URBAN

ENGANGING YOUTH WITH
URBAN G RDENING

Handbook to Urban Gardening

Co-funded by the
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1. Introduction

GENERAL

In a modern and rapidly changing world where information and goods know no boundaries, people and societies seem to be looking for ways to make up for some of their time, sometimes free and sometimes available for subsistence. Moreover, urbanization and over-concentration of population in large urban centers create new needs and living conditions that ultimately have direct or long-term effects on the individual and society as a whole. In such an environment, the idea of urban gardening came as another way of using available resources, such as urban areas, combining time and fulfilling needs such as livelihood, employment, socialization, entertainment and creativity.

SCOPE

The main purpose of this handbook is to give a comprehensive overview, so that it is a reference work both for young people who are not familiar with urban gardening and for those who may be interested in dealing with it more systematically.

Organizations from 6 European countries have collaborated under the auspices of the «URBAN - Engaging youth with Urban Gardening Activities» project to design this guide, aimed at individuals or groups wishing to create an urban garden of any size or shape. For this reason, the guide is divided into two sections so that the reader can get a complete and comprehensive picture of both the methods and the reasons for creating an urban garden, and learn what is happening in other countries through a survey of young people and urban gardening experts.

STRUCTURE OF THE HANDBOOK

The first chapter of the handbook begins with what an urban garden is, presenting a theoretical approach to the definition as well as the benefits to our daily lives both personally and socially.

The second chapter, provides a basic background in terms of the knowledge one must have to start an urban garden, either at individual or community level, for growing fruits and vegetables.

The third chapter presents some of the research carried out in the partner countries of the project with target groups of young people and experts in urban gardens, in order to gain additional knowledge about the elements that form the theoretical framework of our handbook.

The fourth chapter mentions the pillars of European legislation regarding the creation of an urban garden, as well as some important information concerning the financing of such a project, mainly in collaboration with the institutions of the country.

The last chapter summarizes ideas and recommendations for action from all partner organizations which contributed to the production of this manual to improve the existing practices you may use to create an urban garden.

The appendices of this handbook are also interesting, as they present the rest of the research, as well as various case studies and best practices to provide the reader with an overall view of the data prevailing in other European countries.

Part A

1. What is urban gardening?

The Food and Agriculture Organization of the United Nations (FAO) mentions that urban vegetable gardens can be much more ecological and efficient than traditional ones, producing as much as 20 kg of food per year per square meter. Furthermore, it argues that in peri-urban and rural areas of the tropics, human health issues are frequently related to malnourishment of the population affecting more than 2 billion people in 2000. (WHO, 2003). The garden may become the principal source of household food and income during periods of stress, e.g. prolonged unemployment, health or other disabilities suffered by family members or agricultural and economic disruption caused for various reasons.

An urban garden can vary from a few household plants in the poorest homes to large agribusinesses. It is found around houses (front, back and side yards, balconies, walls, rooftops, and fences) and wherever temporarily empty land is disposable, such as community spaces or abandoned lands. Urban gardeners are often forced to live in very marginal land because of land speculation. The antagonistic city planners and governments discourage agriculture as an urban land use. In cases where governments have been more tolerant and even supportive of urban agriculture, it tends to prosper.

"The best time to start a GARDEN was 20 years ago. The next best time is TODAY"

#Urban Gardeners Republic

In the literature review on Urban Gardening, many definitions are used to refer to it.

- Urban gardening can be defined as “urban farming” or “urban agriculture” being the most common. Urban agriculture can be closely defined as “the agriculture that happens to fall within or at the edge of a metropolitan area” (Smit, Nasr & Ratta, 2001: 1) or generally as “the growing of plants and the raising of animals for food and other uses within and around cities and towns, and related activities such as the production and delivery of inputs, and the processing and marketing of products” (van Veenhuizen, 2006: 2). Urban farming can also be referred to as “the practice of agriculture or aquaculture” (Merriam–Webster, 2014). In the term “urban gardening”, “garden” can refer to “a plot of ground where herbs, fruits, flowers, or vegetables are cultivated” (Merriam–Webster, 2014) or a container used for the same purposes. Urban gardening is the process of growing plants of all types and varieties in an urban environment. There are many ways to grow vegetables and plants.

- Agriculture and urban gardening have always been associated with the imaginary of the rural environment, and based on this, its related activities were most of the time restricted to such context. As a matter of fact, it has been considered that, in order to feed the urban population, it would be adequate to depend on rural crop production. For many cities of the developing world, this aspect turned out to be rather wrong. One of the main reasons was the scarcity of infrastructure (transports, roads, markets, etc.) and the low purchasing power of the indigent population (Drescher, 2004).

- The inadequate management of resources in various urban areas leads to a decrease in the opportunities of living in a large town. Instruments and tools that could make poverty less intense are not disposable and the interference of international development agencies in this field has been developing in recent years. The progress of urban gardening is one of the major politics that is being adopted to face urban poverty. Another reason is to improve the well-being of city residents. Improving

health conditions allows the development of a more sustainable and stable economic growth at both family and community level.

The dimensions of Urban Gardening

In recent years, there has been a great increase in interest in food and its cultivation. This interest can be attributed to a growing awareness of the consequences of food systems on our own health and the health of the planet. The links between food and broader issues, such as population growth, urbanization, climate change, public health and biodiversity loss are also becoming increasingly clear.

a. Development of the local economies

Urban gardening is considered as a source of income for many poor people. It provides price reductions in the food market and it creates employment opportunities (Agbonlahor et al., 2007). It stimulates the growth of businesses in related activities such as agricultural inputs, food processing, packaging and marketing (IIED, 2011).

In addition, it has several economic benefits to society, such as promoting economic development. Gardens attract businesses and living spaces and are catalysts for business development and promotion of urban life.

"Various studies on urban gardens have depicted that they improve the ideality of residential and commercial areas and increase property values. Urban gardening can also create local jobs and income".

Urban gardening is a local potential to create local economic activities and if its performance is good, it has the ability to attract investors. Indeed, the growing demand for safe, local food is leading to increased opportunities for local food start-ups, which is in turn fueling job creation.

b. Social & Cultural inclusion

Urban Gardening reflects "positive and transformative stories of community cohesion and engagement, social inclusion, poverty and crime decrease, intergenerational education and meaningful work opportunities" (Zeunert, 2018).

POTENTIAL BENEFITS:

- It creates community gathering spaces.
- It builds social capital.
- It expresses and maintains cultural heritage.
- It provides an educational venue.
- It offers opportunities for community activism.
- It contributes to food justice.

c. Effects for mental health

Research shows that physical exercise in the external environment is a positive sign in human psychology (Mitchell, 2012). In addition, the most preferred environments are not purely natural but the urban ones, in which there is quite a strong element of vegetation. This means that the addition of vegetation to the urban environment and not the individual existence of green is what has the greatest psychological effect on the observer (Gidarakou, 2017).

> **"Gardening has a huge range of mental health benefits. From reducing stress, isolation and depression to boosting your immune system".**
>
> Dee Marques

Acting as a stress reliever

Gardening is a welcome break from our increasingly technology-dominated lives.

Grounding and strengthening connections

One benefit of gardening for mental health is that it reduces social isolation.

Staying present

It is a way to practice mindfulness, as all gardening-related tasks (such as digging over, pruning, or weeding) force us to focus on the task at hand.

Finding a sense of purpose

There is a sense of pride and validation in choosing the plants, herbs and flowers that make you happy, and the pride you feel in tending them.

Reducing the risk of Alzheimer's and dementia

It is related to better brain function and improved concentration and memory.

Helping you stay in shape

Weeding, digging, carrying bags and pots around are all good workouts that can help you stay in shape.

Strengthening your immune system

You can boost your immune system by simply exposing yourself to natural light and vitamin D.

"The real value of urban farming.... it's not always the food".

d. Impacts and effects on climate change

Warning: The dramatic changes in weather patterns predicted as a result of ongoing global warming could accelerate disruption of economic systems, shortages of food and water supplies, increases in disease, additional health risks from natural hazards, and large-scale human migration.

Some analyses suggest that gardening and urban planning interventions can significantly reduce the percentage of this phenomenon by introducing energy-saving practices for both stakeholders and citizens. This approach is highly promising for reducing the carbon footprint of urban development. In addition, urban gardening offers the potential for cities to claim some of the attributes now primarily associated with rural living.

Urban gardening, consisting mainly of the resource of trees, is a valuable commodity.

The benefits of trees to humans were most pronounced in their contribution to environmental assets.

For example, plants in gardens were found to play a particularly important role in mitigating climate change and maintaining the environmental quality of communities. Gardeners can help reduce global warming pollutants associated with waste disposal by turning leaves, grass, woody garden clippings, and dead yard waste into mulch or compost and then using it in the garden.

Enviromental Effects and Benefits :

- It increases urban green spaces.
- It mitigates urban heat island.
- It may improve air quality.
- It leads to increased urban biodiversity.
- It increases stormwater capture and infiltration, and reduces runoff.
- It reduces food waste through composting.
- It decreases agrochemical use.
- It reduces carbon footprint.

2. Characteristics and Practice of Urban Gardening

While there is a wide variety of techniques and approaches within urban agriculture, this description is intended to orient the reader to some of the most common features of urban agriculture. The core characteristics of urban gardening practices are summarized below.

CROPS

The most common type of crops for an urban farmer are fresh produce (salad greens, vegetables, berries, and fruit). Fresh produce is less regulated and easier to package and transport than other food products such as meat and eggs.

SOILS AND GROWING MEDIUMS

Growing and maintaining healthy soil can be challenging in urban areas, but it is essential for success. It is considered prudent to check the soil to be used beforehand for possible contaminants, pH, organic content, and soil nutrients. This will avoid possible urban pollutants and ensure that the soil provides the best conditions for growth. For example, urban gardens near bus routes, busy roads or old buildings may have elevated levels of polycyclic aromatic hydrocarbons (PAHs) and lead.

Info: Raised beds are a cost-effective way to farm on sites with contaminated soils or highly compacted soils because they raise the growing medium above the soil surface. Raised beds are relatively easy to construct and allow flexibility and better access for people who use wheelchairs

WATER

Like any farm, a reliable water source is required for irrigating crops, washing harvest and equipment, and general farm hygiene. Water in a city can come from many sources including piped water, well water, and treated stormwater.

INTENSIVE IN-GROUND

To make the most of the small plots typical of urban farms, intensive farming methods maximize food production through a variety of cropping techniques.

Intercropping: planting fast- and slow-growing crops together in the same row allows repeated harvesting of the fastest-growing crops and helps minimize pest problems.

Intensive Spacing: planting with little spacing between plants helps reduce weeds and water evaporation. It is important to watch for restricted air flow, which can lead to disease.

Small-Plot Intensive Farming (SPIN): intensive, gradual planting on a small plot, usually under 1/2 acre.

Square- Foot Gardening: intensive planting in narrow raised beds.

Instead of strictly following the recommendations of square foot gardening, you can take the basic spacing recommendations—then mix it up, planting similarly sized crops together for a more interesting, delicate raised bed garden.

VERTICAL FARMING

Plants are grown in controlled indoor environments such as warehouses, shipping containers, even in homes. It is called vertical farming, because plants are grown in stacked trays. There has been a recent boom in vertical farms growing micro-greens for restaurants.

2.1 Practical steps for creating an urban garden

a. Choose a place

Transplanting seedlings depends on a couple of things:

- Where do you usually plant your seedlings?
- What other seedlings are you going to plant next to them?

Choose a location that receives at least 6 to 8 hours of sunlight per day. Most fruit-bearing plants, such as tomatoes, peppers, cucumbers, and melons, need full sun to produce well. However, do not despair if your garden is a little shady. Leafy vegetables like lettuce, kale and many herbs can tolerate partial sun (3 hours a day or more). Stay away from large trees and roots (these can deplete your vegetables of nutrients and water). Soil matters a lot – if possible, choose a place for your garden where the soil is deep, without rocks.

Tip: Make sure you have easy access to a water source too!!!

If there is not enough space, do not worry. Just take a closer look at what space you have available, e.g. a large yard or the small balcony of your apartment. Here are some additional ideas on where to create an urban garden.

Why not setting up an Urban Garden in your...pocket?

Make your Urban Gardening vertical: If you may not have sprawling balconies but still want to set up an urban garden, this solution is a catchy and smart one. A great option to make the most of your tiny balcony is vertical gardening. You can use stacking planters, railing planters, vertical wall planters and hanging baskets for an amazing apartment balcony garden.

A wall planter is the best idea. You can incorporate a variety of plant sizes, from spillers, fillers and thrillers without much commitment. If you change your mind about where you want the wall pocket, you can move it. And since everything has its own container, you do not have to worry about planting. This is an excellent option especially for beginners.

What to plant in the pockets?

Bromeliads, ferns, begonias, hostas, succulents, air plants and vines all make for great vertical gardening.

No balcony at all? No problem!

You can also bring the pocket gardens indoors and just hang them on a wall where you have to be sure there is not any humidity and/or problem with a leakage of water on the wall surface.

CREATE YOUR OWN GARDEN

If the question is space and you are running out of room or if you want to create your urban garden in an outdoor space, the time is now...! Have you ever thought about creating a garden on the rooftop of your building? The option to build your garden on the rooftop is an ideal way for an urban garden to expand your space. Any unused or even wasted space, can easily be transformed into a green, vital place.

You need to be aware of some serious risks before you start, so that you do not waste time and money.

- If you are a tenant or landlord...you need to ask for property rules.
- If you have free space in your rooftop... you need to be informed about the stability of the building.

COLANDER PLANTERS

Hang spring flowers in colorful flower strainers to beautify your porch in unexpected and truly unique ways.

All you need is soil, plastic pots and your colanders from the kitchen.

BOOTS, GET TO WORK...

Turn your forgotten willies into planters and upcycle your discarded boots. Simply fill the boot high with soil and place seeds inside. Do not forget to water your plants as needed. Otherwise, drill holes in the soles and place small pots at the top of your boots. The pots will sit nicely.

RECYCLED TIRE PLANTER

Although there's nothing exciting about old tires, a few slats of wood and a few coats of colorful spray paint can miraculously transform them into delightfully cheerful backyard planters. Whether you have room in a backyard or not, just take a small tire and hang it on your wall.

TURN THAT PLASTIC INTO SOMETHING AWESOME.

Use your plastic bottle for another upcycling trend. Cut it into the «heart» with a knife and plant the seeds you want to grow in the container. Virtually any plant that does not eventually grow into a large plant or tree can be grown in a plastic bottle. All plants have roots and they need room to grow down just as the stems and leaves need to grow up.

Herbs are a great plant to start with as they are relatively easy to grow . Another great option is vines or ferns, but climbing plants may need support if you want them to grow upwards. It's important that you do not overcrowd the seedlings or plants in a bottle. We recommend a maximum of two small plants per bottle.

COMMUNITY GARDENS

Community gardens are plots of land, typically in a city or densely populated urban area, used by individuals or families to grow their own food. Gardens may also be used by residents interested in selling food for entrepreneurial activities. Gardens are usually created because of the interest of residents who have limited access to land on which to garden.

Often, community efforts to form urban gardens are supported by organizations within a community or neighborhood. Due to the fact that these efforts reflect the communities from which they emerged, the gardens come in all shapes and sizes, and reflect the needs and values of the area.

b. Best Practices from Lithuania: Urban Community Garden

In the Lithuanian context, two good practice examples were selected: Silainiai Gardens in Kaunas and Ideas Garden in Vilnius. Although both initiatives have been established recently (2018-2019), they have already managed to achieve remarkable results: gather surrounding community, create ecosystem and implement several inspiring activities. The distinguishing feature of urban gardens is their focus on people: the main goal is not to collect the harvest, but rather to bring local residents together, engage the community and create a sense of belonging. Indeed, both gardens define themselves as "Community Gardens", implicating that they do not serve only as means to grow plants and vegetables, but also as a platform for implementation of educational activities, innovative ideas and creative workshops.

Three groups of participants tend to get involved in urban gardening activities: young people, elderly and families with kids. Participation brings various benefits to them:

- Young people are free to engage in experimentation, creativity and innovation. They also have a chance to meet new people and develop social skills (cooperation, teamwork, independence, etc.);
- Elderly have an opportunity to keep themselves busy, engage in physical activity and fight loneliness / social isolation;
- Families with kids use gardens for educational purposes: children have the opportunity to learn new skills and gain a common understanding about gardening, nature, sustainability.

Although urban gardens are sustainable from the perspective of community involvement, both are still operating on the basis of informal community. This means that mediators (founders of the initiative) play a major role in keeping gardens active. Amendments in the legal base and strategic documentation would help urban gardens to formalize their activities and ensure long-term sustainability.

Another challenge that both good practices face is a lack of funding. Urban gardens do not have one source of funding: income is generated from the symbolic membership fee, voluntary contributions of the surrounding community and project-related activities. Silainiai Gardens are in a better position, as they receive annual financial support from Kaunas City Municipality.

On the other hand, Ideas Gardens successfully utilized an innovative financing model – crowdfunding. This form is seen as a potential way of generating extra funds. Overall, urban gardens in Lithuania play a primary role in densely populated districts (so called “block apartments”) that face a shortage of parks, gardens and other green areas. They are immensely significant in community building, improvement of social climate and overall quality of life of local residents.

2.2 Getting seeds and plants

There are a few different types of gardens:

- Edible: Fruits and Vegetables
- Herb: Culinary Herbs, Tea Herbs, Medicinal Herbs
- Flower Gardens
- Succulent Gardens

When planning your garden it is important to think about what you need and use. Gardeners can grow plants in a variety of ways. Some plants are grown from seeds that are planted out in the garden. Nevertheless, some plants are grown indoors, because it is still too cold outside to grow anything, and then transplanted into the garden, when the weather is warm enough. Still other plants are not grown from seed at all, but from bulbs (like garlic and many flowers) or other plant parts (like potatoes). Perennials (plants that live for many years) can also be dug up and divided into many small plants. Celosia is grown this way, as are many flowers and herbs.

Whatever you plant - a seed, a transplant, a bulb, a piece of a large perennial plant - you have to get it from somewhere. There are many possible sources of plant material. The easiest place for many people to get seeds is at a local garden store or hardware store.

Tip: Before you get started, read the packaging and decide what you want.

Things to Know If You Want to Start Saving Seeds

1. Growing a plant to save its seed is totally different than Growing it to eat:	And usually you do not get both. In order for a plant, such as lettuce, to produce seeds, you have to wait for it to send up its gangly flower stalks, which eventually produce tiny seed pods.
2. Save seeds from the best plants:	To save seed is to participate in the process of natural selection. If you save only the seeds of the largest plant or vegetable and replant them year after year, you will end up with seeds that produce plants where all are larger. The same applies for almost any other trait. Each year, save the seeds of the first fruits to ripen. If you want disease resistant plants, do not save seeds from those that are disease infested.
3. Seed saving can be stinky & tedious:	Plants hold their seeds in a series of pods, husks, capsules, and other casings that are often not easily removed. This process varies by plant species and requires some difficult techniques that you will probably do by hand or with some special tools.
4. Seeds aren't viable until fully ripe:	You have to wait until the seed is fully mature before harvesting, because if it is picked too early from the plant, the seed will not germinate. Optimal seed maturity is usually later than optimal harvest maturity.
5. Proper storage is important:	Dried seed should be stored in paper envelopes or seed packets labeled with the name of the variety and the date of harvest. To ensure longevity, store seed packets in canning jars in a cool, dark place.

2.3 How to seed

"Easy steps to grow vegetables and flowers from seed"

Growing plants from seed is an exceptional way to start gardening. With the right light and some simple equipment, it is easy to grow from seed to harvest. Good choices for beginners are tomatoes, basil, zinnias and cosmos. If you are a beginner, choose these first, and then move on to trickier seeds, like petunias.

1. Get the timing right.

Start by looking at the seed packet, which should tell you when to start seeds inside.

Source: https://gardenerspath.com/

2. Find the containers.

You can start seeds in almost any type of container, as long as it is at least 2-3" deep and has some drainage holes.

Source: https://gardenerspath.com/

3. Prepare the potting soil.

Start with a fresh, sterile mix that will ensure healthy, disease-free seedlings.

4. Start Planting.

Check the seed packet to see how deep you should plant your seeds.

Source: https://gardenerspath.com/

5. Cover the seeds and press the soil.

Source: https://gardenerspath.com/

6. Keep the seeds moist.

As the seedlings grow, use a mister or a small watering can to keep the soil moist but not soggy.

