**Training Fiche GREEN CITY**

| **Title** | Green City |
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| **Keywords** | green, biodiversity, city, flower meadows, green roof, trees |
| **Provided by** | Fundacja SocLab |
| **Language** | English |
| **Related SDG** | Goal 6: Clean water and sanitation. Ensure access to water and sanitation for all through sustainable water resource management.  Task: 6.6 By 2020, ensure the protection and restoration of water-dependent ecosystems, including mountain areas, forests, wetlands, rivers, lakes and groundwater.  Goal 11: Sustainable cities and communities. Make cities and human settlements safe, stable, sustainable and inclusive.  Task: 11.7 By 2030, ensure easy and universal access to safe and inclusive green spaces and public spaces, especially for women, children, the elderly and people with disabilities.  Goal 13: Climate action. Take urgent action to address climate change and its impacts.  Task: 13.1 Strengthen adaptive capacity and resilience to climate risks and natural disasters in all countries.  Task: 13.3 Increase education, human and institutional capacity, raise awareness of climate change mitigation, adaptation and the impacts of climate change and early warning systems for risks.  Goal 15: Life on land. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.  Task: 15.1 By 2020, ensure the protection, restoration and sustainable use of terrestrial and inland freshwater ecosystems and other ecosystems, in particular forests, wetlands and drylands and mountains, in accordance with international obligations. |
| **Objectives** | 1 General objective for the Module.  To increase knowledge of the role of greenery in the city and urban areas.  2. Specific objectives of the Module:  1. to provide knowledge on the benefits of urban greening.  2. to provide knowledge on how to bring biodiversity into the home, garden and neighbourhood and the benefits of doing so.  3. to encourage civic activity to ‘green’ the city. |
| **Learning outcomes** | On completion of this module you will:  1. understand the role of greenery in the city and the need to protect it.  2. be able to apply environmentally friendly solutions to your home and garden, using living greenery.  3. knew how to introduce environmentally friendly technologies when renovating or building a house.  4. was able to engage in social activities to protect the environment. |
| **Content index** | Module name: GREEN CITY  Unit 1: Benefits of greenery at home and in the city.  Section 1: Health.  Section 2: Air.  Section 3: Energy.  Unit 2: Plants at home, environmentally friendly growing methods.  Section 1: Home potted plants.  Section 2: Home-grown herbs, fruits and vegetables.  Section 3: Care and natural fertilisation of houseplants.  Unit 3: Plants in the garden, organic growing methods.  Section 1: Choosing plants.  Section 2: Natural gardening.  Section 3: Building shelters for animals and the micro-environments that support them.  Unit 4: Green building applications.  Section 1: Green roofs.  Section 2: Green walls.  Section 3: Permeable surfaces.  Unit 5: Neighbourhood and urban green spaces.  Section 1: Urban parks, gardens and meadows.  Section 2: The role of green spaces for fauna.  Section 3: Renaturalisation of degraded areas. |
| **Content development** | **Unit 1: Benefits of greenery at home and in the city.**  **Section 1: Health.**  Green spaces in cities have an invaluable impact on human health, both physically and mentally. They improve air quality, encourage physical activity, foster social connections, and reduce mental stress. With the presence of greenery, residents can enjoy better health, an improved quality of life, and greater mental comfort. This is why it is essential for urban planning to include the creation and maintenance of green areas, and for each resident to be able to introduce greenery into their immediate surroundings.  Clean air reduces the risk of respiratory diseases such as asthma, allergies, and cardiovascular problems. Reducing the urban heat island effect and protecting surfaces in cities from overheating lowers the risk of heat strokes and health issues related to extreme heat. Physical activity, encouraged by attractive green areas, improves physical fitness, strengthens the immune system, and reduces the risk of lifestyle diseases such as obesity, diabetes, and hypertension. Greenery has a calming effect by lowering cortisol levels in the body, commonly known as the “stress hormone.” Spending time in nature also positively affects mood and overall well-being. Observing nature helps improve concentration and focus, a phenomenon known as the "attention restoration effect." Children who have access to greenery often achieve better academic results, and adults become more creative and efficient at work. Those with access to green spaces are more likely to experience positive emotions and are less likely to suffer from symptoms of depression. Urban greenery has a therapeutic effect, providing opportunities for relaxation and an escape from the hustle and bustle of the city. Green public spaces, such as parks, community gardens and squares, encourage gatherings and the building of social connections. These places become natural meeting points and centres for community activities, strengthening bonds between residents.  Plants, especially trees and shrubs, act as natural noise barriers, absorbing sounds and reducing noise levels, which is especially significant in large cities where excessive noise often leads to stress and health issues such as headaches and sleep problems.  