing to!

What & Why?

Digging Deep partnership is composed by 4 partners - CESIE (Italy), IYEC (Ghana), KID PiNA (Slovenia) and CANGO (China) that have come together to explore urban gardening in the framework of youth work - specifically, how it can be used for the inclusion of young people in society, to



Illustration made by Giulia Giannusa (Italy)

foster their employability acquiring new skills, stimulating their active participation and raising awareness on issues such as healthy lifestyle and sustainability. **Digging Deep** envisaged the following local and international activities:

• Kick-off meeting in Beijing (China), in January 2014;

• International workshop on Urban Gardening in Palermo (Italy), in April 2014;

• Local workshops on urban gardening in all the partner countries;

• Local community event in Italy, Slovenia and China;

• International Harvest Festival in Accra (Ghana), in October 2014.



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Local Working Groups & Local Urban Gardening Clubs

A local working group (LWG) has been established in each partner organisation, composed by a group of young people who have different profiles: unemployed, agronomists, youth educators, youth leaders and comic artists. The aim was to give new skills to young people through the interaction in an agricultural environment and with peers, on the basis of a non-formal approach.

Each LWG created a Local Urban Gardening Club, open to different target groups (as children with their families, volunteers, elderly people and so on) in order to establish a link with the local community and share the knowledge acquired in the agricultural field. Using the methodology of non-formal education each of the LWGs organized a variety of workshops and activities with local community people.



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Target groups

The foreseen impact of the project is multiple and addressed to different targets: on young people involved in the project and those involved in the local gardening clubs, children and their families, elderly people, partner organizations and other civil society organizations at local and international level.



Illustration made by Zhao Wang (China)

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Is this handbook for me? How could I become a Digging Deeper?

You can become a Digging Deeper. Believe us, before the beginning of this project most of the young people involved were completely beginners on urban gardening, or agriculture in general. We are not going to teach you the ABC on this field, but just share with you some gardening tools that we have learned and maybe you would like to try. Also, we are conscious that the resources may be limited. But don't worry. Everyone of us can enjoy urban gardening, even if you just have a sunny window or a little balcony at home. From now on, we will focus on those activities that can be transferable to you! The aim of this handbook is to share with you some ideas, tips, experiences on urban gardening. Either if you can create a local garden club in your city or town, or just enjoy picking up some tomatoes growing in your balcony (yes, you can do it!), we are sure you will find your Digging Deep side!

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1. TUTORIALS FOR URBAN GARDENING



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What's urban gardening?

new trend Α spreading is across XXI centurv cities around the world and it is our generation's movement back to the land. a way to escape from the stressful rhythm of modern life, and start farming vegetables. This is the meaning of the urban gardening movement.

In Urban gardening, there are **community gardens** and **private urban gardens.** You can join a group



Illustration made by Daniel Kukubor (Ghana)



Illustration made by Daniel Kukubor (Ghana)

of people and start growing vegetables in a vacant lot, or you can even create your own urban garden at home. What would you like to start with?

1.1 Choose a place where to start gardening

A townhouse yard, a balcony, a south-facing window even a basement apartment can be suitable locations to farm enough vegetables to save a considerable amount of

money and enjoy the freshest, healthiest products possible.

Where can I create my urban garden?

Growing on the roof

Rooftop gardens can produce food for a hungry city and reduce storm water runoff.



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Wall/Vertical urban garden

Green wall gardens are springing up in many cities. These gardens not only have many of the same benefits as green roofs, but also visually soften the look of a city block.



Illustration made by Daniel Kukubor (Ghana)

Idea: A cheaper version of a vertical garden could be a pallet. Pallets are being reused extensively in gardening today. One idea is to use pallets to build a vertical garden (a perfect solution for small or tight spaces).



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Container gardening Almost all vegetables

Illustration made by Giulia Giannusa (Italy)

can grow in containers: tomatoes, cucumbers, radishes, some lettuces or peppers, for instance. You can also farm your favourite herbs: basil, Italian parsley, rosemary and oregano, among others.



1.2 Recycled pots

Using recycled bottles can be an original, sustainable and cheap idea to farm your plants in small spaces as your house balcony or even indoors. An advantage of this method compared to a normal pot is that you can see the roots of the plant when they get too big, so you know when it needs more space.

What you'll need

- Marker
- Resistant/Sturdy 1-liter plastic bottles with caps
- Utility knife
- Scissors
- Label remover or vegetable oil
- Potting soil
- Herb seedlings

How to make it

STEP 1: For each container, mark a line 13 cm approximately from the bottle's base. Use the utility knife to puncture the bottle on the mark (an adult's job!), then use scissors to cut all the way around the bottle following the mark.