Extra Tip: You can plant your seeds in eggshells. They add nutrients to the soil, as eggshells are particularly high in calcium, and they deter certain pests and insects because of their coarse feel.

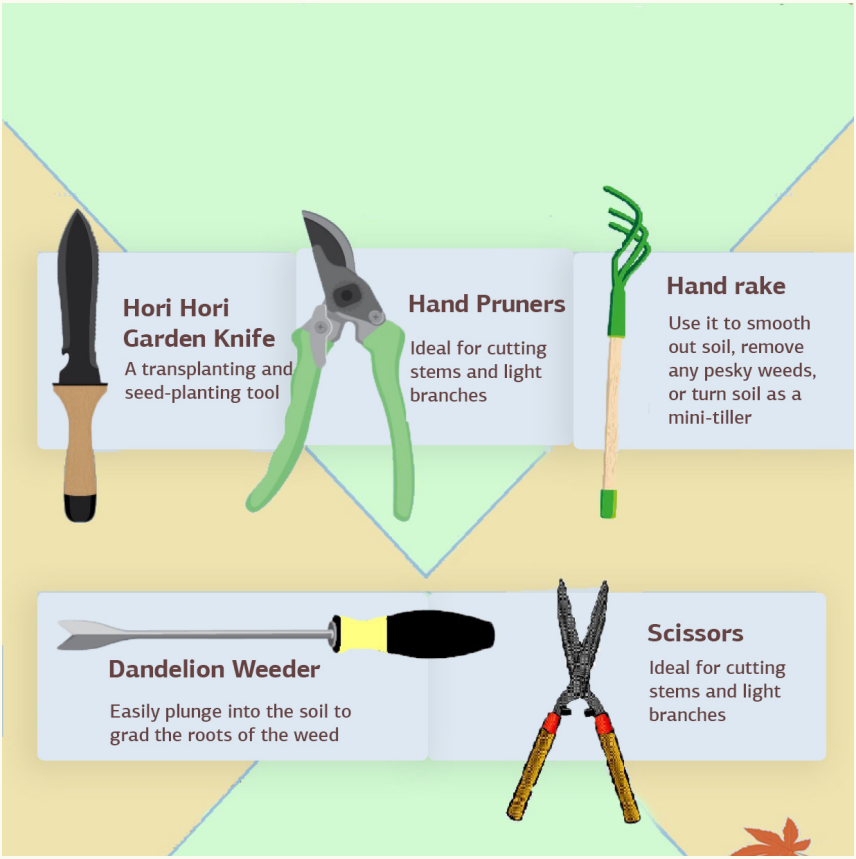
2.4 Tools that you need

When you decide to get started in the garden for the first time, one of the first steps is to buy new tools to make your work easier.

First, you should consider a few things about care. Novice gardeners often do not realize the toll that gardening can take on their bodies.

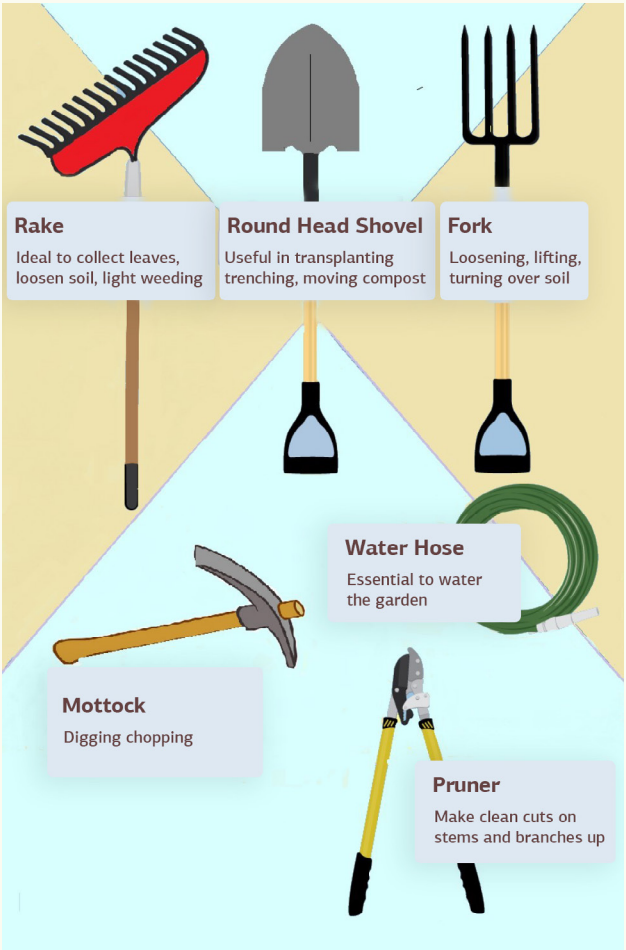
- **Gardening hat:** Sun protection is absolutely necessary in the garden. When gardening, you will often be in positions that expose parts of your body, so a gardening hat will protect those areas that are vulnerable to burns.
- **Gardening gloves:** The best type for a beginner is often a lightweight, synthetic leather material with reinforced tips. These will offer you enough durability to protect yourself from sharp objects, with enough flexibility to still be a practical glove.

- **Knee Pads:** Kneeling for hours on hard, uneven ground is a surefire way to ruin your knees over time.



- **Hori Hori Garden Knife:** Often referred to as a “soil knife” or “weed knife”, the popular Hori-Hori knife is a multi-purpose tool used for both digging and cutting. Its steel blade is sharp on both sides and has a semi-sharp point at the end.
- **Hand pruner:** Hand pruners are mostly used for cutting branches and trunks. While this violates the “more than one purpose” rule, pruning is such an important garden activity that it makes sense to have a special tool for the task.

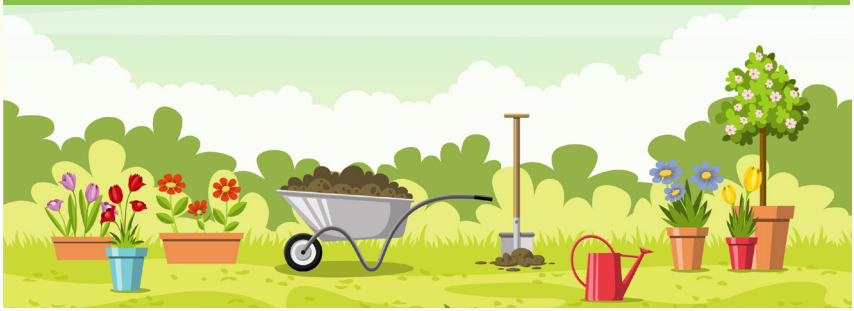
- **Hand Rake:** The hand rake is your go-to tool for tilling the soil. You can use it to smooth the soil, remove pesky weeds that your Hori has not taken care of, or work the soil as a mini plough.
- **Dandelion Weeder:** It can make your weeding easier without chemicals and without harming the soil and grass in your yard.
- **Scissors:** Garden scissors are a versatile example of these tools. Moreover, they are an important tool to have on hand every time you go into your garden or flower beds. They are strong enough to trim hard branches from trees and shrubs.



- **Rake:** A rake will allow you to remove stones, rocks and clogs from the ground before planting. Besides this, it is used for leveling and smoothing the surface of the soil or for gathering debris such as leaves and weeds.
- **Round Head Shovel:** A shovel is a prerequisite for most jobs around the garden, particularly those that include digging and the removal or addition of loose gardening materials such as compost, fertilizer, mulch, soil, etc. Whether you are scooping away weeds or you are spreading on mulch, digging a deep hole or filling a bed with compost, a high quality shovel will be of great value to you.
- **Fork:** A garden fork is a versatile tool. It can be used to aerate lawns, loosen compacted soil, make holes for seeds, mix in tillage, remove rocks and weeds, and soften hard soil. With its sharp and powerful tines, it can penetrate difficult terrain more easily than a spade.
- **Mattock:** used for digging, prying, and chopping. It has a long handle and a stout head which combines either a vertical axe blade with a horizontal adze (**cutter mattock**), or a pick and an adze (**pick mattock**).
- **Pruner:** A long-handled pruner will help you tend to hard-to-reach areas of the garden, most notably pesky tree branches blocking your sun.

"Gardening is the art that uses flowers & plants as paint and the soil and sky as canvas."

Elizabeth Murray



2.5 Design an urban roof garden

In most urban areas, a gardener is limited in the amount of space needed. If you find that you are simply running out of space, or if you desire an outdoor living space, then things could literally be looking up for you as well. You may want to think about creating a rooftop garden. Rooftop gardens are a perfect way for an urban gardener to expand their space. Rooftop gardens are environmentally friendly and a beautiful addition to urban homes. If you live in an apartment or house without a garden, you can grow ornamental trees and grasses, flowers, fruits and vegetables in these urban gardens.

Rooftop gardens can be an oasis in an otherwise built-up urban environment. Gardening on a rooftop has a number of benefits - including privacy, and good sun - but there are a few things to keep in mind about urban gardening before you start planting. If you have decided to start your own rooftop garden, here is how to get started.

Rules and local ordinances

The most important aspect to find out is the local ordinances, rental property rules, or homeowners association rules that look at a rooftop garden. Rooftop gardens may be prohibited or require special treatment, and for that reason it is always best to be well-informed on these issues before you spend time and money.

Consult an architect

No matter how good you are technically, mentally or physically, it is always beneficial to have an expert by your side. There are various details that need to be taken care of when building a rooftop garden that you may not know about. The architect will determine if your house is safe and suitable for the construction of an urban roof garden. Some buildings are simply not designed to handle the extra weight that a rooftop garden brings.

Other buildings can handle the extra weight, but may only be able to support a limited amount of weight. An architect or contractor should be able to tell you if this is the case with your building.

Arranging windbreaks for your roof garden

Remember that your roof garden will be much windier than a normal garden. You will need to include windbreaks in the design of your rooftop garden. Try using trellises or another lattice type windbreak for your rooftop garden.

You need to remember that you do not want to eliminate wind flow. You just want to reduce it.

Deciding on the watering system

You need to consider how you plan to water the plants in your pretty patio garden. Your plants will need to be watered frequently and, of course, you do not want to carry heavy buckets of water up to the roof every day, as this is not practical. Therefore, it is important that you come up with a good solution beforehand.

Setting up the soil

The soil is often the least interesting thing to a new gardener, but it is the most important part of your garden. Good soil means healthy plants and less work for you. If you are growing in containers and raised beds, you have the advantage of being able to bring soil with you (rather than being stuck with what is already on the ground). The amount of soil needed varies, so research your choices before planting.

Info: Soil in containers needs to be replaced regularly, usually every spring. You can lift the soil and repot or simply re-fertilize the existing soil.

Choosing the right plants for your roof garden

Since most rooftop gardens get large amounts of sun during the day and are potentially very hot, drought-tolerant plants are strongly recommended. Consider the sun exposure and winter hardiness zone of the roof. Owing to the fact that roofs retain heat, they can create a microclimate about one zone higher than a garden on the ground. You will need plants that can handle the heat, but since they are in containers, they probably will not have better cold tolerance than gardens planted on the ground.

Some good plants for a rooftop garden are plants with a limited root system which do not need a lot of soil, like herbs and vegetables and small to medium perennials. Trees and shrubs require more soil and larger pots, but you need fewer of them to make an impact.

If you keep these things in mind, you will find that your rooftop garden can provide a lovely and great place for you to escape to!

Part B

In this section, six (6) organizations from different countries collaborated to create an overview of the current situation of urban gardens in Europe. A survey was conducted among young people and professionals, the main objective of which was to present results on views about urban gardens. This section presents the main findings of the survey. The methods, design and instruments are presented in the appendix of this handbook.

A general reference to the existing European legislative and funding framework for the creation of an urban garden to develop basic knowledge in this field was also considered necessary. The second part of the handbook concludes with proposals from each country related to the policy recommendations for the development of the concept of urban gardening.

3. Exploration of the European Project "Urban Gardening"

3.1 General

As part of the URBAN project, we explored existing urban gardening projects and initiatives in the partner countries. To this end, each partner conducted extensive research in the first phase of the project, the most important results of which are outlined in this chapter. The transnational analysis and the overall sample will allow us to proceed into significant results at European level. For the successful implementation of URBAN project, a well-organized and robust research was deemed as necessary to allow project's partners to build upon a strong and solid basis.

The research, following a well-designed and multi-level approach, are addressed both to youth and professionals who work with young people and they are related to urban gardening. The educational material that can be developed, may take the form of an e-learning training platform and a mobile application.

More specifically, all partners of the URBAN consortium were asked to carry out desk research regarding the urban gardening context, the youth situation and the sustainable development process in their countries. What is more, all partners undertook field research by conducting interviews with experts in urban gardening and young people in their country. The results from these interviews, allowed partners of the URBAN consortium to develop a proper analysis about the context, the needs and the potential of urban gardening in each country. In the transnational analysis, there is a large and rather significant sample of both experts and young people, which renders the research one of those few pan European studies connecting the topic of urban gardening with the youth.

The main objectives of URBAN project can be summarized as follows:

- Developing training and learning resources which support the professional development of new and existing Practitioners and Educators in the field of adult teaching.

- Actively involving local milieu youth people threatened with marginalization.
- Develop a training method, program and methodology, including the training module, based on activities connected with setting up and maintaining urban gardens.

3.2 The Knowledge Gap

Based on previous literature review and recording of the existing situation in the community, it has been found that urban gardening's literature and current research are rather limited. Moreover, the various dimensions and implications of urban gardening remain an unexplored field. The main target group of URBAN is young people and especially those vulnerable young people who need to find a way to social inclusion and the labor market.

The various implications and potential benefits of urban gardening are examined in this study, through desk research on each national context and also through interviews both with experts and young people. While sustainable development is one of the key priorities of the EU, the main focus is to examine how "bottom-up" initiatives can contribute equally to the institutional shift towards eco-friendlier policies in Europe. Therefore, the methodology of this study, the sample of the field research and the overall focus in exploring the various implications of urban gardening, aim to contribute to the "common knowledge" about this topic.

3.3 Results of Field Research

Overall, the total sample of the study consists of 90 young people and 60 experts. Therefore, it is a large enough sample to offer a clear view of Urban Gardening at European level. However, as mentioned above, there are significant differences among the countries participating in the study, which means that the results represent a pan European perspective regarding the Urban Gardening potential, needs and characteristics.

First of all, a brief presentation of the demographic data and other relevant facts is given based on the overall sample of all six countries for each target group. Then, the main findings from the research are presented, and finally conclusions and policy recommendations are proposed.

Young people

The sample of the young participants consisted of 90 young people from 6 EU countries. The average age of the participants is 23.3 years old and the gender distribution is 57% females and 43% males. The majority of the young participants in the study (67%) had never participated in any Urban Gardening activities before, which can be considered as a clear evidence that urban gardening is still not popular as a practice, among youth in European cities. Nonetheless, a 33% participating in the past or now in urban gardening looks a promising indication, meaning that 1 out of 3 young people is somehow familiar and/or involved with urban gardening activities.

Another question crucial to the current situation of urban gardening was whether the interviewees were aware of any urban gardening in their local community. Almost half of the participants (45%) responded positively, a sign that urban gardening activities are becoming more and more present in the urban environment.

In the next section of the interview, participants were asked to assess some statements, which would describe their views on urban gardening. At first, participants were asked about how useful they think urban gardening is as a platform to learn new things. The majority of the participants rated high the potential of urban gardening to teach them new things. On the other hand, young participants were rather skeptical about the potential of urban gardening to achieve social and job market inclusion, and as a result this statement was lower-rated. On the contrary, participants seemed to be enthusiastic about urban gardening as a good opportunity to meet new people and socialize. In particular, the vast majority of young people value urban gardening as a perfect place for socializing. Similarly, young people also rated very high the impact of urban gardening to climate change and sustainable development. Lastly, as regards the willingness to participate in a training course about urban gardening, participants' average rate was 5 in a seven-point Likert scale (1 to 7).

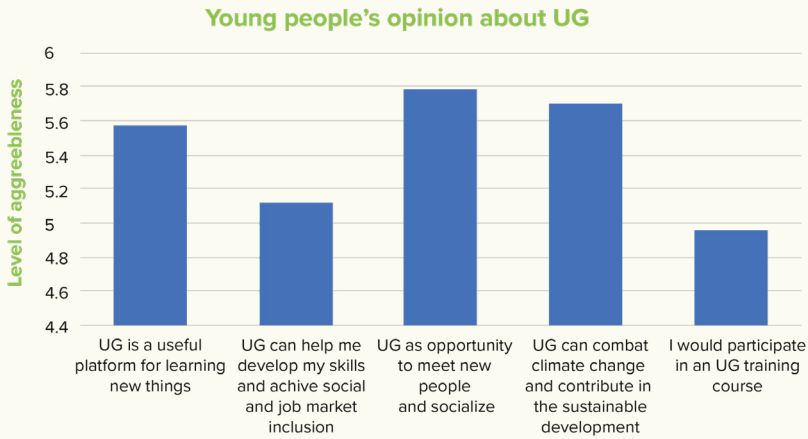


Figure 3.1 : Young people's opinions on UG

In the section of open-ended questions, the main results from the interviews indicate a positive view of urban gardening on the part of the young participants of the study. Young people would like to be involved in urban gardening activities, as they see it as a good opportunity to socialize and make friends. In this context, the vast majority of young people believe that urban gardening is a great tool for social inclusion and youth development. In addition, the possibility of acquiring new skills in urban gardening activities is also valued as important for most of the participants, as it comes out from their responses.

In terms of the potential of urban gardening to open up for them a path to the labor market, young people seem to be rather skeptical. To be more specific, in the question "Do you think that by participating in urban gardening activities you could increase your chances to find a job?" participants' answers were divided equally between 'yes' and 'no', since 51% (or 37 young people) were positive that participation in urban gardening activities can increase their chances to find a job, while 49% (or 35 people) were not optimistic about that.

However, this possibly indicates the lack of information and knowledge about the true implications and potential of urban gardening in the process of transforming society and economy through sustainable development. In this context, the response of many participants that urban gardening is not promoted much, verifies our view about the lack of information on urban gardening's implications. Therefore, participants argued that urban gardening should be promoted through social media platforms and other new technologies.

Experts

Our sample of experts consisted of 58 people and the gender distribution was 54% females and 46% males. The average age of the sample is 41.7 years old, with the younger participant being 30 years old and the older 76. The average number of years of experience of the experts in urban gardening is approximately 5 years, while the educational background of the majority is tertiary education and bachelor's degree. Furthermore, the vast majority of the experts are currently involved in urban gardening activities, while just a few of them have been involved more than 5 years ago.

The experts, as they are aware of the intrinsic value of urban gardening, highlighted as most important food security, environmental and ecosystem dimensions. In this context, a common theme in all interviews was the positive contribution urban gardening can have to sustainable development. On the other hand, the economic and social dimensions of urban gardening have a lesser significance, according to most of the experts.

The vast majority of experts have experienced at first hand the impact of urban gardening on social inclusion. For instance, many of the experts have worked with migrants or people who belong to vulnerable groups of society and so they argue that urban gardening is one of the best activities that can bring people together.

By the same token, the overwhelming majority of experts acknowledge the power of urban gardening to social inclusion, as from the 58 participants, only one replied 'no', while 57 replied 'yes' to the question: "Do you think urban gardening is a good tool for the development and social inclusion of young people?".

Regarding which category of skills is most useful and necessary for an individual to be involved in urban gardening activities, experts valued as most significant social skills, followed by managerial and last but not least, technical and creative skills. As it can be seen in Figure 3.2, young people's responses are almost in the same line with those of experts. Young people value as well social skills as the most significant for urban gardening activities and afterwards managerial and technical skills. One difference worth mentioning is the average rate of creative skills, as it was observed that young people rate them lower than experts.

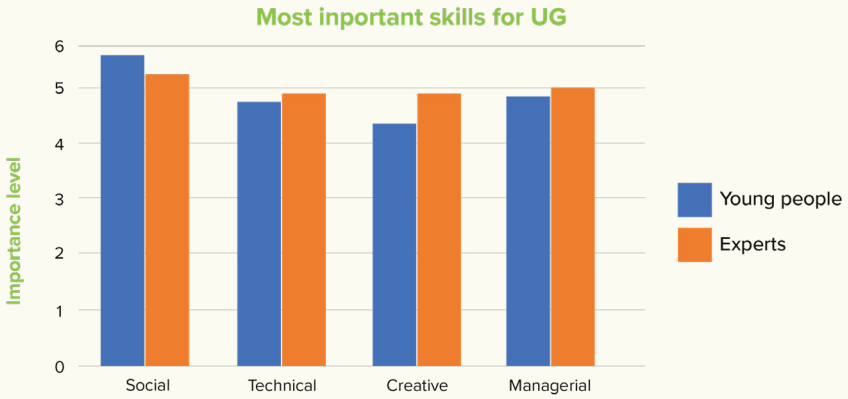


Figure 3.2 : Experts' opinions on most important skills for UG

For the most significant dimensions of urban gardening, we asked both experts and young people to rate six different categories; i.e. food, economic, social, environmental, ecosystem and climate change. The results were more or less similar for both target groups, as ecosystem and environmental dimensions were rated as highly important. Food and climate change dimensions are almost similarly significant for both experts and young people. It is interesting to note that the economic dimension is rated relatively low, while experts give a greater value to the social dimension of urban gardening compared to the young people.

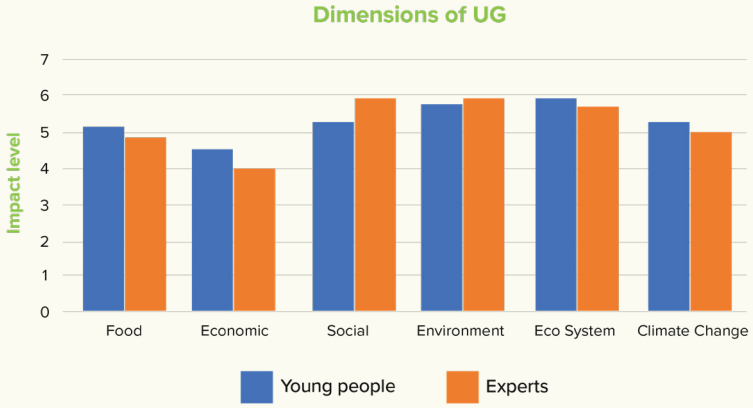


Figure 3.3: Expert's opinions on most important skills for UG

In the section of open-ended questions, experts shared with us their knowledge and experience regarding the background, the potential and the critical success factors of urban gardening. In particular, a common theme observed in the answers of the experts is the need to raise awareness of the value of urban gardening in the local community and the wider urban context.

From a technical aspect, a basic barrier is the lack of infrastructure and sometimes even the difficulty to identify a proper piece of land in the urban context suitable to create an urban garden. Besides, the majority of experts highlighted the crucial role of the local community in the development of urban gardening, as the willingness and the determination of local people can overcome multiple barriers towards the creation and development of an urban garden according to some experts. However, as it was mentioned by many experts, in some of the countries of our study, a shift in regulations and bureaucracy in the national context is of utmost importance, in order to create a friendlier institutional context which allows the emergence and sustainability of more urban gardening initiatives.

According to the majority of experts, a current trend that will enhance the growth of urban gardening is climate change and the need to sustain the ecosystem. In other words, experts are optimistic that the need for sustainable development will ensure that urban gardening is a key factor and a crucial component in the process to re-orientate the structure and function of urban environments. The vast majority of experts believe that urban gardening can contribute to the movement for global sustainable development and climate change.

The critical success factors that the experts propose for the boost of urban gardening include the need for education, coordination, joint ventures from multiple stakeholders and leadership. From a technical aspect, most of the experts highlighted the significance of proper land/space and of course funding. As for the funding, a broad range of opinions was expressed. Some of the experts believe that the state, municipalities or local businesses should fund urban gardening initiatives. Other experts argue that EU should include urban gardening in the main targets of funding, while some other experts think that local communities can afford all the costs, as long as the people involved have the willingness and the proper skills.

4. Legal and Financial Framework for the Implementation of Urban Gardening in the EU

4.1 Legal Framework in Europe

Urban Agriculture as a term of investigation for the European policy has a more relevant focus on bio-agriculture and food safety and sustainability. Under this spectrum, it meets most of the legal preconditions of being “agriculture”. The urbanism of Agriculture is included as a hot topic on the agenda of most European cities and it meets most of the Europe 2020 Strategy’s aims for viable food production, sustainable management of natural resources, climate action, and balanced territorial development.

In a European Union urbanized and air polluted, the European Commission is willing to transform the “grey” literature of green-economy into an efficient and sufficient goal for the new century. In this request, the CAP (Common Agricultural Policy) and the related regulations of the European Parliament and Council, mention urban and peri-urban agriculture as a way of bringing the people back to a more healthy and sustainable ecosystem.

EU policy is mostly engaged with business related draft laws, including opportunities for a greener industry by supporting financial attempts, which refer to the business plans of the people. Food safety policy, agricultural product quality and consumer rights and safety, amongst other policies, have ensured high standards of health and food safety in food consumption and, in particular, food production and processing.

Despite the fact that the EU policy lacks a crystal clear frame for Regulations and Legislations horizontally implemented for all member-states, most countries build the capacities for urban politics locally at a national level.

4.2Financial Tools

While agriculture and Protected Areas are often perceived to be in opposition, they are in fact playing complementary roles. On the one hand, agricultural activities play a central role in the management of EU land and the conservation of its biodiversity, as almost half the territory consists of farmland. On the other hand, protected areas under specified Programs like NATURA guarantee the

eco-heritage for the EU land. Protected Areas and agricultural production are part of the same landscape and of a larger, more integrated rural ecosystem from which goods and services from nature can be optimized by integrated complementary systems.

Requesting the funding for Eco-systems, European Union shows a willingness to support financially in a sufficient and efficient way the member-states for Urban Agriculture by common and regional financial supporting Funds or Investing Plans. Although it seems to be run half-way until now, the CAP, which also defines the activities, limits the issue of Urban Agriculture and narrows the path for the green economy. In some member-states, the financial support is nationally oriented or absorbs funds from sub-funds of the EU, while in some other parts of the Urban Agenda, the EU has a common pathway.

Programs or Funds Institutions regarding this subject are not usually openly announced, leading the member-states to isolative movements and individual national initiatives. Through the years, in many countries the term “Urban Agriculture” has been implemented under the clock of a different each time array. Funding has been seen mainly to be drawn upon European funds, Regional financial programs and some national funds, carrying always a general perspective on environmental sustainability.

5. Policy Recommendations

In many cities, individuals, organizations, and advocates see urban gardening and urban agriculture in general, as a means to increase food access, create financial opportunities and revitalize communities. Many urban farms, regardless of size, offer exciting benefits to create equity and promote these and many other opportunities for low-income communities. This final section summarizes policy recommendations based on barriers and resources related to Urban Gardening activities and opportunities in each partner country. The policy recommendations that are listed below can be used as implementation and enforcement strategies in the national or European context.

Policy recommendations for enhancing urban gardening in Iceland

- Build on and further develop the infrastructure already in place within the municipalities, developing communities within the gardens, connecting gardeners together through the provision of training and facilities.
- Further develop the gardens as a tool to empower youth and marginalized groups within the community. Provide both personal and professional (technical) support to these groups.
- Increase funding to private groups and associations that wish to establish community gardens to promote sustainable living and community engagement (especially those focusing on education, training and empowerment for marginalized or disadvantaged groups).

Policy recommendations for enhancing urban gardening in North-Macedonia

- Pass legislation and policy documents at national and local levels supporting urban gardening and community gardens. Legal and policy frameworks should be designed through a participative process, including all key stakeholders, and they should be informed by the good practices applied to other European countries. Moreover, local governments should pursue urban agriculture friendly zoning policies

and make long-term commitments to urban gardens by adopting language in its zoning codes and its general plan.

- Increase funding for programs that target children/young people and provide training, technical assistance and financial support for start-up or operating costs. Such programs should ensure long-term sustainability and incorporate monitoring and evaluation mechanisms.
- Local governments should identify and provide land and facilities for urban gardening. Cities can inventory public and private land, authorize leasing agreements with private landowners, clear contaminated land, and authorize the use of municipal land.

Policy recommendations for enhancing urban gardening in Portugal

- The continuity of urban agriculture should be enhanced with the main objectives of enabling urban gardens to form a continuous productive network along the municipalities, contributing essentially to food security and reducing the ecological footprint.
- It is also essential to promote knowledge sharing between different generations, with a view to the social inclusion of both the young and the old guaranteeing the temporal continuity of urban gardening activities.
- The main actions to achieve the above-mentioned objective should focus on urban design, which should nowadays include urban agriculture both in green areas resulting from new and existing interventions as well as in areas of patio and equipment, and on the promotion of intergenerational horticultural activities.

Policy recommendations for enhancing urban gardening in Germany

- Urban gardening with young people needs above all the continuity and reliability of such projects with a precise offer and well-thought-out concept.
- The experiences in setting up and further developing urban gardens are very heterogeneous. It is therefore important to take local conditions

and possibilities into account right from the project planning stage. What resources (including and especially time) are available, who can still be recruited to participate, what networks are already in place, with whom can relevant contacts be made? What resources, materials and knowledge are needed and how can they be procured?

- Involve interested parties directly so as to let them take part from the very beginning - and not only when the project is finished. If the idea for a garden is already more concrete or if there is already a district in which the garden is to be built, inform the neighbourhood early on. Community gardens which are actively involved in a neighbourhood facilitate steps into the wider society and garden projects can help shape an urban district by creating opportunities for groups and neighbours to participate.
- The garden should be best reached on foot or at least by public transport. The proximity to the place of residence makes it easier to get into the garden and also to participate in projects and activities.
- Political support can be very important for the success of a project. Lobbying is therefore part of the project's everyday life. All levels of politics should be addressed.

Policy recommendations for enhancing urban gardening in Greece

- Encourage synergies among universities, municipalities and civil society organizations from the local community.
- Seek EU funding opportunities through applications to the Erasmus+ and other EU grants.
- Promote urban gardening activities through social media platforms.

Policy recommendations for enhancing urban gardening in Lithuania

- The process of all stakeholders involved (municipalities, national land services, the Ministry of Environment, urban gardeners and communities) should be initiated.

- Legal matters should be addressed, since they are the main barrier that fundamentally obstruct from further development of urban gardening.
- Later on, a communication campaign should be launched in order to enhance the understanding of urban gardening activities and motivate people to start their own urban gardens.

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Annex I. National Research

In this section, six national reports of all countries that have been participating in the URBAN project, are presented. The main scope of this section is to provide a clear view about urban gardening and its various implications in six different European countries.

In particular, all six reports below follow a same structure, which was seen as useful to be implemented the same in each on. Each report starts with a brief description of the national context regarding urban gardening. Then, a brief description of the youth situation in the country follows, as youth is the many target group of the study. Moreover, information about the sustainable development in the country is given, including any relevant policies and overall process. The field research analysis follows and particularly the results from the interviews with the experts and the young people. Finally, the last part of each national report is the conclusions part, where the main elements and outcomes from desk and field research, form the general national context of urban gardening.

Germany

The national context

In Germany, urban community gardens have many names and different forms: the best known are the Intercultural Gardens, whose “prototype” was created in Göttingen in the mid-1990s. There, community gardening is the starting point for the exchange of people from different cultures of origin. There are also neighborhood gardens, self-harvest projects, district gardens, guerrilla gardening campaigns and the growing number of mobile urban agriculture projects. Common to many new garden forms is that the urban vegetable garden functions as a medium and platform for topics such as urban ecology and urban planning, (world) food, neighbourhood design, local knowledge transfer or trans-cultural ex-change. Currently, they are more than 700 urban gardening initiatives in Germany.

According to a survey carried out in March 2020, Urban Gardening is a comparatively inexpensive undertaking. Most gardens have operating costs of up to 100 EUR per month, and only a few gardens require more than 500 EURs. The legal form of the gardens is usually their own association (or the gardens are a project of another association). From the 214 gardens that took part in the survey, as many as 96 gardens (45.28 %) are supported by their local authority, 79 gardens are supported by foundations (37.26 %). A total of 49 gardens (25.94 %) do not require any funding at all. Funding from the church plays only a minor role, and only ten of the gardens surveyed are located in an area owned by the church. (Foundation Anstiftung, 2020).

Youth Situation

Regarding the situation of youth in Germany, youth unemployment in Germany is low compared to many other European countries. In October 2020, 261,002 people under 25 years of age were registered as unemployed in Germany. However, there are still differences between East and West Germany. Young people in the east are still more often unemployed or find it more difficult to find a training place. However, the exchange between business and politics in the Federal Republic functions quite well. One goal of education and labour market policy is to be able to offer all interested young people a training place locally. This has generally been achieved for the last years, although there are of course regional differences. Added to this we see the effects of demographic change: overall, there are fewer young people and young adults aged between 15 and 24 years today than in 1991. 10.3 million people in this age cohort were in this age cohort immediately after reunification; today there are 1.7 million fewer. This of course also helps to ease the situation on the training market. (Zeit, 2019).

Sustainable Development

As one of the largest economies in the world, Germany has contributed almost five percent to global warming since the beginning of industrialization. Currently, Germany is responsible for two percent of global greenhouse gas emissions. At around 9.6 tonnes, annual per capita CO_2 emissions in Germany are about twice as high as the international average of 4.8 tonnes per capita. Germany is no longer a pioneer in climate protection: in the European ranking, now ranks only 8th (lpb-bw, n.d).

Field research: interviews with young people and experts in Urban Gardening

Demographic characteristics

The interviews carried out with young people (n=15, *M=6, F=9*), aged between 17 and 30 (mean 25.3). The educational level of the sample is characterized as relatively high (53,3% higher education, 40% secondary education) and 66,6% was active in the labor market (four participants were identified as students, and one participant as unemployed).

Interviews were also carried out with experts (n=11, *M=4, F=7*), aged between 24 and 70 (mean 48.6). The participants were active both in the private (27,2%) and in the public (72,8%) sector, in professions related to social sciences and STEM.

Findings

Attitudes of the youth

Based on the interviews with the youth, there was much interesting insight gained regarding attitudes towards learning in general and urban gardening in particular, as well as creative suggestions on how urban gardening could be interesting for this age group. Because experts' statements were relatively clear in this respect - young people very rarely participate in urban gardening projects. As children with their parents, they are still enthusiastic about it, but as young people they often lose interest. This seems to be a contradiction, especially in view of the numerous initiatives for climate and environmental protection initiated by young people and the growing aware-ness of e.g. nutrition (vegan, vegetarian, local/regional food etc.).

The interviewed young people have a positive attitude towards learning in general and consider urban gardening as a good means for learning new things, new techniques, and acquiring new skills and competences. Above all social competences are mentioned in this context. All respondents believe that social skills are important and can be improved in the context of urban gardening. Technical and management skills were not considered so important. It was felt that technical skills did not necessarily have to be brought in, but that they could be taught or learnt, respectively. Management skills were seen as particularly important for those who take on leadership roles in the project.

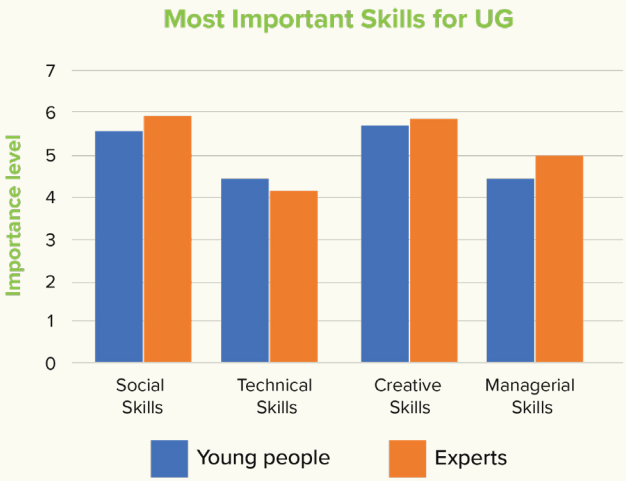

Figure 6.1: Most important skills for UG in Germany

Motivations and benefits for the youth

The main motive for young people to participate in urban gardening activities would be the wish for self-realization, learning something new, expression of their lifestyle, share responsibility and do activities with people that share the same interests. Also, here the social aspect was mentioned several times: young people would like to make new social contacts and become part of a community. The benefits they consider are largely in line with their motives: the social aspect, the joint activities and experiences, the community, are at the forefront. The joy of seeing one's own food grow and harvesting is also mentioned here.

They suggest to also offer DIY activities, such as building an own high bed or insect hotels, keep bees to make own honey, offer cooking events with the own vegetables, collect recipes etc. For them it is also of utmost importance that they can bring in their own ideas and their own strengths without being criticised. Smart gardening (e.g. drip irrigation system) was also mentioned here as an idea of its own - in this way, even young people with a strong affinity for IT could get in the mood for gardening and contribute their own ideas.

Experts' experiences

The experts interviewed confirmed in certain ways the findings from the interviews with the young people in terms of their willingness to get involved in gardening activities. The experts were usually rather skeptical as to whether urban gardening is actually a suitable method for interacting with and involving

young people. The tenor was, for example, that it should not simply be seen as a method for something like social work. A garden is not something that can only be taken out for a class, a work-shop or a short project. Young people rarely have the motivation to participate in urban gardens of their own initiative. More often, however, approaches that are very specifically adapted to the interests of young people by combining urban gardening with other cultural aspects such as music, sports or social media were seen as good options.

In the Göttingen area we were able to find and interview many different experts who are involved in diverse gardening initiatives. The main statements were:

- Although, there were several motivated volunteers who were able to find a place for their they all suffered from a lack of commitment from the participants. Only two out of four volunteer projects are still active today due to a truly exemplary commitment.
- There are also projects, which are financed by public funds for a limited period of time. These experts reported many successes, but these would not be possible without the payment of employed workers, and moreover, some of them are in danger of being wasted after the funding period ends.
- A good example of even more sustainable garden projects is those which have organised themselves as an association. In some of these cases, they have even managed to persuade sponsors and thus stabilize their finances and “personnel” over a longer period of time.

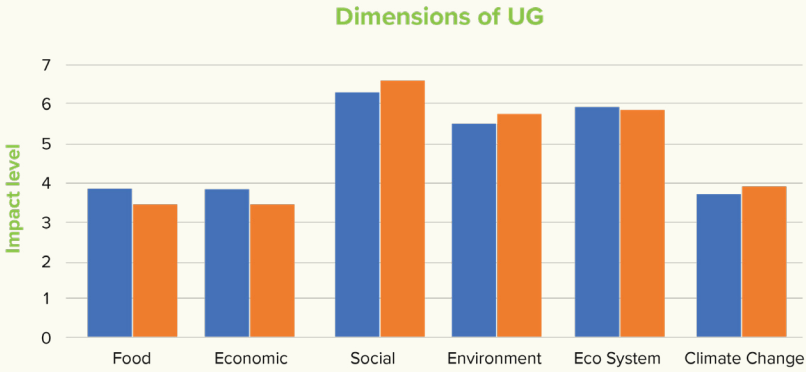

Figure 6.2: Dimensions of UG in Germany

Conclusions from German report

There is a great variety of community gardens in Germany, which are more or less different from each other. The objectives and concepts vary, as do the areas (size, location, condition, owner) and beds (individual, community, size, raised beds), the number and socio-cultural composition of those involved, the possible uses, awareness and integration into the neighbourhood, the infrastructure in the garden and the resources available and which can be activated. The experiences in setting up and further developing are correspondingly heterogeneous. It is therefore important to take local conditions and possibilities into account right from the project planning stage.

Community gardens are created through the cooperation of different people and groups and develop and unfold through commitment and cooperation. It is advisable to involve interested parties directly, to let them take part from the very beginning - and not only when the project is finished. If the idea for a garden is already more concrete or if there is already a district in which the garden is to be built, inform the neighborhood early on. Community gardens that are actively involved in a neighborhood facilitate steps into the wider society, and garden projects can help shape an urban district by creating opportunities for groups and neighbours to participate.

In principle, there is no optimal area size for a community garden. There are both very small projects with only a few square meters and very large ones with several thousand square metres. The design and layout of the garden area depends not only on the nature of the plot and the soil conditions and existing regulations, but also on the ideas, wishes, capacities and the existing or obtainable resources for the clearing or design and any other planned activities. In addition to individual and/or communal flowerbeds/boxes for growing vegetables, herbs, flowers and perennials and a compost, communal gardens almost always have seating and an area for parties, a children's play area, baking, cooking and barbecue areas, an equipment shed or pavilion.