STEP 2: With the cap in place, invert the bottle's top portion and insert it into the base. Fill it partway with soil.

STEP 3: Transplant a seedling, adding soil and pressing it gently until the seedling is secured into the planter.

STEP 4: Lift out the soil-filled top portion and remove the cap. Add about an inch of water to the planter's base, enough to cover the lip of the inverted bottle top when you replace it. Give the seedling some more water to help it get established, then place it in a sunny spot. Always being careful not to hurt yourselves, add as much water as needed to the planter's base. 16

STEP

1.cut

STEP

2. soil

STEP

3

plant

RECYCLED POTS with plastic bottles

suitable plants

STEP

water

nasturiums oriental greens pea bright light chard mixed salads thyme oregano parsley spinach

1.3 Community gardening

A community garden is a unique space where neighbors and residents can come together to build community and farm food. The collective will of the gardeners leads to the set-up of a garden: a whole that is greater than the sum of its parts.

Community gardening welcomes skilled and unskilled gardeners in a spirit of common unity. Through the process of working and sharing together, people learn from the knowledge, skills and abilities each person brings to the garden.

1st Find a location

This is the most important thing: to find an available, sustainable, long-term site to transform it in a community garden. Try to identify an ideal site, find out who owns the land. Contact the landowner and discuss the next steps



Illustration made by Daniel Kukubor (Ghana)

which may include obtaining permission through written agreement or lease and getting liability insurance.

2nd Engage your community Discuss on how

Discuss on how a community garden could serve the needs of the community. Develop a plan of action. Get people energized and organized.



Illustration made by Giulia Giannusa (Italy)

3rd Identify resources

Forming local partnerships is an excellent way to engage the group and gain access to needed materials, tools, funding, volunteers and technical assistance.

4th Sun and water

Find a location that receives at least six hours of direct sunlight per day with easy access to water.



Illustration made by Zhao Wang (China)



Illustration made by Zhao Wang (China)



5th Healthy Soil

Consider past uses of the land. Is there any contamination? Since the quality of the soil can have an effect on the design of your garden, it would be ideal to analyze the soil to find out its type and quality.

Illustration made by Zhao Wang (China)

Create a dream for your garden. Dream big but start small and work within your capacity. Design your garden to meet the needs of the community it serves. Consider factors such as age-appropriate design, accessibility, protection from animals or vandalism, storage of tools and space to gather.

Idea 1: you can design a didactic garden, so that you can use it as an educational tool. Children, youth, adults and communities can be involved in several types of activities in the garden aiming at acquiring new personal and professional skills and not only producing food. A didactic garden can be composed of different parts, each one with a different use:

- synergistic garden (spiral- shape);
- traditional garden with mulch;
- higher garden (composed of a worktable);
- vertical garden.

For instance, you can allow people with physical handicap to take part in the gardening activities through a worktable where they can plant, grow and harvest.



Idea 2: if you don't have enough space and you want to grow many herbs, you can build an herb spiral, only occupying 2 meters of space. It is highly productive and energy efficient. The specific design maximizes the natural force of gravity, allowing water to drain freely and seep down through all layers, leaving a drier zone on the top and a moist area at the bottom for water lovers. Do you want to do it? Go to page 36 and follow steps!

Pattern applied. A modest 2 m diameter by 1 m hight earth spiral accommodates all necessary culinary herbs close to the kitchen door and can be watered with one 2 m sprinkler - a considerable saving in space and water as the ramp and walls exceed 9 m of plant space



SPIRM

pound



Illustration made by Sara Cok (Slovenia)

Start gardening and implementing your community garden program. Once the project is up and running, let everyone know!



Illustration made by Giulia Giannusa (Italy)

1.4 Tools for gardening



- 1. hand fork
- 2. trowel
- 3. shears
- 4. watering can

5.shovel 6. spade 7. fork 8. hoe 9. rake 10. compost



Illustration made by Giulia Giannusa (Italy)

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1.5 Start a garden from scratch: preparing the soil



First of all, you must clear away unwanted vegetation. Remove any large objects that are on the soil surface, this includes old paving stones, bricks, stones, etc.

Cultivate the soil by turning it with a shovel or rototiller. Tilling the soil breaks it up and prepares it for planting.





Rake the soil to level the top of the ground.



Illustration made by Giulia Giannusa (Italy)

The groove is the most traditional way to get a good support for plants, functioning both as a container for the plants and an irrigation system to water them. Ready to seed and grow vegetables.