Political support can be very important for the success of a project. Lobbying is therefore part of the project's everyday life. All levels of politics should be addressed. These are municipal, town and country councils and members of the relevant committees (e.g. for integration), and in the case of intercultural gardens, the integration and foreigners' commissioners or councils. They should be informed and invited and can then be asked for support for the project.

Ultimately, it is a local political decision on how to support the Urban Gardening. In a few cities, jobs are actually being created for this purpose, in order to specifically promote the cityscape, interaction among the population and the additional opportunity for social work. Often, however, it is more likely to remain with contact persons from related areas of responsibility. In Göttingen, for example, it is also controlled in this way that motivated people can get the opportunities, but this is also not explicitly advertised and the city can also protect other concerns such as nature and monument protection or the interests of other citizens.

In Germany, Urban Gardening is above all a hobby. This is probably a clear difference to the situations and initiatives in other European countries. In other countries, food production plays a more important role. In Germany far fewer people are confronted with or involved in food production. Food is growing in the supermarket, so to speak. This trend is also reflected in how much money is spent on food in Germany. In comparison, Germany, at 10.8% of income, is well below the European average of 12.1%. (Eurostat, 2018).

Regardless of how big the urban gardening project is or how much funding it receives; a critical success factor is probably always the commitment of the people. The projects are successful if people stay on board and can rely on each other. Young people in particular are usually less ingrained in their habits; they try things out and change their interests. This is probably why it is so difficult for this target group to establish a sustainable UG project. Students are a typical example of young people who get involved and committed in urban gardens. However, they are often unavailable for a long time during the holidays, they tend to move after their studies or for an internship, or sometimes have no time for such hobbies for weeks because of upcoming exams.

Greece

The national context

Urban gardening or urban agriculture were rather unknown terms in Greece, until recently. There was a clear distinction in the Greek society between the rural areas with the agricultural background and the urban areas that had nothing to do with agriculture. However, the recent economic crisis in Greece and the emerging environmental conditions and needs, changed politics, perception and orientation of people regarding the urban environment. In

this context, we can say that the introduction of urban gardening activities in Greece was an outcome of the deep economic recession at first and the need to combat urban food deprivation for those who mostly affected by the crisis. Moreover, urban or community gardening's dynamic harnessed by citizens who felt the need to form communities for socialization and solidarity, but also to demand open and "green spaces".

Regarding the institutional context, 'Municipal vegetable gardens' appeared in many cities in Greece the last ten years, as initiatives of the local authorities to assist the most vulnerable groups, such as unemployed, low-earners, low-pensioners, single parents, etc. (Haniotou, and Dalipi, 2018). Particularly, municipalities of Sykies in Thessaloniki, Alexandroupoli (northern Greece), Volos and Larissa (central Greece), provided some urban or peri-urban areas for gardening to citizens that applied and fulfilled some criteria (unemployment, poverty etc.). This phenomenon was characterized as a "*back to the land*" movement, while some other "bottom-up" initiatives appeared to urban areas, usually with political background, from active citizens who recaptured vacant fields and transformed them to community green fields (Gavriilidou et al., 2015). In this vein, during the first years of the economic crisis, producer-consumer solidarity networks appeared in Greece, such as the "*no intermediaries*" and the "*potato movement*", which provided fruits and vegetables in low prices to citizens in need (Anthopoulou, 2015). In general, urban gardening in Greece is a recent phenomenon that grew during the economic crisis through local networks and municipal initiatives. Apart from the need of access to food for the vulnerable groups of people in cities, urban gardening is a phenomenon that revived the traditional connection of Greeks with the neighborhood and the local community through collective initiatives.

Youth situation

During the last ten years of economic recession in Greece, there was a serios impact in the Greek society, with the most vulnerable and damaged part to be the young people. Even though thousands of young people immigrated to other European countries and the economic situation has been improved recently, youth unemployment is still high as it estimated to be around 30% according to the Greek Statistical Authority (ELSTAT, 2020). It is highlighted that in 2013 youth unemployed was over 50%, meaning that 1 of 2 young people in Greece were unemployed. But even today, Greek youth unemployment is far higher than the EU average (which is around 15%), while it is also the second highest among OECD nations, only behind South Africa (OECD, 2019).

Apart from the general economic situation, which is one of the most crucial factors, there are also other factors that affect youth unemployment in Greece. According to Bell and Blanchflower (2015) the transition from school to work in Greece is difficult from many young people, while the structure of Greek labor market (for instance student part time employment) is peculiar and seems not so beneficial for young people. Moreover, Greek youth unemployment has also a gender dimension (females are more likely to be unemployed than males) and also a cultural dimension (like in most Southern European Countries Greek young people tend to live with their parents for longer than youngsters in central and northern European countries). (Bell and Blanchflower, 2015).

Sustainable development

Greece is a rather small country with a Mediterranean climate and without a heavy industry. However, in the urban centres of Athens and Thessaloniki, air pollution and Green House Gas (GHG) emissions are serious problems that affect the eco system and the quality of life of citizens. Additionally, Greece as eco-friendly country ranks low and particularly 19th in comparison with the EU28 countries. In the same context, Greece finds itself behind the EU average in the indicators of eco-innovation inputs, resource efficiency and on socio-economic outputs (EC, 2019).

Regarding the environmental pillar of sustainable development, Greece has made progress in terms of the Sustainable Development Goals (SDGs) recently. Several policies the last years support a low carbon circular economy and improvement in waste reduction, reuse and recycle and increasing resource efficiency and providing opportunities for jobs creation. In this context, Greece endorsed a National Action Plan on Circular Economy in April 2018, while remains committed to the Paris Agreement and is already in a good place to meet national GHG emissions reduction objectives before 2030, which is the milestone years for SDGs.

In the context of sustainable development goals, Greece is in a process of transformation and modernization of its economy and sustainability. Particularly, the introduction of renewable energy sources includes the full application of Integrated Water Resources Management principles, while the interconnection of many islands to the electricity grid of the mainland by 2030 will reduce air emissions and enhance the climate change mitigation goals. In parallel, with a delay of decades the finalization of National Cadaster and the forest maps, will allow the state's institutions to protect the ecological treasures of the country and regulate and control investments. In parallel, sustainable urban mobility

became recently a priority, in order to improve quality of life for the citizens and protect the eco system. (General Secretariat of the Greek Government, 2018)

Field research: interviews with young people and experts in Urban Gardening

In the Greek study context, interviews were conducted also with young people and experts. The young people were identified from an archive that KMOP keeps with volunteers and beneficiaries from other projects about youth. For the experts, the network of KMOP was also been used and with the method of 'snowball effect' the initial contacts suggested to us more experts from the academic community and the market, allowing us to complete the number of interviews required.

Demographic characteristics

The interviews carried out with young people (n=15, M=6, F=9), aged between 20 and 28 (mean 24.2). The educational level of the sample is characterized as extremely high (81,25% higher education, 18,75% secondary education) and 33,3% is active in the labor market (five participants are identified as students, and five participants as unemployed). Additionally, seven young participants have already experience of urban gardening, as they participated in the past or participating now in an urban gardening project.

Interviews were also carried out with experts (n=10, M=7, F=3), aged between 37 and 63 (mean 49.5). The participants are active both in the private (40%) and in the public (40%) sector, and one of them is self-reported as retired. Regarding the expert's part of the study, the vast majority of the participants have a good experience in urban gardening projects and just two of them have less than two years of experience.

Findings

Attitudes of the youth

Regarding the perception of young people about urban gardening, the vast majority of them consider urban gardening as a great opportunity, first to socialize and then to achieve potential economic or other benefits.

Additionally, they believe that urban gardening can be a good training environment where they can acquire new knowledge and skills. In the

question ‘Do you think that by participating in urban gardening activities you could increase your chances to find a job?’, the majority of the participants (10 out of 15) answer negatively, while they are similarly negative in the question ‘Do you believe urban gardening could become your main source of income?’. It is clear that young people are sceptic or unaware about the urban gardening potential as a tool for labour market inclusion or economic sustainability. In this vein, young participants expressed the view that urban gardening activities should be promoted more in the social media.

Experts’ experiences

The answers of experts were significant to the identification of the true potential and needs of urban gardening in the Greek context. The experts highlighted the need to overcome bureaucracy and provide a series of incentives (economic, knowledge etc.) for participating in urban gardening activities. According to the vast majority, a critical factor for the development of urban gardening is the infrastructure, and that the best source of funding would be coming from EU institutions. However, some of the experts pointed out the need for involving, also, universities and municipalities/ local authorities in the urban gardening process. Regarding the potential of urban gardening to contribute to the social inclusion of participants and also to the sustainable development, the majority of participants gave a positive answer to both.

Skills required and Perceived Impact

Both groups of participants were asked to rate the skills categories required for urban gardening. both groups valued as most important the technical skills (carving, planting etc.). Managerial and Social skills are valued equally in both groups, while experts value creative skills as more important, than they are valued by the young people.

As for the most significant and impactful dimensions of urban gardening, the two groups of participants value environment and climate change equally as highly important, while the economic dimension is rated low from both groups. The two groups have very different perceptions regarding the food and social dimensions, as they are valued very high by experts and in contrast very low by youth. Lastly, the ecosystem dimension is valued as high from youth and relatively medium for experts.

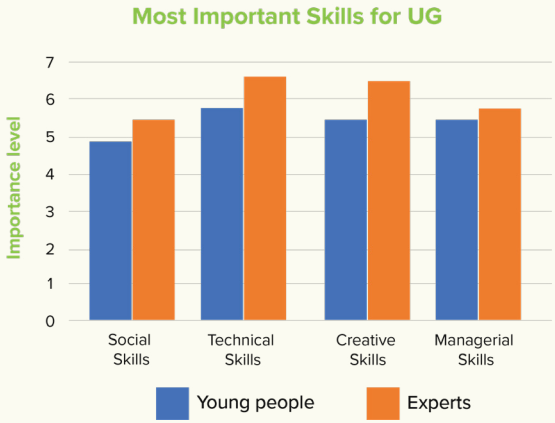

Figure 6.3: Most important Skills for UG in Greece

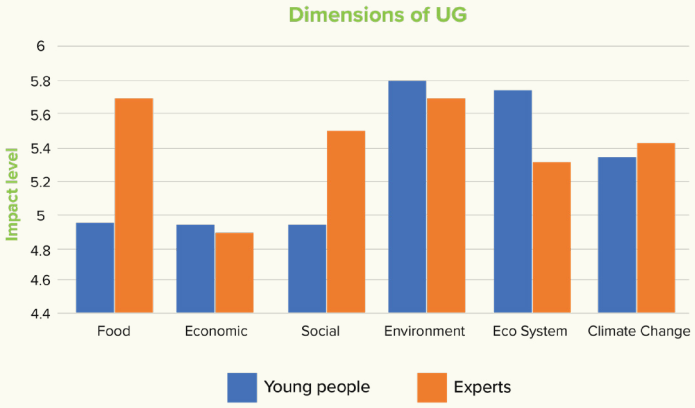

Figure 6.4: Dimensions of UG in Greece

Conclusions from the Greek Report

As urban gardening in Greece is a rather unknown concept for the majority of Greek people, this report identified the basic characteristics of urban gardening in Greece, and also the potential may have for the young people, society, economy, and for the sustainable development and the ecosystem. From the field research and particularly the interviews with experts, the main outcome is that the majority of the participants in the study acknowledge the

potential of urban gardening and the positive impact can have for citizens, the urban environment and the eco system. The young people, who participated in the study, were also positive regarding urban gardening, though some of them are not so familiar with urban gardening activities yet. They believe that urban gardening should be promoted more through social media and other youth platforms. Regarding the potential of urban gardening to open for them a door to the labor market, participants in the study replied positively, but they are skeptical about urban gardening becoming their main source of income. Lastly, both young people and experts rated the environmental and climate change dimensions of urban gardening, as very significant.

However, there are certain policies and reforms that needs to be done, in order to harness the benefits of urban gardening. Particularly, the experts believe that EU funding is the most feasible source of funding, since state or private funding seems to be an impossible option in the Greek context. Moreover, since urban gardening is a community project, synergies and joint-projects could create "bottom-up" initiatives, addressed to various stakeholders and beneficiaries. The involvement of institutions, such as universities, municipalities and CSO's, is highlighted by the majority of the expert participants in the study.

Iceland

The national context

Urban or community gardening in Iceland is mostly run by the municipalities and is built on school-gardens, established for children (8-12 years old) in 1948 in the Reykjavík city and similar in nearby municipalities in the capital area. This change occurred in 2011 in Reykjavík when school-gardens became family gardens, which was implemented in order to save costs and attract the interest of children. In the school-gardens children got training and support to grow their own vegetables as well as getting pre-grown plants and seeds for their croft (RÚV, 2011).

Municipalities also run community and family gardens. In Kópavogur community gardens consist a vital part of the "Public Health" policy as a Health promoting community. Kópavogur municipality provides their gardeners with training and support material, as well as training their garden facilitators in the school gardens (Friðrik Baldursson, 2018). A survey was conducted in 2009 among manager and master gardeners in 21 largest Icelandic municipalities to map

community and school garden activities, of which 13 offered access to such gardens from 15-150 m2. School gardens were run in 11 of the 21 municipalities (Baldursson, 2009).

Today Reykjavík city runs six urban gardens including 20 m^2 plots, 8 m^2 boxes and 100 m^2 gardens. The average age is from 41 years old to 57 years old. A total of 37 young people (younger than 30 years old) rent a garden or 6% of the 645 plots that are available (Reykjavík city, 2020). In urban gardens run by the city, gardeners are not part of a community, their city cannot provide them with contact information about each other according to data protection laws. Some of the school-gardens are now run by association or community groups like in Grafarholt, Grafarvogi and Seljagarðar. In Grafarholt a community group formed association, got the land from the city and old water from Orkuveitan (water distributor), while zother gardens benefit from the existing facilities or basic facilities set up by the city (Heiða Björk Jósefsdóttir, 2020).

Youth Situation

The situation in youth unemployment is worsening due to the Covid-19, with 17.7% unemployment of young people in second quarter 2020, age 16-24 years old. This especially true in the capital area where unemployment of young people reached 19.4%. For comparison average unemployment of young people in 2019 was 8.7%. People with only primary education are 41% of the group, while unemployment rates are similar for both men and women (Expert group of union associations in Iceland, 2020).

Sustainable Development

Urban gardening is not part of overall public policies on sustainability, global warming, and climate change, although some municipalities like Kópavogur, include them as part of the public health policies being a health promoting community. In interviews with experts (see below) it was evident that such gardens usually they are not part of town/city planning and policy, except for Reykjavík city that published their policy on urban agriculture (including gardening) in 2009 and reviewed in 2018 (Reykjavik-city, 2018). Interviewed experts and stakeholders point out that integrating urban gardens into their town/city planning would underline it as important measure towards both sustainability and public participation. While most municipalities have aligned their policies to meet the 2040 Sustainable Development Goals such gardens are rarely mentioned or included.

Field research: Interviews with young people and experts in Urban Gardening

Following are the findings from the interviews with youth and experts. Due to COVID-19 lockdown and limitation we reach out to young people in our personal network trying to get a wide spread of age groups and gender. Experts were identified with a snowball approach each pointing to another as most of them were familiar with each other.

Demographic characteristics

The interviews carried out with young people (n=15, *M=10, F=5*), aged between 16 and 29 (mean 23). The majority of the participants is high school diploma holders (53,3%), 26,6% is primary school graduate and an also 26,6% has graduated from higher education. The vast majority (80%) does not participate in an urban gardening project, and only one is currently participating (the rest, had participated in an urban gardening project over five year ago).

Interviews were also carried out with experts (n=10, *M=4, F=6*), aged between 33 and 62 (mean 47.9). The participants are active both in the private (40%) and in the public (60%) sector, mostly in STEM professions (60%). Regarding the expert's part of the study, all participants have long experience in urban gardening projects, as most of them (80%) have over than ten years of participatory experience.

Findings

Youth's attitudes towards urban gardening

Young respondents' interviews enrich the urban gardening literature, by providing useful information on youth's perceived skills and perceived benefits. On their own skills, the youth reported that they are quite proficient in social and technical skills. On perceived skills for urban gardening, they felt that social skills were important as well as technical and managerial skills. On the other hand, the creative skills were perceived as less important.

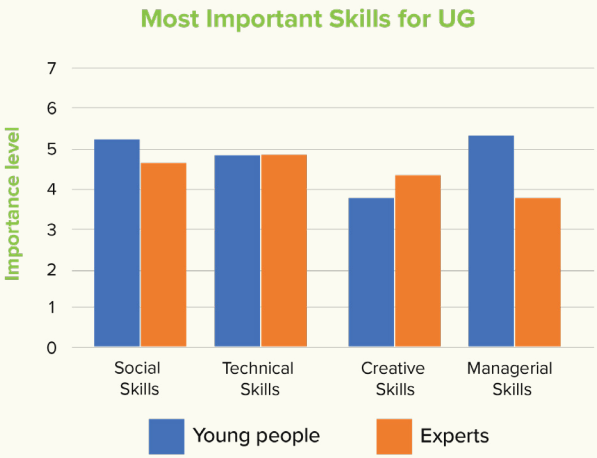

Figure 6.5: Most important skills for UG in Iceland

On education and urban gardening, the highest rating factor was that urban gardening could combat climate change. They next reported that they enjoyed learning for its own sake and that urban gardening could be a useful platform to learn new things. Interestingly, the lowest score was on the likelihood that they would participate in an urban gardening training course.

On different dimensions of urban gardening respondents emphasized environmental, ecosystem and climate change rather than social, technical or food security dimensions. However, when they were asked about higher purpose, some did not respond, while other mentions to reduce their ecological footprint and decrease consumerism.

On the benefits of participating in such a project, the most responses where to learn something new, get out and about, fresh, and eco-friendly vegetables, to enjoy while saving money on groceries. None of the respondents thought that urban gardening could become their main source of income nor increase their likelihood of getting a job.

Experts' experiences

Experts' answers on the relevance of different dimensions in urban gardening is different. Some focus on environmental factors, while other believe that the social factor plays the biggest role. In the open questions there is a common

thread where they all agree on the importance of increasing the skills of young people in gardening and this need to become part of their education and national curriculum especially related to environmental issues. Experts expressed, also, their concerns on the abolishment of school gardens ("*We have generations that do not know anything about growing vegetables*"). All of them felt that it would be very much in the spirit of young people today to engage in urban gardening as their contribution to fight climate change and global warming.

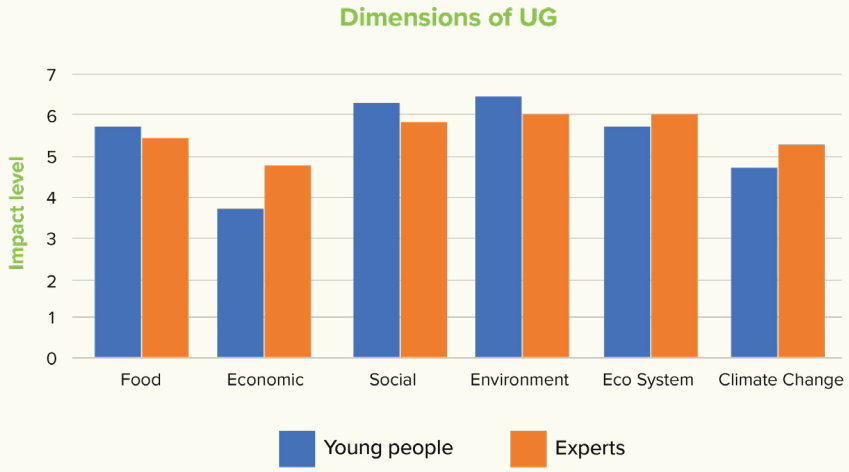

Figure 6.6: Dimensions of UG in Iceland

Discussing factors necessary to create a successful urban gardening project, experts within the privately run gardens expressed a range of idea. Keeping the community alive was, for the respondents, of great importance, by posting news/pictures on Facebook or/and by organizing events etc. Having a coordinator or a leader that keeps people active is considered important, as well as providing support and training.

Conclusions from the Icelandic report

The overall conclusion of the report is that privately run gardens provide a more holistic support to participants, partly because they are all interested in gardening beforehand but also due to the coordination and encouragement provided by leaders/coordinators/employees to the gardeners. Creating events and keeping the community informed and interested are key success factors as well as providing professional support especially for beginners.

Based on the interviews conducted with the experts, it is concluded that community gardens can become a vital part of city/town planning as well as contributing to the sustainability, eco-system and social cohesion of communities. Experts agreed that introducing young people to urban gardening is vital and most of them think that the best way to do this is to work directly with the schools, providing children and young people with basic training in vegetable gardening in urban areas as part of the measures that we ourselves can take to combat global warming and develop a more sustainable and eco-friendlier lifestyle.

All experts agreed that urban gardening could be a tool to empower youth and in rehabilitation in general, being grounded or earthed was good for the soul and wellbeing of every individual. It is interesting that the leaders and key experts behind both Gróandi and Seljagarðar are young people with vision that focus on sustainability and urban gardens to combat climate change and global warming. All experts interviewed believe that sustainable gardening is a way to empower people, improve mental health and as integral part of rehabilitation.

Lithuania

The national context

In Lithuania, urban gardening is still in the very early stages. There are only a few initiatives that are functioning successfully only for few years (Silainiai Gardens, Ideas Garden Pilaite, etc.), while there are not so many new initiatives arising. Thus, there is much potential for urban gardening to be encouraged. For that, relevant institutions must clearly define in the statutory base the concept of urban gardens as well as rules for establishing and maintaining urban gardens;

fortunately, there are initiatives coming this way: Vilnius City Municipality is participating in URBACT project that aims to create a functioning formal structure in order to foster the establishment of new gardening initiatives. This is a very important step for the development of urban gardens in the country.

Youth situation

Considering the youth and their opportunities in the country, there is a positive trend in the recent years in youth employment. Youth unemployment (15-29) in 2019 was 8.7%, while back in 2015 was 21.4% (Department of Statistics to the Government of the Republic of Lithuania). The main reasons for youth unemployment are the following:

- Not acquired or insufficient professional qualification;
- Inadequacy of the acquired qualification to the needs of the labour market;
- Lack of practical experience;
- Lack of youth job search skills;
- Young people's motivation, lack of social competencies;
- Quality jobs and high expectations of young people.

As it is officially declared, the main reasons for this unemployment are: insufficient professional qualification for the needs of the labour market; lack of practical experience; lack of youth job search skills and social competences; and finally, the high expectations of young people. It is important to address the aforementioned challenges and create better conditions for youth employment in Lithuania.

In this context, the two most relevant objectives are 1) lack of practical experience and young people's motivation and 2) lack of social competencies. As explained later in the report, youth participation in urban gardening activities can help young people to obtain practical experience as well as to improve motivation and social skills.

Sustainable development

The most alarming issue regarding sustainable development is the impact of climate change. Recently conducted analysis (Greenmatch, 2019) shows that Lithuania is severely affected by temperature changes. At the same time,

country states that it is doing everything according to agreement with the EU to fight climate change. Nonetheless, it is very important to create strategies and initiate activities that can combat with the impact of climate change.

Field research: interviews with young people and experts in Urban Gardening

Demographic characteristics

The interviews carried out with young people (n=15, ***M=4, F=11***), aged between 16 and 24 (mean 19.9). Most of the participants are bachelor holders (66,6%) and a small percentage is high school (20%) or primary school graduates (6,6%). The vast majority (86,6%) does not participate in an urban gardening project, and only two are currently participating.

Interviews were also carried out with experts (n=10, M=3, F=7), aged between 27 and 61 (mean 38). The participants are active both in the private (50%) and in the public (50%) sector, and are mostly active urban gardeners, municipality personnel that works on city planning and greeneries in the city as well as representatives from national institutions.

Findings

Youth's attitudes towards urban gardening

The study found that young Lithuanians have the perception that urban gardening activities do not provide many benefits or create new opportunities, and that they have only a limited impact on future employment. It is seen more directly and understood that the skills acquired in urban gardens could be relevant to employment positions in "*agriculture, ecology, environment protection only*". However, some participants add that urban gardening help to improve social skills that may have indirect effect to their future careers. Alarmingly, there are participants that do not see any positive effect on their future careers. As for the most important skills to participate in urban gardening activities, the young Lithuanian participants valued as most important the social skills and a little bit lower the managerial skills.

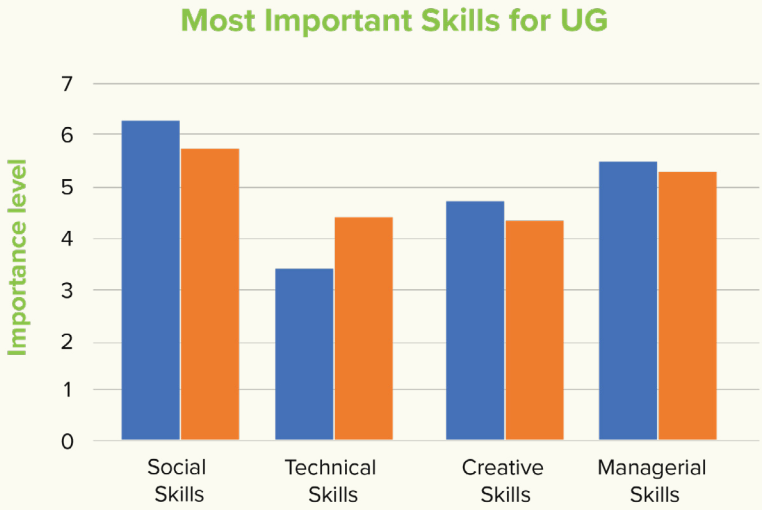

Figure 6.7: Most important skills for UG in Lithuania

Moreover, young people do not think that urban gardening can generate income. Besides the critical approach towards employment possibilities, the majority of youth agrees that urban gardening can increase social inclusion of young people: "*it gives a great opportunity to meet and get close to new people. Also, to engage in activities that are meaningful and important not only for individuals (that are directly engaged in gardening activities), but also for surrounding community*" says one interviewee.

Experts' experiences

As the pool of interviewees represent the whole "chain" of urban gardening, it is clear that some issues are seen at all levels and are the key elements for urban gardening development. The major aspect mentioned in all interviews, in one way or another, is a lack of clarity. This lack of clarity could be separated into two main areas:

- the lack of clarity in formal and legal base on how to establish an urban garden;
- the lack of definition of urban gardening concept (what urban gardening actually means).

The first problem was perceived even by the members of institutions that might be responsible for filling the gaps in the statutory base. However, it is clear that in order to create a working structure for urban gardens, legal and formally wise, there is a need for several institutions from different levels to come to an agreement. Also, it was highlighted that the law of greeneries could be amended to integrate the concept of urban gardens.

The second problem could be called a communication issue. As urban gardens are a relatively new activity in the country, people have trouble of understanding the purpose and overall concept of urban gardening. Thus, there is a need for national campaign that could be carried out in order to increase the understanding in the society and at local administration level as well.

It is crucial to eradicate these barriers, since all interviewees agree that urban gardening helps to fight climate change and increase youth inclusion. Although interviewees' answers vary in terms of the impact, they all agree that urban gardening should be used as a tool to fight climate change. Immediate effect could be additional greenery in the city, absorption of some CO_2, permeable surface and similar, while the long-term impact would be behavioral change, where people from an early age could see how live ecosystem works, how to cease consumption.

Moreover, urban gardening helps to improve social skills of youth. More importantly, young people are being exposed to different kind of people that they would not meet usually in their circles or other everyday life (i.e. school). Urban gardening is also very welcoming activity, where youth does not need to have specific skills, there is no "eligibility criteria" to be able to participate.

In order to foster this necessary activity, there is a need for funding. The majority of experts listed the following funding possibilities: municipal, eldership, national and private, including membership fee. However, as noted by urban gardeners, there are no existing calls for funding that would support urban gardening activities. All funds secured by their gardens are coming via educational, social or cultural funding mechanisms.

Lastly, experts covered both legal matters and communication including active participation and community involvement matters. It was stated that there is a need for actual formal structure that works on national or municipal level, but an interesting fact is that strong leadership was highlighted as a leverage to the hardship of the establishment process and maintenance of urban gardens. There were other factors mentioned, such as motivation, networks, teamwork, mediator, but they all can be associated with the strong leadership.

An useful finding consists the different overall perceptions of young people and experts, regarding the most impactful dimensions of urban gardening. It worth mentioning that both groups rate food and economic dimensions' low, but especially experts seem that value those two categories as rather insignificant. On the other hand, social, ecosystem and environmental dimensions are valued as very important from both groups.

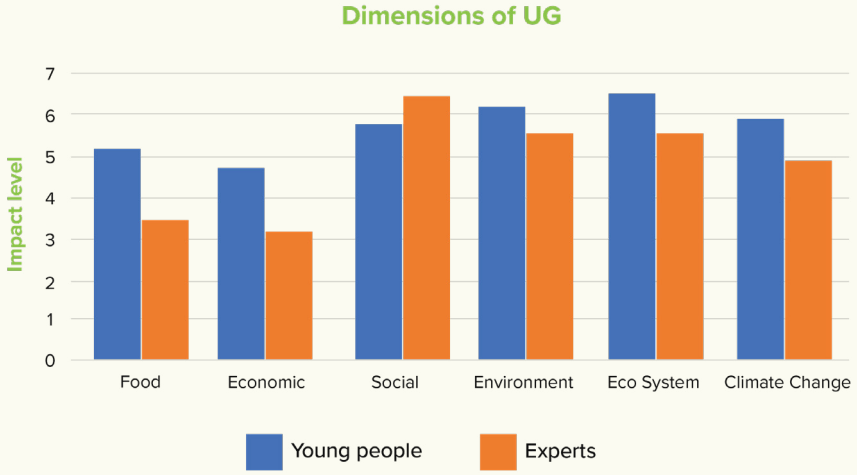

Figure 6.8: Dimensions of UG in Lithuania

Conclusions from the Lithuanian report

In order to increase of urban gardening activities, two main issues must be addressed:

- the lack of clarity in formal and legal base on how to establish an urban garden;
- the lack of definition of urban gardening concept (what an urban gardening actually means).

Fortunately, there is a common understanding that these issues need to be addressed as soon as possible by all stakeholders. Vilnius City Municipality is already finalizing the formal procedure on how to establish and run urban gardens.

North Macedonia

The National context

The urban gardens in the country are mainly household gardens, funded, created and used by individuals within their privately owned areas, including yards and balconies. In the past few years there have been initiatives by non-governmental organizations and academic institutions for informing, educating and supporting citizens in establishing their own private urban gardens. On the other hand, the concept of community-based gardening activities in public spaces is less known.

The first community garden was established in Skopje in 2019, it is run by the non-governmental organization The Green Arch and it is financially supported by the City of Skopje. The garden is accessible to all residents and it shifts the emphasis from mere agricultural resource production to bringing together community residents, strengthening the community, promoting environmentally friendly lifestyles and organic food production. School gardens have been also promoted in the past years mainly through the work of Slow Food Macedonia, that has been supporting elementary schools across the country in starting and maintaining the gardens and utilizing them as an educational resource for the students.

As the concept of urban gardening in public spaces is fairly new in the country, there is no adequate legislative or institutional framework that would support and further enhance these activities. Taking into account the numbers of people, including youth, who have expressed an interest in using the first community garden in Skopje and attending educational activities on urban gardening, it can be noted that the public interest in the field is increasing.

Youth situation

The vulnerability of working youth in the country is a major policy concern as their unemployment rate lies far above the EU average (Petreski et al., 2019). The youth unemployment rate (ages 15-24) for 2020 (II) was 33.8% (State Statistical Office of North Macedonia, 2020). In addition, the proportion of youth who are neither employed nor in educational or training programs (NEET) remains large.

Sustainable development

Majority of the youth live in urban areas, where air pollution is an alarming problem. In 2019, N. Macedonia had the highest annual concentration of PM 2.5 particles in Europe (European Environment Agency, 2019) and 3,400 premature deaths as a direct result of pollution. The enormous air pollution in the winter affects young people's physical and mental health, limits their daily functioning and forces them to stay in their homes (Georgievska and Bojadji, 2020). Despite air quality there are a number of other pressing environmental and sustainability challenges in the country, relating to water, waste and chemicals management, climate change adaptation and mitigation measures, as well as education for sustainable development (UNECE, 2019).

Field research: interviews with young people and experts in Urban Gardening

Demographic characteristics

The interviews carried out with young people (n=15, *M=7, F=8*), aged between 21 and 28 (mean 14.5). The educational level is extremely high (86,6% higher education, 13,3% secondary education), and all Bachelor or Master holders are currently employed. The vast majority (73,3%) does not participate in an urban gardening project, and only four individuals have participated at some point of

their lives. In the context of the field research, most of the young people were familiar with backyard gardens, but only a few were aware of other types of urban gardening activities, such as community gardens.

Interviews were also carried out with experts (n=11, *M=4, F=7*), aged between 24 and 65 (mean 41.8). The participants are active mostly in the private sector (90,9%) and came from different professional backgrounds, including botanists, agricultural workers, academics and NGOs' representatives that are currently implementing or have previously implemented urban gardening projects

Findings

Youth's attitudes towards urban gardens

Social and technical skills were most commonly assessed by young people as skills that they already possess, while technical and creative skills were considered as most needed for participating in urban gardening activities.

Many young people noted that, unfortunately, agriculture and gardening are not generally popular among youngsters. They reasoned that this is due to the fact that more and more people are moving away from agriculture as a result of the migration from the rural to the urban areas, as well as that much more needs to be done so that young people would be attracted to urban gardening. They suggested increasing awareness through social media campaigns and educational activities.

In terms of difficulties in involvement in urban gardening activities, they identified a range of barriers faced by those who want to participate. Among the mentioned barriers, the most prominent ones were the lack of a) urban gardening spaces, b) financial support, c) capacity-building/educational activities and d) information on whether and how certain public areas can be used for urban gardening.

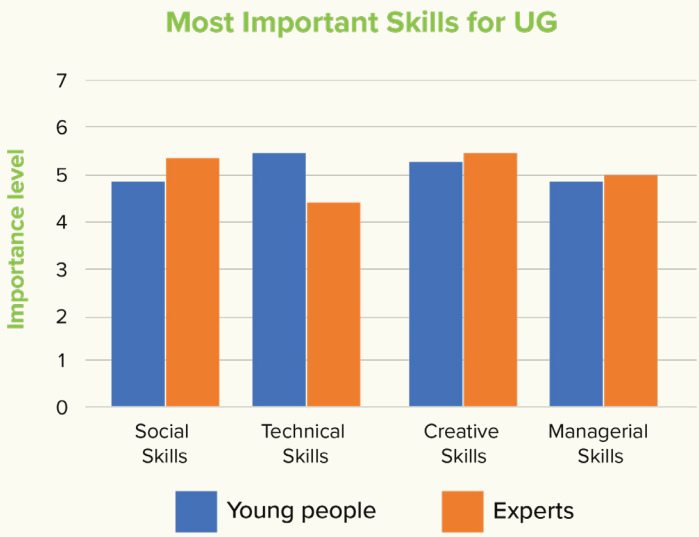

Figure 6.9: Most important skills for UG in North Macedonia

Youth's motives

Young people had different motives for taking part in urban gardening activities, ranging from learning how to grown organic food, doing something that has environmental benefits, spending more time outdoors and socializing with other people with similar interests. Gaining financial benefits was a motive only for very few of the interviewees.

Perceived benefits

It was recognized that young people can benefit from urban gardening in many different ways, such as gaining healthy eating habits, improving their knowledge on sustainability and meeting new people. The young interviewees were unanimous that participation in urban gardening activities could potentially increase their employment prospects, but all of them were skeptical that it could become their main source of income in the future. Still, they noted that this might be the case for some of their peers. They assessed food security and environmental aspects as mostly associated with urban gardening, while economic the least associated.

Experts' experiences

The experts emphasized that adequate legal framework needs to be introduced and urban gardens should be legally regulated and incorporated in the local policy documents. They were vocal that urban planning processes need to be participative, and that the cooperation between the relevant institutions should be strengthened. Additionally, there was a consensus between the experts that urban gardening can help on the sustainable development movement and climate change, not only because it contributes to increasing green areas in the cities and enhancing local food production, but also because urban gardens can set good practices that can be transferred in other contexts.

All of the experts also agreed that urban gardening is a good tool for the development and social inclusion of young people, by helping them obtain working habits, improving their social, technical and other sets of skills, broaden their networks and opportunities for socialization. Many of the experts recognized that gardening can have certain benefits for youngsters' wellbeing too.

Lastly, a spectrum of Critical Success Factors (CSF) for an Urban gardening project were pointed out. The location of the urban garden and its accessibility, the local government support, the management and the gardeners' motivation/ dedication were the factors featuring the top of the experts' CSF lists. In terms of the funding for urban gardening initiatives, all of the experts recommended using multiple sources, including financial support from the local government and academic institutions, donations, grants, research projects, and membership fees. However, they outlined that in the phase of establishing the gardens financial support from the local government is key. The experts indicated environmental and social dimensions as mostly associated with urban gardening activities.

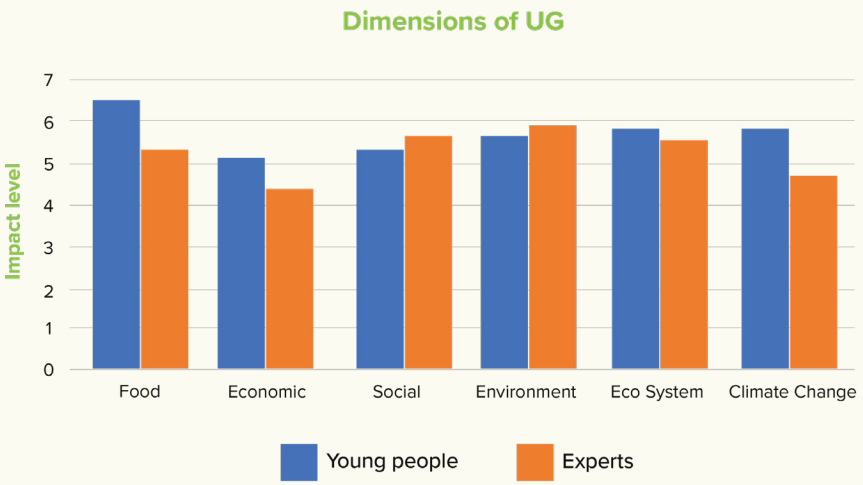

Figure 6.10: Dimensions of UG in North Macedonia

Conclusions from the North-Macedonian report

In North Macedonia there is a small, but buzzling community of individuals, organizations, and advocates that are embracing urban gardening as a means for improving food access, strengthening community cohesion, increasing the greenery in the cities and enhancing learning opportunities on food production and related environmental issues. The existing projects mainly target the general population, and no activities specifically focused on young people could be identified. Even though relevant institutions are becoming increasingly aware of the benefits of urban gardening and increasingly supportive of such initiatives, there is a lack of legislative and policy framework that would lead to more strategic and coordinated approach. Other barriers include, the lack of urban gardening spaces, financial support, capacity-building/educational activities and information on whether and how certain public areas can be used for urban gardening. Both professionals and young people recognize the benefits of participation in urban gardening to youngsters, but also the wider social, environmental and economic benefits.

Portugal

The national context

Urban Agriculture as a concept and purpose is relatively recent in the international sphere and in Portugal. The phenomenon has been exposed by the economic crisis. According to the National Habitat III Report in 2013, 16 of the 18 Portuguese districts develop urban gardens, totaling 27 hectares of productive areas. This accounting represents only a part of today's reality and can be explained, among other factors, by the difficulty of establishing an epistemological cut between Gardens (including Urban) and Urban Agriculture. Regardless of the above, the existing urban gardens in Portugal result fundamentally from two logics: 1) improving the access to food for the poor, for their own consumption, in a line that corresponds to the logic of Southern Europe; 2) or in the attempt to legalise and make «ecologically correct» informal practices in public spaces that do not correspond to the aesthetics of the urban scenario, in the line of intervention of Northern European countries

In Portugal, the following interventions are considered in terms of urban gardening: street vegetation and vegetation barriers along tracks or railways; small urban green spaces (such as gardens or pocket parks) and playgrounds; green roofs and vertical gardens; urban parks and meadows; green corridors and paths (such as green walking/cycling tracks); coastal, river or lake routes, connecting green spaces with blues; playground equipment and urban gardens (such as community gardens, sports and recreation areas and school grounds); and accessible areas in urban woods, forests and wilderness areas. With greater visibility and potential intervention for the benefit of communities and the sustainability of Portuguese cities, several community garden and urban garden projects are emerging.