1.6 How to seed?

1. Prepare the soil.

Pat down the soil to be sure there are no air pockets or your seeds might drop right to the bottom.





2. Sow the seeds.

Sow the herb seeds 1-3 times deeper than the size of the seed.



3. Cover the seeds and press the soil.



4. Keep the seeds moist

5. Keep the seedlings healthy



Illustration made by Giulia Giannusa (Italy)

1.7 Planting in containers

STEP 1: Deciding what to grow.

It may be convenient to grow vegetables that continue to produce after first harvest, such as tomatoes, peppers and bush beans.

STEP 2: Ensure the area gets at least 6 hours of direct light each day.

The more direct light the plants get, the better their performance.



STEP 3: Container selection. Depends on the types of vegetables you desire. Vegetables with shallow roots – such as lettuce. radishes and herbs – can grow in as little as 20 centimetres of soil depth. More productive plants, such as tomatoes, bush beans and squash, need deeper and larger pots.

TIP: You need to water plants in pots more often than those planted in the ground.

The bigger the pot, the more moisture it can retain.

STEP 4: Outdoor garden soil is just too heavy for pots and will result in root rot and drowning. When choosing soil, go for a soilless potting mix made for container gardens to ensure that plants will have healthy, happy roots.

STEP 5: Take care of your plants, and enjoy your green balcony garden!

2. TOEAS FOR WORKSHOPS



IDEAS FOR WORKSHOPS IN AN URBAN GARDEN

Once you have basic knowledge about urban gardening, you can start to spread and share it with people around you. Especially if you are a social worker, teacher or educator, the urban garden is a perfect educational tool. Indeed you can carry out several types of workshops, letting people involved to know the world of urban gardening.

Before starting, just keep in mind:

• **Target group:** first consider the needs of people you want to involve. The same topic can be explained in different ways. It isn't only important the target involved, but how many people and for how long they are involved as well.

• Activity: urban garden is only a tool. Activities inside an urban garden can be various and can aim to different purposes. Plan all the steps.

• **Materials**: do a list with all necessary materials for having a successful workshop. The earlier you get prepared, the easier and faster the result will be!

• **Place:** you can talk about urban gardening even if you don't have an urban garden. Think of a proper location for your activity: + creativity, + impact!

• **Duration:** more time doesn't imply involving more people or doing more activities. Give your target group time to feel the urban garden.



• **Learning outcome:** you don't have to teach people how to become specialists of urban garden. Your aim is just to give an input, basic knowledge and to raise awareness.

Before starting, have a look on some workshops carried out by Digging Deep participants. It can be useful for running your own workshops!



2.1 TicipORTO- Small journey into urban gardening

LOCATION

Palermo, Italy

PARTNER

CESIE

MATERIALS

A scale model urban garden composed by a wooden box (1 x 1 m) including:

- · Small scale vegetables with different colors
- Small scale urban garden tools
- Potting soil

Planting the seeds:

- Toilet rolls
- Scissors
- Potting soil
- Cord
- Herb seedlings

TARGET GROUP

Children (aged 3-10 years old)



DESCRIPTION OF THE ACTIVITY

TicipORTO (literally, "I will bring you to the garden") is a didactic activity with children aimed at explaining all the necessary steps for the creation of an urban garden: from planning to planting, through recycling materials to shape pots.





STEP 1 - How to design a garden

Children are invited to play and imagine their garden, putting small scale vegetables on the soil and planning their ideal garden. Youth educators guide them, informing them about seasonal veggies, how they should be distributed in the land, etc

STEP 2 - Planting the seeds

Next step is to re-use a toilet roll as a container for the seeds. • With a pair of scissors, cut 4 wide strips out of the ending part of the toilet roll.

• Fold each strip downwards. The strips should start to overlap each other creating a bottom that will hold the soil.

Fill the tube in, tap lightly and add soil up to the top of the roll.
Sow one seed per roll. Watch the sides of the tube for dryness and keep that soil moist!





STEP 3 - Coming to the garden

Children take their seeds container home. About 2-4 weeks after the seeds have germinated, they are invited to come to the urban garden to transplant tubes into larger containers. The best part is that you just have to plop the entire thing into the soil. The toilet roll is biodegradable!



ACTIVITY DURATION 1 hour

LEARNING OUTCOMES

- Basic knowledge about horticulture
- · Awareness about food and its living cycle
- · Awareness about use of recycled materials



2.2 Building herbal spiral

LOCATION

Koper, Slovenia

PARTNER

PiNA

MATERIALS

Needed materials:

- Stones
- Wood
- Branches
- Greens, leaves
- Fertile soil
- Herb seedlings
- Straw
- Water
- Shovel, hoe, pick
- · Gloves, head-wear to protect from the sun

TARGET GROUP

Youth and general public interested in the topic

DESCRIPTION OF THE ACTIVITY

Herbal spiral is a permacultural method of establishing a garden bed in which a garden, if properly designed, eventually establishes itself as a self-maintained habitat. The workshop aims to introduce all the necessary steps for the creation of a raised garden bed in a shape of a spiral.



STEP 1 - Finding the spot

Participants are invited to help find appropriate ground level for the spiral.

STEP 2 - Measuring up

Marking the central position of the spiral first and then marking out your circle, drawing a line in the soil with the rope, branches or whatever appropriate come in hands.







Using collected rocks start laying your rocks on the outer edge and working inwards to create a spiral shape.



Once you have your basic shape laid out around the circumference, add a second layer of rocks, r e m e m b e r i n g the outside 'wall' of your spiral is lowest.



STEP 4

Add the layers of organic materials: layer of wood and branches, layer of leaves, layer of soil







STEP 5 - Planting seedlings



STEP 6 (optional) - Adding straw mulch onto garden bed



ACTIVITY DURATION 6 hours

LEARNING OUTCOME

- Basic knowledge about permaculture
- Awareness about how to use natural material found in the surrounding areas
- Awareness about the potential uses of barren ground
- Awareness about benefits of using a straw



2.3 Planting on raised beds

LOCATION Accra, Ghana

PARTNER

MATERIALS

- Soil
- Water Can
- Water
- Seeds
- Seedlings
- Shovel
- Spade
- Pole and Line

TARGET GROUP

Youth

DESCRIPTION OF THE ACTIVITY

Raised beds allow you to concentrate your energy in a small area, meaning you can work, water, weed and fertilize as economically as possible. The workshop aims to explain step by step how to build a raised garden bed.





STEP 1 - Determine the size and shape of your garden

Once you have selected your site, make sure that you can access all parts of the garden without stepping into the bed. It is a good idea to keep the garden

around four feet wide, because this way you can access the middle of the bed from either side. In terms of depth, ten to twelve inches would be ideal.

STEP 2 - Preparation of a raised bed

Once you know the size and shape of your bed, you can get to work preparing the site. How much preparation you have to do depends on the depth of the bed you're planning, as well as the plants you're planning to grow there. To ensure that your plants' roots have plenty of room to



grow, it is a good idea to dig out the existing sod and loosen the soil with a shovel or garden fork to a depth of eight to twelve inches.





STEP 3 - Level Your Frames

Using a level, make sure your frame is levelled in all directions. This is a necessary step because if your bed is not levelled, you will have a situation where water runs off of one part of the garden and sits in another. If a part

of your frame is high, just remove some of the soil beneath it until you have a levelled frame.



STEP 4 - Plant or sow seeds and water the soil

ACTIVITY DURATION 5 hours

LEARNING OUTCOME

Specific skills on urban gardening: measure and divide a land, how to plant both seeds and seedlings.



2.4 How to make a DIY hydroponic garden?

LOCATION Beijing, China

PARTNER CANGO

MATERIALS



Water blocking



planting holes



plug trays

cultivate box

TARGET GROUP Students

DESCRIPTION OF THE ACTIVITY

Hydroponics is a subset of hydro culture and is a method

of growing plants using mineral nutrient solutions, in water, without soil.

STEP 1

Preparing relevant materials, in terms of seeds, sponge blocks with small hole in the center, thin sticks, plug trays, cultivate box, water pump, scissors.





STEP 2

Put the top of the thin stick into water, making it moist; then using the moist stick to paste 1 or 2 seeds.



STEP 3

Use the thin stick to put the seeds into the small hole in the sponge block.

STEP 4

Put the sponge block with seeds in to the plug trays.

STEP 5

There are 18 holes in the plug trays overall, so you need to put 18 sponge blocks with seeds into the plug trays.







STEP 6

Put the plug trays into the cultivate box. Under the cultivate box, there is one water blocking used for controlling the water quantity inside of the cultivate box.

STEP 8

Use the water pump to water the seeds, until the water is above the sponge blocks 2 -3 cm, not too high.





STEP 9

Move the cultivate box under the sunshine.





ACTIVITY DURATION 2 hours

LEARNING OUTCOME

• Basic knowledge about hydroponic cultivation

• Features of the plants, threats or problems and how to solve them!







By the term vegetable, we refer to a product coming from the garden. Mainly used for cooking, vegetables can provide a large quantity of vitamins, mineral salt, essential oils and important enzymes for the organism.