The economic and social crisis currently facing Portugal, the increase in unemployment and the reduction in household incomes have also increased food shortages. Several institutions and organizations, in particular municipal councils, have not failed to pay attention to this reality, and have therefore been seeking solutions to the difficulties faced by the local population. Portugal thus presents, for the care of these institutions, some experiences in the promotion of urban and peri-urban agriculture, achieved through the construction of organic urban gardens. We are confronted with several successful projects in this field, spread in more than 23 Portuguese cities, aiming at social support, contact with nature, improvement of the quality of life of the population and a greater environmental awareness.

What has been ascertained is that the sources for financing urban gardening in Portugal are legally and institutionally contextualized with the municipal councils. There is also a public initiative that aims to promote social innovation and boost the social investment market in Portugal - Portugal Inovação Social - but which is not directly directed to urban gardening but to finance projects that propose alternative and innovative approaches to respond to social problems. What happens there is the application and proposal of numerous organizations to implement projects in the area of urban gardening.

Youth Situation

Considering the current Portuguese population (10,252,341), young people between the ages of 15 and 29 represent approximately 17.59% of the Portuguese population (1,803,391). Regarding unemployment, in Portugal, one in four young people between the ages of 15 and 24 is out of work, or about 25.6% of the total working population at this age. In June, 81,200 young people were available to work and actively searching, but unsuccessfully, according to estimates by the National Institute of Statistics. In addition, 12.8% of these young people are neither studying nor working. And in July 2020, the number of citizens up to the age of 24 who enrolled in the employment centre increased by 58% compared to July 2019 (CITATION).

Sustainable Development

Portugal ranks 26th on the list of the world's 30 most sustainable countries, according to the report released by the United Nations (UN), which evaluates the performance of 162 countries in the 17 Sustainable Development Goals (SDGs) adopted in Agenda 2030. The major challenges facing Portugal are related to ODS 2, 12, 13 and 14 (eradication of hunger, sustainable production and consumption, climate action and protecting marine life, respectively) and like most countries, Portugal has had a negative performance in ODS 13 - climate action, which consists of adopting measures to combat climate change in national policies, strategies and planning.

Field research: interviews with young people and experts in Urban Gardening

Demographic characteristics

The interviews carried out with young people (n=15, *M=6, F=9*), aged between 16 and 20 (mean 18.1). All the participants were students during the study (two participants were at university level, five at high school level, and one at elementary school level). In term of participating in urban gardening projects, only one girl had participated four years ago.

Interviews were also carried out with experts (n=10, *M=7, F=3*), aged between 33 and 50 (mean 42.6). The participants are active in both private (four participants) and in public sector (two participants), and all of them have some experience in urban gardening projects.

Findings

From the interviews with the *young people*, we can draw the following main conclusions:

- Most young people can perceive the added value and potential of urban gardening (its usefulness, the possible increase in personal and social skills, fostering social inclusion and positive influence on the environment).
- Most young people understand the benefits of their participation in urban gardening activities as something that can add to their personal life, and they do not seem to be aware of the social added value and possible environmental impact. However, they mostly believe that this activity can become their main source of income.
- All young people believe that urban gardening is a good tool for the development and social inclusion of young people.

From the *expert* interviews we were able to draw the following main conclusions:

- For the most part, they consider social, technical, creative and managerial skills necessary for the development of projects in the area of urban gardening.

- For them, the best strategies to improve the perspectives of urban gardening for young people would be to raise their awareness of climate issues, to enhance the sustainability of our cities, to improve the environmental quality and creating incentives to increase their participation in these activities.
- As for the possible barriers faced by those who wish to engage in urban gardening activities, the lack of knowledge and technical skills, the lack of incentives for their implementation and the lack of financing were mentioned.
- All respondents agree that urban gardening contributes to the sustainable development movement and the reduction of environmental impact and is a useful tool for the development and social inclusion of young people.

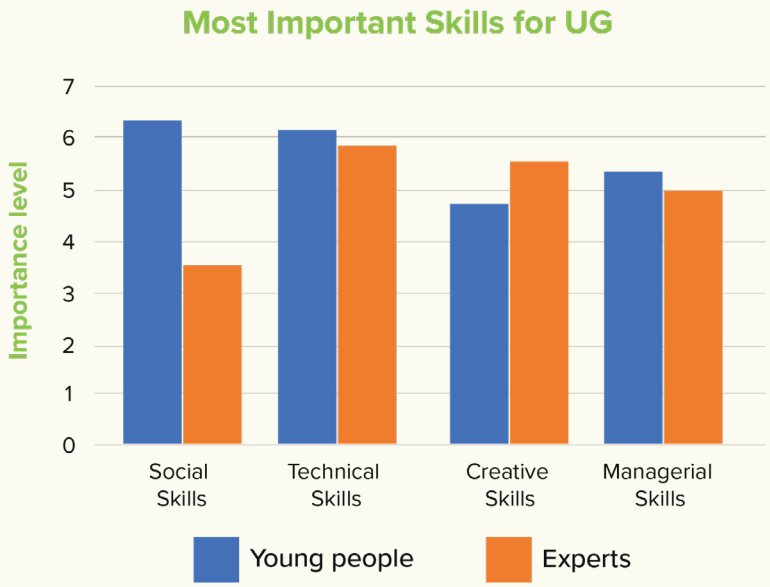

Figure 6.11: Most important skills for UG in Portugal

Both groups evaluate as very important the technical skills, while creative and managerial are also valued as important. The main difference appears about social skills, as young people value them as very important, while for experts they are not seen as so important.

Regarding the most impactful dimensions of urban gardening, participants in Portugal value environment, ecosystem and climate change dimensions as most impactful. Particularly, experts value those dimensions on average higher than young people, while they also value the economic and food security dimensions relatively high.

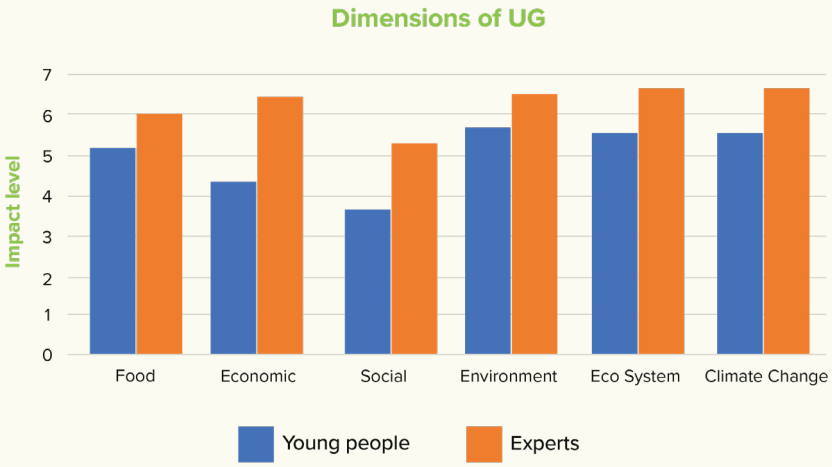

Figure 6.12: Most important skills for UG in Portugal

Conclusions from the Portuguese Report

The urban gardening practiced in Portugal corresponds essentially to the productive component and are developed in a more expressive way by the local power or institutions, in public or institutional space, which is explained by the ease of access to land. The existing urban gardens in Portugal result fundamentally from two logics: 1) improving the access to food for the poor, for their own consumption, in a line that corresponds to the logic of Southern Europe; 2) or in the attempt to legalise and make «ecologically correct» informal practices in public spaces that do not correspond to the aesthetics of the urban scenario, in the line of intervention of Northern European countries.

In conclusion what can be seen from the data analyzed is that urban gardening activities demonstrate an enormous opportunity and a promising and emerging sector in Portugal that urgently needs to be promoted, through programmes and policies that favour access to land and space to house the remaining components of the urban food chain, contributing to the social well-being of the populations, the improvement and preservation of the landscape, but also to the development of the local economy.

The continuity of urban agriculture should be enhanced with the main objectives of enabling urban gardens to form a continuous productive network along the municipalities, contributing essentially to food security and reducing the ecological footprint. And, on the other hand, to promote the sharing of knowledge between generations, with a view to the social inclusion of both young and old, guaranteeing the temporal continuity of urban gardening activities. The main actions likely to achieve the above-mentioned objectives of this measure are the urban design which should now include urban agriculture both in green areas resulting from new and existing interventions and also in areas of patio and equipment and the promotion of intergenerational horticultural activities.

Transnational Report

From the six national report's that the desk research of our study consists of, there are some unique characteristics of each country, but also some common themes and trends. There are significant differences between the case studies: for example, Germany is one of the biggest and most advanced countries in EU, while North Macedonia, Iceland and Lithuania belong to the group of the smallest countries of the Union. In parallel, Greece and Portugal are coming from a long period of economic recession. In this context and despite that there are common characteristics between all countries of our study, we need to be cautious regarding comparisons and generalizations.

Nevertheless, EU's policy about sustainable development, the ongoing discussion about climate change and the UN SDG's, raised awareness all over Europe and all EU countries proceed to reformations and the introduction of sustainable solutions in their economies. In this context, urban gardening is one of the current topics in the agenda of the most of the European cities, as includes several social, environmental, economic and eco system dimensions. Although all six countries of this transnational study belong to the EU, the unique characteristics of each one, due to social, cultural and economic factors, affects in a different way the concept of urban gardening in each one.

For instance, in Germany with the exception of the urban gardening activities that addressed to refugees and migrants, urban gardening is mainly a hobby for the German citizens in the local communities. On the contrary, due to the economic crisis that Greece and Portugal went through last decade, urban gardening was developed mainly as a mean to combat urban food deprivation for those who affected most by the crisis. However, apart from the food security dimension, the crisis revived the sense of community and solidarity in the neighborhoods of the cities, a phenomenon that is visible in Greece, Portugal and Iceland. Lastly, Lithuania and North Macedonia are doing their first steps into urban gardening projects and we still need to see how this will continue.

Regarding the institutional context, municipalities appear to be in all countries a catalyst for the creation and development of urban gardening initiatives. This fact leads us to conclude that that local authorities is the key to expand urban gardening. Therefore, a decentralization of sustainable development policies, including the urban gardening, might be a good solution for all countries. A private/ business sector involvement in urban gardening is reported mostly in Germany and Iceland and not so much to the other countries of our study. Lastly, the involvement of young people into urban gardening initiatives appears to be more usual in Germany, Iceland and Lithuania.

Youth situation varies among the countries of our study. Germany is a robust economy with very low youth unemployment. On the contrary, Greece is a "champion" of youth unemployment for many years now. In the other countries of our study, youth situation goes more or else in parallel with the wider economic and social conditions. However, a common need in most of the countries of our study is to provide more opportunities to the young people, regarding education, social and labor market inclusion.

Last but not least, sustainable development is one of the main priorities of EU and all member states. In this context, all countries of our study have been involved in the process to reduce pollution and create a friendlier eco system for their citizens. This process includes various policies, as the introduction of renewable energy sources and the development of a circular economy. In our study, Germany obviously needs to proceed in many changes as a heavy industrialized economy, while North Macedonia and Lithuania for instance, have other priorities regarding their adaptation to the sustainable development process.

Policy Recommendations

In this final section, policy recommendations are given based on the aforementioned conclusions and results, according to the level of application, the relevant policy makers and also an indicative time horizon; particularly, the three different levels of application are the local, national and European level. In this regard, our study's conclusions and recommendations can find application in all the levels of the European pyramid, from local to pan European. Additionally, the division of policy recommendations can also apply to a timeframe. Particularly, the recommendations in the local/ regional level can be applied in a short-term time period (less than one year), while the recommendations for the national level in a mid-term time horizon (1 to 5 years). Lastly, the recommendation for the EU level can have a long-term time horizon, until 2030, in parallel with the EU 2030 climate and energy framework.

Policy recommendations for Municipalities and Local Communities (short-term time horizon)

- Municipalities and Youth Organizations to organize urban gardening activities and training activities for vulnerable youth.
- Municipalities and Civil Society Organisations to develop synergies with local businesses, in order to connect urban gardening with the local labour market.
- Youth and Civil Society Organisations to develop synergies with health institutions in order to harness urban gardening's potential to help people with depression, anxiety psychological problems.

Policy recommendations for the National Governments and National Policy Makers (mid-term time horizon)

- Introduction of urban gardening activities in schools (extra curriculum).
- Initiatives to develop urban gardening activities in universities and funding of the best practices.
- Develop a network of synergies between universities, Civil Society Organisations and local businesses in order to connect urban gardening activities with the labor market.
- Create incentives for businesses to include urban gardening in their Corporate Social Responsibility (CSR) activities.

Policy recommendations for EC and EU member states policy makers (long-term time horizon)

- EC and National Governments to create a friendlier institutional and legislative framework for urban gardening.
- EC to render urban gardening a priority for the cities' sustainable development.
- EC to create a program similar to Erasmus+ for funding urban gardening activities in Europe.

Annex II. The second part of Research

Methodology

The current research included a) a secondary (desk) research and b) a primary (field) research. In the secondary (desk) research, part of the national level we identified the context of urban gardening, but also the general situation of young people and sustainable development process.

In the primary (field) research, interviews conducted both with experts in urban gardening field and also with young people in all countries. Experts shared their experience regarding the reality of urban gardening in their local and national context and they also gave useful insights about the potential of urban gardening, what is needed in order to grow further and the impact can have on individuals, society and the eco system. The young people, which is the target group of the project, gave their views and perception about urban gardening and its potential for themselves.

The Research Question

The main research questions are:

i. How urban gardening can become more beneficial for the young people?
ii. How we can harness its various implications for a) youth, b) community and c) the eco system?

For the best understanding of the urban gardening topic, the investigation of the following sub- questions is crucial:

a. What is the institutional context of urban gardening, the youth situation and the sustainable development in the countries of our study?
b. What is the perception and the knowledge of young people about urban gardening?

c. What skills required to participate in urban gardening activities?
d. What is the potential of urban gardening regarding social and labour market inclusion?
e. What are the training needs that marginalized youth should have in order to be involved in urban gardening?
f. Which are the most prominent dimensions of urban gardening?
g. Which are the Critical Success Factors (CSFs) that contribute to a successful Urban Gardening activity?
h. How urban gardening can contribute to the sustainable development process, the climate change and the eco system dimensions?
i. Which are the policy recommendations for developing the concept of Urban Gardening?

Research Tool

The research tool used for the field research was an interview guide, different for each target group with some similar questions, which was based on the relevant scientific literature from the fields of ecology studies, urban studies and the limited until now urban gardening literature. In the first part of the interview, the aim was to research and collect the interviewees' perception and opinion about urban gardening's potential, in that part, collection of useful data such as demographics of the participant and information about their background took place. In the second part, of the interview, there were open-ended questions that would allow participants to express their views in a more detailed and personal manner that is always useful and required to explore a task like the examined one where not much information is available.

Design of the study

The analysis used for both a type of research allowed to collect a remarkable number of both quantitative and qualitative data, in order to develop a report that encompasses a broad range of perceptions and views. The outmost scope of this study is to contribute in the growing need of urban environments to become more inclusive, sustainable and eco-friendly. More specifically, the design of the study, which is divided in a desk and a field research, is described as follows:

Desk research

Methodology: Case study approach.

Method: Content Analysis/Documentary Analysis.

Reliability: Context Reflection and Peer Review.

Field research

The main points of the design of the research are given as following:

Research Type: Formal exploratory qualitative research, using the standard protocol of face-to-face, in-depth interviewing.

Research design: 25 in-depth interviews in every project country.

[each participant to collaborate and run the research at their country and collect/provide the data/outcome for further process].

Sampling method: Purposeful/snowball by use of screener *or* other.

Sample description: 15 youth, 10 experts in the field of urban gardening.

Conduction: Face-to-face, on pre-arranged meetings at respondent's convenience.

Duration of interview: 1 hour.

Method of recording: Digital audio recording and/or note taking.

Fieldwork: two months in H2' 2020.

Documentation: Discussion guide, screeners, profiles.

Limitations of the Research

The research has been designed according to the characteristics and needs of the URBAN project and particularly the intellectual output 1, which is this particular Handbook. In this regard, the methodology of the study and the methods (desk research and field research) had to comply with URBAN project's scope, which is to explore the impact of urban gardening to youth, eco system and society in general.

The research tool of the field research, which is the interview guide/ questionnaire, based on the need to explore urban gardening's situation and potential and so to the relevant academic literature regarding urban gardening.

Particularly, the dimensions, impact and implications of urban gardening were identified through relevant academic papers from peer reviewed journals, chapters from collective volumes and also from reports published by institutions, like the European Parliament (EPRS, 2017). Therefore, the design of the study is based upon a solid basis. However, in the context of an Erasmus+ project and in order to identify as many more implications as possible, our study could not deeply focus and explore a unique topic. For instance, this study identifies various dimensions, such as social, economic, eco system and others. In this regard, our analysis covers a wide spectrum of dimensions, with all relevant strengths and weaknesses, from an academic perspective.

The topic of urban gardening and youth lacks of prior research studies and is mainly and unexplored field. In this context, the research team had to identify the general dimensions and implications of urban gardening and then to adapt them according to the special characteristics and needs of our target group. Additionally, urban gardening and its implications with the climate change and the sustainable development process is also an unexplored field, which has been raised in public discourse only recently. Moreover, in the countries of the sample, like North Macedonia, Lithuania and Greece, where young people are not so familiar with urban gardening activities, their answers appear to have a lower validity, compared to those of experts, who are experienced in urban gardening. For this reason, different target group/samples were divided and a different analysis was made for each one of them.

The sample size of the field research can be characterized as large, in both national level per country but also in a European level. Particularly, the numbers of the units of analysis (90 young people and 58 experts in total) ensures that the sample is representative of the groups of people to whom results will be generalized and transferred. Taking into consideration that there are few studies regarding urban gardening and the youth in a European level, our sample's size and the results are relevant and significant. However, we need to highlight that especially for the young people, the selection of participants did not follow a certain method in all countries and we can say that the units were selected randomly, meaning that apart from the age and a relevant vulnerable background, no other common requirements were followed in all countries. For the experts, the sample of your study can be considered as reliable, for the reason that in most countries, experts in urban gardening are not many and so it's hard to find such a number for a relevant study (58 in total).

How young people see Urban Gardening?

In this section, the second research question namely “What is the perception and the knowledge of young people about urban gardening?” is addressed.

Urban gardening seems to be not so popular yet, for the majority of the young people. As we saw above, 67% of the young people who participated in our study stated that they had never participated in urban gardening activities. Nevertheless, almost 1 out 2 participants (specifically 45%) is aware of an urban gardening activity in their local community. The overall perception about urban gardening is positive from the young people. Young participants in our study value urban gardening as a great opportunity to meet new people and socialize. Therefore, the social dimension of urban gardening is one of the most significant conclusions of our study. In this vein, policy makers should harness the power of urban gardening to include the youth as a major stakeholder.

In this context, a network of synergies between youth organizations, universities and Civil Society Organisations (CSOs) can contribute significantly in urban gardening development through youth. Moreover, the role of educational institutions, such as universities and also businesses through Corporate Social Responsibility, can connect urban gardening with the labour market. Such joint ventures can have multiple benefits for the economy and the general eco system.

Moreover, young people are in the front line of the climate change movement worldwide, as the new generations are those who will inherit the planet in the following years. In this vein, the results of our study shows that young people identify a clear correlation between the climate change and urban gardening’s impact on the environment. Therefore, urban gardening can be a raise awareness tool, but also a good practice towards a sustainable and friendlier for the human beings eco system. In this regard, youth organisations and CSOs/ NGOs that promote the protection of the environment, should include urban gardening as one of their best practices to combat climate change. Moreover, the best way to make young people aware of the value of urban gardening is the introduction of urban gardening activities in schools. By allowing young students to be trained in vegetable gardening in urban areas, guarantees that many if not the most of them, when they grow up, would rather easier participate again in urban gardening activities.

Skills, competences and a tentative training curriculum

In this section, both the research questions 3 and 4 are analyzed, which are "What skills required to participate in urban gardening activities and the potential of urban gardening regarding social and labour market inclusion?" and "Emphasize the training needs that marginalized youth should have in order to be involved in urban gardening" respectively.

A very significant finding of our study is the fact that both experts and young people value social skills as the most useful category of skills for participating in urban gardening activities. From the four categories of skills (social technical, creative and managerial), that of social skills gathered the most positive rates from the majority of the participants from both groups. Therefore, both experts who have experience from urban gardening activities, but also and young people who have a different perspective, acknowledge that skills such as communication, empathy and co-operation are the key to successfully participate in an activity like urban gardening. However, on a second level technical skills and even managerial and creative are also important because urban gardening is not only about socialisation and communication, but there is also an actual outcome that must be produced. In this context, every urban gardening planning, should secure that participants already acquire or they will be trained in technical and managerial skills. Creative skills cannot be taught, since it is an internal capacity of human beings. However, by making training more interactive and interesting, creative skills can grow among the participants.

In this context, the training of young people for participating in urban gardening activities, should start with the development of social skills. It is important to make clear to the trainees that urban gardening and gardening in general is a group activity that requires team work, cooperation, discipline and caring. There is a unique characteristic in gardening as the individual should cooperate not only with other people, but also with the soil, the seeds, the water and all the other elements that compose the eco system/ environment of the garden. Someone who cannot feel empathy for the leaving beings, but also for the trees, flowers or plants, maybe it's not capable of being involved in urban gardening. Therefore, soft skills and social skills are of outmost importance in a training curriculum about urban gardening.

Additionally, as urban gardening is also a practical activity with measurable results (products) the training curriculum should also contain technical and managerial modules. Guidelines, steps and tools on how to create, develop

and sustain a garden are essential for any gardener. Particularly, according to the ratings of participants in our field research, regarding the most useful skills for urban gardening, but also from the answers they gave to the open ended questions, we propose a tentative curriculum for an urban gardening training for young people:

- Soft skills/ Social Skills (communication, empathy, active listening etc.).
- First-aid.
- Basic Project Management.
- Funding Opportunities.
- Plant biology and identification.
- Garden chemistry, water and soils.
- Equipment safety.
- Ecology principles.
- Insects and Beekeeping.
- Plant pests and diseases.
- Gardening.
- Nutrition.

Dimensions of Urban Gardening

In this section, research questions 5, 6 and 7 are addressed; these are "Which are the most prominent dimensions of urban gardening?", "Is urban gardening useful for social and labour market inclusion?" and "Can urban gardening contribute to the sustainable development process, the climate change and the eco system dimensions?" respectively. Particularly, the six most prominent dimensions are analyzed and also participants' view about each one of them. An emphasis to those dimensions is given, in which participants highlighted most and the climate change and eco system dimensions are among them.

As it can be seen above, urban gardening is a concept with various implications and dimensions. In the design of the study, it was chosen to focus on six general dimensions, namely food, economic, social, environmental, eco system and climate change dimensions. From the answers of the participants and from the ratings in the relevant Likert scale question, most important dimensions of urban gardening are identified the social, the environmental and the climate change dimension. The climate change dimension and the food are also rated

high enough to be considered crucial, while the economic dimension is valued as not so important for urban gardening, according to the participants of our study.

From those findings, it can be assumed that urban gardening is associated very much with a positive impact to the environment and the eco system. Therefore, it is important for policy makers, but also for the civil society organisations (CSOs), which promote the environmental protection, to harness the dynamic of urban gardening and connect it with the overall process towards a sustainable development and a friendlier eco system. For policy makers of the EU level, urban gardening could be included in the redesign of the cities for adapting to climate change and supporting sustainable development.

Regarding the other dimensions, which have been rated lower that those above, it is assumed that urban gardening still has not reached its full potential. In this context, it was identified in the study a relevant scepticism and even negativity about the economic dimension and the potential of urban gardening to increase young people's chances to find a job. This is a very important finding, since the economic and the employability potential of urban gardening is still an unexplored opportunity. The limited growth of urban gardening activities in the most of the EU countries, seems that makes people unaware of urban gardening's potential to be a platform for economic growth. The few best practices seem that are not enough to promote urban gardening's dynamic.

However, in cases like those of Greece and Portugal, urban gardening was one of those solutions that supported food security in the urban centres, during a period of deep economic recession. In this vein, urban gardening under certain circumstances can combat food deprivation for those people who belong to the most vulnerable groups of society. A policy recommendation in this regard, is for local Municipalities and Civil Society Organisations to organize urban gardening activities for vulnerable youth, together with local businesses, in order to connect urban gardening with the local labour market.

Lastly, as it can be seen above with the great value participant's give to the social skills, the social dimension is equally significant with those of environment and eco system. It is a common theme in the majority of both experts' and young peoples' answers that urban gardening is an ideal platform for socialization and social inclusion. For instance, in Germany urban gardening is used as a tool for the social inclusion of migrants/ refugees. Additionally, in most of the best practices we identified in the context of our study, urban gardening projects are based on a community and solidarity spirit of the local neighbourhoods.

Especially in the cities, where loneliness and alienation are common phenomena for a big number of people, urban gardening is an opportunity for those who seek a gateway from their boredom and loneliness. Moreover, urban gardening is one of those few modern activities that allow individuals to interact both with other people, but also with the natural environment. Therefore, the actual social and psychological impact of urban gardening should lead all relevant institutions (like municipalities) and stakeholders to introduce more urban gardening activities in their local community.

Critical Success Factors (CSFs)

In this final part of the conclusion section, the research question 8 "Identify the Critical Success Factors (CSFs) that urban gardening can be a success activity" is addressed. Based on experts' responses, the most common and important CSFs were finally identified.

In the interviews with the experts, the identification of the critical success factors (CSFs) was set, which according to their experience, could secure that an urban gardening project will have success and continuity. Their answers can be divided in two categories: the material/ technical and non-material/ intellectual ones. Regarding the material CSFs, the majority of experts argued that factors like the location, soil, water etc. are of outmost importance, for the reason that constitute the base where the gardening activity will be built upon. Those conditions are obviously not so easy to find in an urban environment. Additionally, funding is also crucial, for the reason that economic resources are vital for the development of any project that requires infrastructure, tools, possibly logistics and working hours. In this regard, it is critical for any urban gardening project to secure a proper funding and also the right conditions to create the garden.

The other category of CSFs is the one of non-material/ intellectual ones, which actually is all about people. In other words, the human factor is obviously critical and particularly the competences, skills, leadership, coordination, team work and determination of those individuals who participate in the urban gardening project. Therefore, the experts in our field research, but also the relevant literature review, indicates that proper training, coordination, joint ventures from multiple stakeholders and leadership are the CSFs that can ensure the development and continuity of a successful urban gardening project.

Conclusions

In this section, the main conclusions of the research are presented.

The institutional context of urban gardening, the youth situation and the sustainable development in the countries of our study

In the first part of the conclusions, the first research question of the study is addressed, regarding the general context of urban gardening in the countries of our study, the youth situation and the sustainable development process.

The urban gardening status and conditions varies across the countries of our study, since there are significant differences regarding the institutional, social, cultural and economic context. For instance, in Germany urban gardening is mostly associated with the socialization and hobby dimension. However, as this study, Germany is seen as a pioneer of harnessing urban gardening for the social inclusion of migrants/ refugees, so there is a significant social inclusion implication as well.

On the other hand, in Greece and Portugal urban gardening are mostly associated with food security and the solidarity movements that grew during the long economic crisis that these countries went through the last decade. Iceland has a recent tradition in urban gardening initiatives, with both a social and business background, while the factor of sustainable development is also taken into account. Lastly, Lithuania and North Macedonia are more or less in an initial state of urban gardening, with differences also between them.

A common characteristic, especially in Portugal, Greece and Lithuania, is the crucial role of municipalities in urban gardening initiatives. Is seems that in those countries, municipality is the main institution that develops, funds and coordinates urban gardening activities in the local communities. Similarly, Germany as a country with a decentralized institutional and governance system, develops urban gardening activities through local authorities and other regional institutions, promoting mostly the concept of “community garden”, which is also a tool for social integration for migrant and refugees.

There is a process of reformations and shifts in policy recently in EU regarding sustainable development and also an ongoing discussion about climate change. Additionally, Europe also implements the adaptation with the UN’s Sustainable Development Goals SDG’s. In this vein, all countries of our study, as it comes out for the desk research, implements reformations and the introduction of sustainable solutions in their economies. Of course, there is big

difference in those policies, since for instance Germany is one of the greatest industrial and economic powers in the world, while North Macedonia is a small and emerging economy. However, it is noteworthy that urban gardening does not appear to be a high priority, at least in the central main policies of the EU states.

As for the youth situation, also there are differences between the countries of our study, for the aforementioned reasons. A common theme however is the need to support youth employment and social inclusion in all contexts. Especially in some countries like Greece, North Macedonia and Portugal, the youth sector faces a growing vulnerability regarding the new conditions in the labour market, but also for social inclusion, education and life-long learning. Therefore, a policy recommendation would be to adapt urban gardening strategies according to the unique cultural, social and economic context of each country. However, a common characteristic of all strategies should be sustainable development, since climate change adaptation and the creation of a friendlier eco system is a universal concept, which applies to all environments.

Annex III CASE STUDIES & BEST PRACTICES

General

This chapter aims to provide some good examples/ best practices of Urban Gardening in the EU level. Although there are significant differences regarding the institutional, economic and social context of each country of this study, the case studies identified work as an "Urban Gardening ambassador" of each country. In this chapter, case studies were selected as those that better depicts each national context and also has a transferability potential for other contexts.

The structure of each case study below follows a certain pattern in all of them. After a short description of the case, we provide a short analysis about the impact of the project in the local community or in a wider context. Then, we seek for the innovation aspect of the case study, since it is important to identify the unique element and the added value of a project that works as a "best practice". Finally, the transferability of the case study will allow the reader to realize that good ideas and good projects can inspire positive change in other contexts as well.

In the main section below, we present the case studies according to countries' alphabetical order. Particularly, the first case study comes from Göttingen, Germany and its named "International Gardens". Since one of the main scopes of the URBAN project is social inclusion, the International Gardens in Göttingen, provides a good example on how urban gardening can be a useful tool for the social inclusion of migrants/ refugees in the host country. Second is the case study from Greece, which works as another best practice with an academic background. The "KIPOS^{3}" initiative is an idea that came into practice from three students of the Aristotle University of Thessaloniki. That project is unique because it highlights the impact that science and academia can bring to society, even in the form of "bottom-up" initiatives.

The third case study comes from Iceland and is the "Seljagarðar" project, which is an urban garden in Reykjavík. This case is also significant for the reason that shows how a local community can implement a successful urban gardening project, with added value the usage of renewable sources of energy. In a similar context, the fourth case study from Vilnius, Lithuania promotes the value of urban gardening as a tool for socialization and enhancing the community spirit

in the neighborhood. Particularly, “Ideas Garden” works as a meeting place for families and individuals to socialize discuss about climate change and other topics and also to work together on creative experimentations.

The fifth case study comes from the capital of North Macedonia, i.e. Skopje. Taking into consideration the initial stage of urban gardening in the country, the community garden “Bostanie”, which established within the project “Developing the First Urban Garden in the City of Skopje”, is a project of great value. “Bostanie” is a joint venture and allows citizens to cooperate and grow a certain amount of food. Last but not least, the sixth case study is the project «Horta à porta» - Biological Gardens of the Porto Region. Municipalities is the most important institution regarding urban gardening in Portugal and the project «Horta à porta» works as a good example in the creation of vegetable gardens and the promotion of organic farming. Moreover, the project includes a synergies dimension with a transferability added value.

Case Study Germany – International Gardens (Göttingen)

Description

The «International Gardens» were established in 1996 on initiative of refugees, migrants and German families in self-organisation in a gap between buildings in Göttingen-Grone. Immigrants with secure residence and refugees from civil war areas wanted to take their lives into their own hands again. The central idea behind starting the initiative was to share solidarity with refugees and to help them to integrate into the German society with their own initiative and unique ways.

For some migrants, relocation means new social opportunities. For others, it could mean fear of the unknown future, resentments about personal loss or trauma. At the International Gardens each of them is provided with opportunities to learn and evolve, starting from his or her individual situation.

As a nationwide recognized project of intercultural work and civic engagement, the International Gardens in Göttingen have had an important influence on many cities that host related garden projects – regarding ways of sustainable and self-empowering civil engagement. The association is a model initiative for peaceful cooperation amidst the social and cultural diversity of the host country, Germany.

Impact

Due to the commitment within the scope of our work, two members were able to obtain permanent positions, and about 30 temporary jobs were created. More than 15 diploma students received professional support from us and a large number of students from universities throughout Germany were advised, and many young people did charitable work in the gardens. Today, the association has 85 members from 19 countries of origin - local and immigrant families and single people with very diverse cultural backgrounds and from different social milieus, lifestyles and ages. A total of around 200 people use the project gardens for various events.

Innovation

The innovative aspect of this initiative is to foster social inclusion through joint gardening activities. The International Gardens are based on the basic principle of gathering common experiences, to learn together and grow together. They don't want to leave migrants on the margins, but try to build bridges to the middle of society. To this end, they offer shared experiences, only then can a common language be developed. So far they have been living these principles with great success at the level of practical action.

Since its foundation this remains the main focus of the work. They want to offer another approach to integration than through the "normal" processes foreseen by the respective regulation. They want to empower people and give them a way to take their lives into their own hands. Moreover, urban planning, ecological and health aspects of the Internationale Gärten are becoming increasingly important in terms of peaceful neighbourhood, revitalisation of urban district work and as green spaces for experiencing nature.

Transferability

The founders of the Internationale Gärten had to overcome many barriers, as they were not familiar with legal processes. But they overcame all these barriers and pass on their knowledge and experience to others. The gardens have become a model and source of inspiration for many other international and intercultural gardens through-out Germany. And new ones are constantly being added! In the gardens the members welcome multipliers and pass on their experience.

Figure 7.1: Friedensgarten in Grone

Source: Sabine Wiemann, BUPNET

In the above picture, it is shown one of the three gardens that belong currently to the Internationale Gärten in Göttingen.

The members of the Gardens actively participate in campaigns in the districts of Geismar and Grone and inform about their work at the annual Göttingen cultural fair and the health market. They work closely with the Göttingen Integration Council and are involved in the Network Migration, an association of more than 50 organizations from the city and the district, which works to promote the integration of immigrants, repatriates and refugees.

More information
http://internationale-gaerten.de/

Case Study: Greece – KIPOS3 Project (Thessaloniki)

Description

In the Greek context, an innovative "bottom-up" Urban Gardening idea was born in an academic environment by three young women - students. More specifically, in the Joint Postgraduate Program Landscape Architecture, School of Architecture, Aristotle University of Thessaloniki, entitled: "Architectural Design and Landscape", the students Eleftheria Gavriilidou, Eleni Oureilidou, architects and Maria Ritou agriculturist, designed and implemented the project:

KIPOS^3, a network of community gardens in the city of Thessaloniki. The basic concept of that idea was the transformation of unformed spaces and urban voids into spots for community activities and specifically urban gardening, in order to achieve a broader impact on the citizens of Thessaloniki. The concept idea of the three students was chosen by Angelopoulos CGIU Fellowship as a change-maker commitment and together with the support of the Municipality of Thessaloniki and other local institutions and stakeholders, launched its first activities in 2015.

Impact

The basic scope of the project was to motivate citizens in Thessaloniki to harness the power of community spirit in a public space. Moreover, participants in such a project could also appreciate the value of productive landscapes and the impact of collective engagements on the local community. In this vein, after the mapping of several places around the city, an abandoned field in the center of the city close to the Kaftantzoglio stadium of Thessaloniki, became the first garden for the neighborhood. The garden was placed next to an existing public vineyard, sustained by locals, volunteers and students from the School of Agriculture. The gardens of KIPOS^3 project was given for use to local families according to social criteria and they also enjoy guidance and mentoring from experts and scientists. Moreover, the gardens work as a meeting place for the locals. According to the founders of the project, the KIPOS^3 initiative includes social, academic, economic and ecological dimensions.

Innovation

In the context of our research and the URBAN project, the case of KIPOS^3 is a best practice and a great example about the potential to connect the academic community and particularly the universities with the local community and achieve various social, economic and sustainable development goals. A postgraduate programme, the determination and guidance of the professors and especially the vision and motivation of the students to harness their knowledge for social impact, are the basic elements of a process that shows the significance of science for the everyday life of people and also for the environment and the eco-system. Moreover, the call for more “public green” spaces for environmental and recreational reasons in urban contexts, renders

the initiative of KIPOS^3 project a best practice example for the reason that it was an initiative well-planned and well-designed, inside an academic context, by using a scientific methodology.

Transferability

The best practice we identified in the Greek context is an initiative of three students from the Aristotle University of Thessaloniki, who achieved to transform their knowledge into practice, through the development of an urban gardening project in the centre of the city of Thessaloniki, involving also the local authorities, citizens and other stakeholders. The transferability potential is obviously great for all contexts in the EU. Since the academic community is one of the most respected and traditional institutions in Europe, the current situation with climate change and the need for sustainable development, calls for a new approach in the interaction between the academia and society. In this vein, at least the STEM disciplines, but also the humanities, should find ways to turn their ideas into practice, in order to have a greater impact in society and the eco system. The KIPOS^3 project is a good paradigm towards this direction and it would be great if more academic initiatives could have such practical results.

Figure 7.2: Gardens in the centre of Thessaloniki, Greece.
Source: https://parallaximag.gr/parallax-view/kipos-is-ton-kivo

In the above photo, a part of the gardens located in the center of Thessaloniki in Greece is presented. The garden has been organized and run by the KIPOS3 project.

More information

Gavrilidou, E., Kleinmann, H., Oureilidou, E., & Zafeiropoulos, S. G. (2015). Urban Agriculture in Thessaloniki. An academic project meets reality. Ri-vista, 13(2), 60-85.

https://parallaximag.gr/parallax-view/kipos-is-ton-kivo

Case Study: Iceland - Seljagarðar (Urban garden in Reykjavík)

Description

Seljagarðar is an urben garden in Breiðholt neighbourhood in Reykjavík. It was founded in 2014 by volunteers and community members and is privately run since 2014. Reykajvík city provided the land and several organizations in the neighbourhood have supported the initiative, with plants, facilities, grants, and cooperation projects, people can also donate to the garden. Seljagarður builds on the ideology of permaculture and provides gardeners with access to greenhouses as well as providing support and training to newcomers. Seljagarður community is active and organizes several events for participants as well as hosting and organizing training and outreach to the multicultural community in Breiðholt. Members pay an annual fee for renting out gardens, 20 m2 plot 5.000 Iskr. For private 30 m2 7.500 Iskr. And for a greenhouse plot 3.500 and 2.000 Iskr. if the plot is an addition to an outside plot. Then people can volunteer to work in the gardens and then they do not have to pay anything.

Impact

Seljagarðar is built upon the transnational ideal behind urban gardens and permaculture and run by young idealists fighting climate change and global warming by introducing a more sustainable way of living. They want to change how people think about growing (Seljagarður, 2020). “Iceland has enough space and access to cheap energy to provide its people with local food. Still we import most of our vegetables. The vegetables cultivated in commercial greenhouses demand a lot of energy consumption and therefore the concept seasonal growing is not commonly understood”. Seljagarðar emphasise that

all their vegetable is made with renewable energy, making it environmentally friendly (Seljagarður, 2020) “we want our gardening to teach sustainability in a practical way so that people learn how to become proactive urban gardeners.”

Innovation

There exists no such model in Reykjavík and the majority of commercial greenhouse in Iceland use a lot of energy over the winter months to grow a limited range of vegetables. The standards glass greenhouses are simply not adjustable to the extreme weather conditions we have in Iceland and they want to pass on gardening knowledge has been last since the past decades. The objective is to teach sustainability in a practical way so that people learn how to become proactive urban gardeners. They also want to introduce removable greenhouses in public areas is that do not need building permits as it can take years to get construction permits and might conflict with ides on the future development of the area and the design needs to be adapted to the urban landscape. One approach would be looking into our heritage both for visual and practical inspiration, like using turf and other accessible building material to isolate green houses.