Depending which part of the plant is used for eating, we can divide vegetables into:

• Fruit: cucumber, zucchini, squash, peppers, **eggplant**, **tomatoes**;

• Flower buds: artichoke, cauliflower, broccoli;

• Seeds: bean, pea, chickpea, grass pea, lupine;

• Leafy vegetables: lettuce, radicchio, endive, borage, spinach, arugula, catalonia, **cabbage**, chard;

• Stem vegetables: celery, fennel, thistle, asparagus;

• Root vegetables: radish, carrot, parsnip, beetroot, turnip, swede;

•Tubers: potatoes;

• Bulbs: onion, garlic, shallot, leek, spring onion.



3.1 Artichoke

Scientific name: Cyanarascolymus.

Characteristics: Artichoke is one of the most popular winter, edible flower bud of Mediterranean origin. Its use as a vegetable has been well known since the ancient times for its medicinal and curative properties. Botanically, it belongs to the thistle family.

The artichoke is perennial and produces new artichokes every year, so you do not have to re-plant it once established in the garden.

Basic needs for growing artichoke

Weather: artichokes need cold weather to grow up, but not extreme temperatures. Mediterranean warm weather is the most suitable for its production.

Planting: Winter

Maturity: 100-150 days.

Harvest Season: Spring.

Sunlight: Full sun.

Watering: Ideally, drip irrigation.

Harvest: Artichokes are cut from the plant leaving a stem about 5 cm long.

Artichoke plants begin to produce buds from mature flowers. The pointy leaves' vegetable are actually the bud of a thistle plant. These buds must be reaped before they open and flourish, as only the tender leaves that surround the bud and its center are edible.



3.2 Green cabbage

Scientific name: Brassica oleracea var. capitata. Characteristics: Green cabbage has a firm, dense head. Its outer leaves are smooth and vary in color from light to dark green. The inner leaves are white to yellow or pale green. Cabbage is a cool-season vegetable suited to both spring and fall. It belongs to the cole crop family (Brassica oleracea), which includes broccoli, Brussels sprouts, cauliflower, collards, kale, and kohlrabi.

Basic needs for growing green cabbage

Weather: Cabbage thrives in cool weather.
Planting: Early spring or fall.
Maturity: 60 to 120 days.
Harvest Season: Winter.
Sunlight: Full sun, can tolerate some partial shade.
Watering: Cabbage requires regular, even watering.
Spacing: Set plants 40 to 60 cm apart; ½ to 1 m between rows.
Harvest: Harvest cabbage when the head is full and firm

Harvest: Harvest cabbage when the head is full and firm, cut the stalk at the base of the head with a sharp knife.



3.3 Aubergine

Scientific name: Solanummelongena.

Characteristics: it is a vegetable long prized for its beauty as well as its unique taste and texture. Aubergines belong to the plant family of Solanaceae, also commonly known as nightshades, as the tomato, red and green pepper or potato. Aubergines grow in a way that is similar to tomatoes', hanging from the branches of a plant that grows several feet in height.

Basic needs for growing aubergine

Weather: Eggplant grown in temperate climates.

Planting: Spring.

Maturity: 70-90 days.

Harvest Season: Summer.

Sunlight: Very sunny.

Watering: Abundant and regular.

Spacing: As the root system is quite powerful and has a rapid growth, aubergine plant needs space to develop its horizontal roots.

Harvest: The fruit is harvested while still immature, before the seeds are formed, and then I loses some of its properties. The touch will help you understand when it is ready to be harvested, as only when the top of the aubergine is kind of soft it's the time to harvest it.



3.4 Tomato

Scientific name: Solanumlycopersicum.

Characteristics: Tomato is the edible, often red fruit/berry of the nightshade vegetables family. The specie originated in the South American Andes and its use as food originated in Mexico, and spread across the world following the Spanish colonization of the Americas. Nowadays, tomato is the most popular fruit of the world. It is full of A and C vitamins.

Basic needs for growing tomatoes

Weather: Tomato is a plant that grows well in a sunny, moderate climate.

Planting: Late winter.

Maturity: 4-5 months.

Harvest season: Summer.

Sunlight: Full sun! Plant tomatoes where they will get at least 10 hours of light in the summer.

Watering: Water deeply and regularly while the plants are growing. Once the fruit begins to ripen, you can ease up on watering. Water directly on the soil, not on the leaves.

Spacing: Leave room between plants for air to circulate (about a foot circumference around the plant minimum).

Harvest: When tomatoes have a color between red and green it's time to harvest them. Use a knife or small scissors to cut approximately 1 cm from the fruit. Do it carefully without damaging flowers and stems.





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