Transferability

The transferability of the concept is easy, and it fits with city policies in urban farming, the challenge is to promote this option to community members as well as idealists like the ones behind Seljagarðar are rare. While Seljagarðar are somewhat like Gróandi, at least in the permaculture methodology, it provides all necessary elements for the Urban Gardening project approach to use such gardens for training and empowerment of young people. The founders and coordinators are young people just over 30 years old and driven by the ideal of sustainability, they are open to new ideas and have throughout the years that the garden has been run taken part in several initiatives with the city, nearby pre-schools and would be an excellent location for youth training and empowerment.

Figure 7.3: Green-houses and garden plots for lent in Seljagardur
Source: www. Seljagardur.is

More information

https://seljagardur.is/about-our-urban-garden/

Case Study: Lithuania - Idėjų Lysvė Pilaitėje (Ideas Garden - Vilnius)

Description

Community garden "Ideas Garden" is a project that seeks to bring local residents together, involving students, families, seniors and other groups into an active, friendly and creative community sharing a common focus on their environment and love of nature, through "soft" and continuous activities. The project aims to:

- Create opportunities for the community to engage in creating place making and the building of an organic and sustainable neighborhood
- Promote environmental reactivation, social inclusion and local knowledge sharing;
- Involve young people, families, children and the most vulnerable groups of the community through social activation and gardening;

- Promote professional, educational and scientific cooperation locally and outside Pilaite district.

The first works of establishment of the garden started in September of 2019 next to the community and cultural center BEEpart. Ideas Garden rationally made use of all available local resources – BEEpart building has functioned as a place for storage of garden tools, there was also an outdoor toilet and electricity in place. There are 20 soil beds available and several types of fruit trees and bushes planted in the gardens. Cooperation with the community center, which was already known to locals, helped to attract people easier. Main user groups include young people and families with kids. Some participants from the elderly also join activities from time to time.

Impact

In Ideas Gardens participants are invited to experiment and co-create the space through "Bottom-up" and DIY activities, while building furniture, making soil beds, growing novel breeds of plants. All activities are performed on voluntary basis, they help to improve social and interpersonal skills, for instance: teamwork, constructive thinking, problem solving, creativity, tolerance, self-motivation and responsibility. A common area (so called "Recreational zone") was recently created in the territory of gardens, where community members can meet, engage in discussions and solve various issues related to their neighborhood and surrounding areas.

Innovation

Ideas Garden, together with community and cultural center BEEpart, becomes a platform for creative and social innovation. It aims to improve local social climate, to promote dialogue, gather community, and inspire people to engage in experimentation, creativity and cooperation. The key goal of Ideas Garden is not the actual gardening (planting, growing vegetables, etc.). The essence of community garden lies in all activities that happen next to the garden: community gatherings, various discussions about climate change, creative experimentation, and socialization. Ideas Gardens became a place, where members of local community meet, get to know each other and solve problems that exist in their neighborhood.

Transferability

Overall vision of Ideas garden is to help communities to move from "consumption" towards "creativity", while creating "common goods". There is

an obvious need for urban gardening activities in Vilnius – these initiatives help to unite communities and engage them in social innovation, creativity and experimentation. To achieve this, it is crucial to identify right methodologies and gain more practical knowledge.

Figure 7.4: Community garden Idėjų Lysvė
Source: https://www.facebook.com/idejulysve

In the above picture, the Community garden Idėjų Lysvė is shown which was established in the densely populated Pilaitė district in Lithuania.

More information
https://www.facebook.com/idejulysve

Case Study: North Macedonia – "First Urban Garden in the City of Skopje"

Description

The Community Garden Bostanie, established within the project "Developing the First Urban Garden in the City of Skopje", is a space intended for growing mainly garden crops and other annual or perennial edible plants. It is open to the citizens of Skopje who can either garden collectively in the common part of the garden with an area of about 1,500 m2, or individually within their assigned 50m2 parcel for one season. Following the public call for participation in 2019, over 160 citizens, including many young people, have expressed an interest in taking part.

Impact

The key value of the common garden is the joint venture of the citizens to learn to garden themselves and to grow a certain amount of food. It offers an opportunity for horizontal exchange of knowledge and experiences not only in gardening, but also in a range of other life skills. All gardeners can contribute in the management of the garden and they are included in the decision-making processes.

The garden contributes towards strengthening the participants' self-confidence, their sense of togetherness, it promotes eco-friendly, ethical and sustainable attitudes and practices and contributes towards increasing the green spaces in the city.

Innovation

Even though the concept of community gardens is widely known and practiced in other countries, the community garden Bostanie is the first of its kind in N. Macedonia. In terms of technological innovation, the garden's irrigation system involves an option for scheduling that comprises planning irrigation flow rates, times and cycles.

Transferability

The community garden has been opened recently and its infrastructure is still not fully in place, thus it hasn't had enough time to evolve so as to stabilize the processes involved and the results obtained. Monitoring and evaluation structures are yet to be established.

The project, funded by the City of Skopje, ends in August 2021 and the garden's further development will depend on future funding opportunities. Therefore, the potential transferability of the project will be more visible after some time and hopefully can be applicable to similar contexts, meaning EU countries that making their first steps in Urban Gardening activities.

Figure 7.5: Bostanie garden in Skopje
Source: https://www.facebook.com/dobraze

More information
https://bit.ly/3tLT5wt

Case Study: Portugal – «Horta à porta» (Biological Gardens of the Porto Region)

Description

Project «horta à porta» - Biological Gardens of the Porto Region emerged as a strategy for the Greater Porto Region in the field of home composting, the creation of vegetable gardens and the promotion of organic farming. In this way, with the aim of promoting the quality of life of the population, through good agricultural, environmental and social practices, it enables the residents

of Porto region to have their own vegetable garden. This initiative has resulted in the creation of dynamic and constructive green spaces, fostering the contact of the inhabitants of the Porto area with Nature and the recovery of healthy habits, with the promotion of biodiversity and good agricultural practices, achieved through activities, home composting and organic agriculture. Social responsibility is a valued interest in this initiative.

Impact

The project is not aimed at a specific public, it is aimed at any citizen who is interested in practicing organic farming and composting. It is valid for those over 18 years of age, since an agreement is reached between the parties, leaving the required plot to the individual. However, this does not prevent the family from also practicing agriculture. In total «Horta à Porta» currently offers 39 vegetable gardens divided into 1024 plots, located in the urban areas of Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo and Vila do Conde. There are about 5.77 square meters of cultivated area in organic farming, with environmental and social concerns.

Innovation

In 2009, «Horta à Porta», as a way to meet part of the population's needs, reinforced its objectives, making the project more flexible in terms of its implementation strategy, developing gardens of different valences, highlighting subsistence, social, business or institutional gardens. "Horta à Porta» is a project to be developed from almost 20 years (since 2003) and currently is implemented in partnership with 27 institutions.

Most of the gardens cultivated in Portugal were local, individual or collective, and without many rules or norms for the use of the areas, especially those carried out in or near social quarters by immigrants, retired or unemployed. This project is innovative in that it allowed the municipality to make use of available and often abandoned land in the municipality. It is a strategy for the promotion and development of urban agriculture.

Transferability

This experience can be carried out by other institutions, in particular private institutions, provided that land is available. No forms of replication are known. There are other projects underway in the country, however, we do not know if they are based on this practice.

Figure 7.6: Vegetable garden of “Horta à Porta” project in Crestins – Porto. Source:https://repositorio-berto.up.pt/bitstream/10216/77583/2/33653.pdf

In the above picture, a characteristic example of one of the vegetable garden from the “Horta à Porta” project in Crestins, in the Porto in Portugal.

More information

Fernandes, A. (2014). Agricultura urbana e sustentabilidade das cidades – Projeto “Horta à Porta” no Grande Porto. Universidade do Porto: Faculdade de Economia in: **https://repositorio-aberto.up.pt/bitstream/10216/77583/2/33653.pdf**

Best Practices

Germany

Both best practices identified in the German context aim to promote social inclusion by providing an open space where people from different backgrounds and cultures can grow vegetables and experience contact with nature and other people. The underlying idea is that people can exchange ideas and make new contacts in order to strengthen the social com-munity of the neighborhood. They can bring in their skills and competences and can learn new ones.

The activities are based on the principle of sharing experiences, learning together and growing together. They do not want to leave any societal groups threatened by exclusion on the margins but try to build bridges to the middle of society. They also try to increase understanding of and the need for environmentally friendly consumer choices and behaviour. However, the clear difference which can be observed in most urban gardening projects in Germany is the lack of professionalization in horticulture. Most projects focus on integration, social exchange, and environmental awareness, but they do not aim for self-sufficiency and job creation in the field of agri-culture or horticulture.

Juan Torroba-Bordallo, an expert from the Holtenser Berg Community Garden, evaluates the funda-mental contribution of urban gardens as follows: “It is the development of the common good through community gardening. People become more aware of diversity, which in the end also leads to more protection. Urban gardening is active citizen participation, people get involved and have a part in shaping the community and its spaces”.

It is clear from both examples that it is above all through their sound approach that they are successful, together with a great deal of dedication and financial support. Other initiatives by experts from Göttingen, in contrast to these two, have seized to operate, because they were only able to rely on the commitment of the participants with their voluntary work, and were usually unable to guarantee continuity in this way. In this context, it is mainly the informal nature of the more than 700 existing horticultural projects that contributes to their success.

Greece

Thessaloniki, Greece is seen as a city with tradition in Urban Gardening initiatives. Two of the most successful long-lasting "top-down" projects of Urban Gardening in Greece are:

- the Aristotle University's territory in Thermi Municipality, in the eastern side of the city, where plots of 100 m 2 area are given to citizens with a cost of 120 euros/year and for 3 years and
- within the city, in the upper area, Municipality of Sykies.

Therefore, the first best practice identified in the context of our research is the project of the Municipality of Sykies urban gardens. Municipality of Sykies is a pioneer institution regarding social policy not only in a regional, but also in a national level. In this context and mainly because of the impact of economic crisis on most people in Greece, the Municipality launched in a pilot form urban gardens' initiative on March 2013 and officially started on June 2015. The idea behind urban gardens is to be given in vulnerable families, according to social criteria, without any cost for a period of at least 2 years. The Municipality provides to the families, a land of 50 square meters for growing vegetables with bio methods, free water, seeds, all other necessary facilities and also the support and services of an agronomist. Moreover, the Municipality provides learning and training opportunities to the beneficiaries. The only obligation of the users is to provide the 10% of their vegetables to the social grocery of the Municipality.

The gardens are placed in three different locations in the Muncipality of Sykies, in order to be easily accessible for as many citizens as possible. The beneficiaries are citizens at high risk of poverty, long term unemployed, single parents etc. While the main scope of those Municipal gardens was the food security of their vulnerable citizens, the project appears to have multiple effects for the local community. For instance, a part of the gardens is given to the local school for disabled children, where 95 students have the opportunity to learn about gardening and spend some quality time in a green environment.

While the project of the Municipality of Sykies is a "top down" initiative, we needed to identify also a "bottom up" practice. In this context, the idea of an innovative "bottom-up" Urban Gardening initiative was born in an academic environment by three students. More specifically, in the Joint Postgraduate

Programme 'Landscape Architecture, School of Architecture', Aristotle University of Thessaloniki, entitled: "Architectural Design and Landscape", the students Eleftheria Gavriilidou, Eleni Oureilidou, architects and Maria Ritou agriculturist, designed and implemented the project: KIPOS 3 project: a network of community gardens in the city of Thessaloniki. The basic concept of the project is the transformation of unformed spaces and urban voids into spots for community activities and specifically urban gardening, in order to achieve a broader impact on citizens of Thessaloniki everyday life. The idea of the three students was chosen by Angelopoulos CGIU Fellowship as a change-maker commitment and together with the support of the Municipality of Thessaloniki and other local institutions and stakeholders, launched its first activities in 2015.

After the mapping of several places around the city, an abandoned field in the centre of the city close to the Kaftantzoglio stadium of Thessaloniki, became the first garden for the neighbourhood. The garden was placed next to an existing public vineyard, sustained by locals, volunteers and students from the School of Agriculture. The gardens of KIPOS 3 project was given for use to local families according to social criteria and they also enjoy guidance and mentoring from experts and scientists. Moreover, the gardens work as a meeting place for the locals. According to the founders of the project, the KIPOS 3 initiative includes social, economic and ecological dimensions.

In the context of the research and the URBAN project, the case of KIPOS 3 is a best practice and a great example about the potential to connect the academic community and particularly the universities with the local community and achieve various social, economic and sustainable development goals. A postgraduate programme, the guidance of the professors and especially the vision and willingness of the students to harness their knowledge for social impact, are the basic elements of a process that shows the significance of science for the everyday life of people and also for the environment and the eco-system.

Iceland

Privately run gardens are established and run by a community of gardeners and as such provide a more feasible training environment. Privately run gardens are established and run by a community of gardeners and as such provide a

more feasible training environment. For example, the urban garden Smálönd is located Reykjavík City, Elliðárdal, run by the Icelandic Gardening Association (IGA) since 2009 or 11 years. The garden was set up after the financial collapse in Iceland in 2008. Although run by IGA the garden is open to the public and all members pay 7.000 Iskr. annual fee, IGA members pay 5.000 Iskr. Reykjavík City provided IGA with land, running water and a container to store tools in while IGA provided necessary tools for gardening, provide support and a community for gardeners. The Smálönd operation and financial model seems to rely on city planning and policy related to urban agriculture published in 2008 (Reykjavik-city, 2018). The growing methodologies are eco-friendly and sustainable and build on participants' environmental awareness. While the garden provides a platform for constant innovation in gardening; their social aspect remains the same and the community is quite stable.

The urban garden Gróandi is in Ísafjörður, the biggest town in the Western fjord's region in Iceland with 3.809 inhabitants. The garden is run by Gróandi association including 50 member families and has been run for 5 years, the only garden in Iceland to be built on the ideology of "Community Supported Agriculture" (CSA) designed as a permaculture, eco-friendly community garden. The source of funding is mostly through annual fees that pay for a professional employee responsible for the garden. Contribution from the municipality in land space for the garden. The garden is an Initiative built upon the ideal of eco and environmentally friendly gardening and food production. Builds on and is funded solely by members and community members that also reap the benefit of the garden not only in their harvest but also in being part of a community of gardeners. Volunteers and non-members often visit and contribute to gardening, just to get their hands dirty and become part of nature.

The closest example for our study was Seljagarðar in Reykjavík city where young people participate. Seljagarðar is an urban garden in Breiðholt neighbourhood in Reykjavík. It was founded in 2014 by volunteers and community members and is privately run since 2014. Reykajvík city provided the land and several organizations in the neighbourhood have supported the initiative, with plants, facilities, grants, and cooperation projects, people can also donate to the garden. Seljagarður like Gróandi builds on the ideology of permaculture and provides gardeners with access to greenhouses as well as providing support and training to newcomers.

Seljagarður community is active and organizes several events for participants as well as hosting and organizing training and outreach to the multicultural community in Breiðholt. Seljagarðar is built upon the transnational ideal behind

urban gardens and permaculture and run by young idealists fighting climate change and global warming by introducing a more sustainable way of living. Seljagarðar emphasise that all their vegetable is made with renewable energy, making it environmentally friendly. The founders and coordinators are young people just over 30 years old and driven by the ideal of sustainability, they are open to new ideas and have throughout the years that the garden has been run taken part in several initiatives with the city, nearby pre-schools and would be an excellent location for youth training and empowerment.

There exists no such model in Reykjavík and the majority of commercial greenhouse in Iceland use a lot of energy over the winter months to grow a limited range of vegetables. The standards glass greenhouses are simply not adjustable to the extreme weather conditions we have in Iceland and they want to pass on gardening knowledge has been last since the past decades. The objective is to teach sustainability in a practical way so that people learn how to become proactive urban gardeners. They also want to introduce removable greenhouses in public areas is that do not need building permits as it can take years to get construction permits and might conflict with ides on the future development of the area and the design needs to be adapted to the urban landscape. One approach would be looking into our heritage both for visual and practical inspiration, like using turf and other accessible building material to isolate green houses.

North Macedonia

In the context of North Macedonia two best practices about Urban Gardening were identified. First is the Community Garden Bostanie, established within the project “Developing the First Urban Garden in the City of Skopje” and is a space intended for growing mainly garden crops and other annual or perennial edible plants. It is open to the citizens of Skopje who can either garden collectively in the common part of the garden with an area of about 1,500 m2, or individually within their assigned 50m2 parcel for one season. Following the public call for participation in 2019, over 160 citizens, including many young people, have expressed an interest in taking part.

The key value of the common garden is the joint venture of the citizens to learn to garden themselves and to grow a certain amount of food. It offers an opportunity for horizontal exchange of knowledge and experiences not only in gardening, but also in a range of other life skills. All gardeners can contribute in the management of the garden and they are included in the decision-making

processes. The garden contributes towards strengthening the participants' self- confidence, their sense of togetherness, it promotes eco-friendly, ethical and sustainable attitudes and practices and contributes towards increasing the green spaces in the city.

The community garden has been opened recently and its infrastructure is still not fully in place, thus it hasn't had enough time to evolve so as to stabilize the processes involved and the results obtained. Monitoring and evaluation structures are yet to be established. The project, funded by the City of Skopje, ends in August 2021 and the garden's further development will depend on future funding opportunities. Even though the concept of community gardens is widely known and practiced in other countries, the community garden Bostanie is the first of its kind in N. Macedonia. In terms of technological innovation, the garden's irrigation system involves an option for scheduling that comprises planning irrigation flow rates, times and cycles.

The second-best practice is the campaign organised by the Faculty of Natural Sciences and Mathematics, the Macedonian Biological Society and the Institute for Communication Studies, named "Do not ignore! React!". Around sixty participants in total took part in this project, all of whom live in urban areas and have yards/other green areas within their buildings or houses that could be used for establishing their urban gardens. The workshops were free, and the seed materials were provided by the organizers. During the workshops the participants had an opportunity to acquire a basic skills set for establishing and maintaining their urban gardens.

The majority of the participants in the workshops have started and are still maintaining their urban gardens placed in their yards, terraces, and buildings' rooftops. Throughout the duration of the project the Botanical Garden staff continuously visited the participants, monitored their urban gardens and provided them the needed assistance. The Institute for Communication Studies has produced and published photo-stories of the urban gardens, depicting their progress over time.

Portugal

In the Portuguese context several good practices were identified, most of them municipal initiatives, and we selected to present the two most distinguished. First is the 'Horticultural Park' in Lisbon. There are currently 20 municipal vegetable parks in various parts of the city, representing about 800 plots of land, with a total of 9.1 ha devoted to agricultural production. As part of the construction, consolidation and maintenance of the city's green structure, the municipality of Lisbon defined and took over a strategy for the promotion and development of urban agriculture in 2007. In 2011 the first vegetable parks (Quinta da Granja and Campolide) were inaugurated and several plots of land were made available for the enjoyment of their inhabitants and also for collective organizations.

In addition to the associated plots and infrastructures (paths, fences, access gates, shelters for the storage of agricultural utensils, irrigation system), training in horticulture (in organic farming) and permanent technical support for their gardeners is also available. The gardens are inserted in urban parks and gardens, where other areas coexist, such as lawn/stay areas, playgrounds, kiosks, sports equipment, bike paths, among others, so they can and should be visited by everyone.

The Lisbon City Hall promotes competitions for urban gardens. The opening is published through a notice in the Municipal Bulletin, which publishes the characteristics of the Gardens Park and the Gardens that compose it, as well as the rules applicable to their use and their application. Any individual who does not hold any cultivation plot in the territorial area of the municipality of Lisbon (either on municipal or private land) and who does not belong to any family household in which any member is (considered this through the criterion of common residence) may apply.

Second best practice is the project horta à porta" - Biological Gardens of the Porto Region. The project then emerges as a strategy for the Greater Porto Region in the field of home composting, the creation of vegetable gardens and the promotion of organic farming. In this way, with the aim of promoting the quality of life of the population, through good agricultural, environmental and social practices, it enables the residents of Porto region to have their own vegetable garden. This initiative has resulted in the creation of dynamic and constructive green spaces, fostering the contact of the inhabitants of the Porto area with Nature and the recovery of healthy habits, with the promotion of

biodiversity and good agricultural practices, achieved through activities, home composting and organic agriculture. Social responsibility is a valued interest in this initiative.

The project is not aimed at a specific public, it is aimed at any citizen who is interested in practicing organic farming and composting. It is valid for those over 18 years of age, since an agreement is reached between the parties, leaving the required plot to the individual. However, this does not prevent the family from also practicing agriculture.

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