Using greenery in the city is an excellent way to improve both physical and mental health. Regular physical activities, like walking and exercising outdoors, gardening, and engaging in community gardens, can greatly enhance quality of life. However, it's important to do this responsibly, paying attention to local conditions and safety.  **Section 2: Air.**  Urban greenery plays a key role in improving air quality in cities, especially in areas with high population density and industrial pollution. Plants, such as trees, bushes, lawns, and even potted plants, work as natural air filters. Trees, especially large ones with extensive, leafy canopies, capture carbon dioxide (CO2) and atmospheric pollutants like nitrogen oxides (NO), sulfur dioxide (SO2), and dust, contributing to a healthier environment for urban residents.  One of the most critical processes is photosynthesis, where plants transform carbon dioxide into oxygen, a gas essential for human and animal life. A single large tree can absorb up to 100 kilograms of carbon dioxide per year and produce enough oxygen for two adults annually.  Suspended particles, such as PM10 and PM2.5 (particles smaller than 10 and 2.5 micrometres, or one-thousandth of a millimetre), are particularly harmful to health as they can penetrate the respiratory system. These particles contribute to SMOG. Plants capture these particles on their leaf surfaces, reducing their presence in the air. Trees with large, broad canopies, such as linden and maple, are particularly effective in capturing dust, pollutants, and heavy metals that settle on them. Studies conducted in cities like London and New York have shown that strategically placed urban greenery can significantly reduce pollution levels, lowering the incidence of asthma and other respiratory diseases.  In addition to filtering the air, plants regulate its temperature and humidity. Trees provide shade, reducing the warming of concrete surfaces during summer. The "urban heat island" effect causes cities to be warmer than surrounding rural areas, leading to higher energy consumption for cooling buildings. Greenery, particularly large trees, releases moisture into the air through transpiration, increasing humidity and improving thermal comfort during hot weather.  **Section 3: Energy.**  Urban greenery plays a major role in energy conservation, especially in cities where high summer temperatures lead to heavy use of air conditioning, and winter requires heating buildings. Trees and bushes planted around buildings can provide natural shading and thermal insulation, reducing energy consumption.  Shading buildings with trees is one of the simplest and most effective ways to lower indoor temperatures during summer. Trees with broad canopies, such as oak, maple, or poplar, can reduce temperatures around a building by several degrees, directly reducing energy use for air conditioning. In areas where concrete surfaces heat up quickly, trees can help reduce the amount of heat radiated from surfaces, further lowering air temperature.  In winter, trees can act as natural windbreaks. Evergreen trees, like pine, spruce, and fir, planted on the north side of buildings, create a barrier against cold winds, reducing heat loss from buildings and thus lowering energy needs for heating. In contrast, deciduous trees, which lose their leaves in winter, planted on the south side of buildings, allow winter sunlight to help warm buildings.  Innovative solutions, such as green roofs and green walls, offer an additional way to enhance building energy efficiency while significantly improving aesthetics.  **Recommendations:**   * Spend time outdoors with family and friends. Picnics in the park, outdoor games, or simply spending time together are great opportunities to strengthen bonds with loved ones. * Use smaller green spaces. If there are no large parks nearby, look for smaller green areas, like squares, tree-lined boulevards, or green roofs on buildings. Even brief contact with greenery can have positive health effects. * Plant trees in strategic spots around your home to provide natural insulation. Evergreen trees can be planted on the north side to shield against cold winds, while deciduous trees on the south side provide shade in summer and allow sunlight in winter. Trees like linden, birch, oak, and chestnut are effective in absorbing air pollutants.   **Precautions:**   * Avoid spending time in polluted or noisy areas. Pollution and noise can negatively affect health, diminishing the benefits of being around greenery. * Never harm plants or collect wild, protected, and rare species. Enjoy green spaces with respect so that other residents can also benefit from nature. * Do not cut down old, large trees, even if new trees are planted in their place.   **Unit 2: Plants at home, environmentally friendly growing methods.**  **Section 1: Home potted plants.**  Growing potted plants at home is not just a hobby, but also a way to improve indoor air quality and enhance the well-being of its occupants. Plants absorb volatile chemicals that may be present in building materials, paints, or cleaning products. However, they should not replace regular ventilation, which is essential.  The choice of houseplants depends on the specific conditions of each room, including the amount of light, humidity, and temperature. Plants like ferns (Polypodium), ivy (Hedera helix), horsetail (Spathiphyllum) or dragonfly (Dracaena) are known for their excellent air-purifying qualities and are also easy to care for. In homes with limited natural light, plants such as herbaceous (Chlorophytum) or ZZ (Zamioculcas) are well-suited as they can thrive even in partial shade.  Through transpiration, where they release moisture into the air, plants contribute to maintaining appropriate humidity levels indoors. This is especially important in winter, when heating can dry out the air, leading to health issues like dry skin, throat, and mucous membranes.  **Section 2: Home-grown herbs, fruits and vegetables.**  Growing your own herbs, fruits, and vegetables at home is an excellent way to reduce emissions associated with the commercial transport of food while enhancing food security and self-sufficiency, meaning having access to a sufficient quantity of safe and nutritious food that meets one’s dietary needs and preferences for an active and healthy life. Even in small spaces like balconies, windowsills, or terraces, it’s possible to successfully grow edible plants that provide fresh ingredients for daily meals.  Herbs are some of the easiest plants to grow indoors. They can be cultivated in pots on a windowsill, balcony, or terrace. Popular herbs like basil, mint, parsley, coriander, and rosemary do not require much space, and regular trimming encourages further growth. Additionally, these herbs not only taste great but also have health benefits – for example, basil has anti-inflammatory properties, and mint aids digestion.  Vegetables can also be grown at home. Plants like lettuce, arugula, spinach and cherry tomatoes grow well in pots and can even be cultivated indoors and on small balconies. With adequate sunlight, regular watering, and natural fertilizers, you can enjoy fresh vegetables straight from your own garden. For those living in small spaces, vertical gardens are an ideal solution, allowing plants to grow vertically and save space.  Although fruits typically require more space, they can also be grown in pots. Strawberries, for example, thrive in containers, and there are also miniature varieties of fruit trees like lemons, mandarins, and peaches. With sufficient sunlight and regular care, you can enjoy home-grown fruit.  Growing edible plants at home has numerous ecological benefits. Firstly, it reduces the need for food transport, cutting carbon dioxide emissions. Secondly, plants grown at home do not require artificial pesticides and fertilizers, making them healthier for both the environment and ourselves. Additionally, growing your own edible plants supports biodiversity, especially when natural methods of fertilization are used instead of chemicals.  **Section 3: Care and natural fertilisation of houseplants.**  Caring for houseplants is essential for their health and longevity. Proper watering, fertilizing, and providing suitable lighting conditions are the basic factors that affect plant growth and development. It’s worth noting that eco-friendly plant care methods are not only better for the environment but also healthier for the plants themselves.  One of the most important aspects of plant care is natural fertilization. Instead of using artificial fertilizers, which consume a lot of energy and resources to produce, more environmentally friendly methods of supplying nutrients to plants are recommended. Compost is an excellent source of nutrients for plants, rich in nitrogen, phosphorus, and potassium – essential elements for plant growth. It can be made from organic scraps like vegetable peelings, coffee grounds, or tea leaves.  Another natural fertilizer that can be used at home is eggshells. They are rich in calcium, which is essential for the healthy growth of plants, particularly flowering ones. Crushing the eggshells and adding them to the soil supports the healthy development of roots and leaves. Similarly, coffee grounds are rich in nitrogen, essential for photosynthesis and leaf growth. Adding coffee grounds to the soil improves its structure and provides plants with better growing conditions.  Another method of natural fertilization is diluted apple cider vinegar, which can be used as a mild acidic fertilizer for plants that prefer acidic environments, such as azaleas, hydrangeas, or ferns. Simply add one tablespoon of vinegar to a litre of water and water the plants every few weeks to boost their health.  Watering is another key element in houseplant care. It’s crucial to adjust the watering frequency according to each plant’s needs. Tropical plants, like ferns and peace lilies, prefer moist soil and frequent watering, whereas succulents, such as cacti and aloe vera, need much less water and thrive in drier conditions. Overwatering should also be avoided, as it can lead to root rot. A good solution is bottom-watering – placing the pot in a bowl of water for a few minutes – which allows the roots to absorb moisture evenly without risk of overwatering.  **Recommendations:**   * Start growing houseplants like peace lilies, ivy, or dracaenas, which improve air quality and are easy to care for. * Use natural fertilizers like compost from kitchen scraps, eggshells, or coffee grounds to provide plants with essential nutrients without artificial fertilizers. * Collect rainwater for watering plants. Rainwater is better for plants and helps save treated drinking water. * Begin growing your own herbs and vegetables, like basil, mint, or rosemary, which not only enhance the flavor of meals but also improve the aesthetics of your home. Leafy vegetables, like lettuce, spinach, or arugula, in pots on a windowsill or balcony are also easy to grow and provide fresh salad ingredients. * Use vertical gardens in small spaces to grow edible plants vertically, saving space.   **Precautions:**   * Avoid wasting water. Instead of letting cold water run down the drain while waiting for warm water, collect it and use it for watering plants. * Avoid using artificial fertilizers; opt for compost and natural fertilizers instead. * Avoid buying herbs and vegetables that you can grow yourself at home or in the garden. * Do not use the same fertilization, watering, and positioning for all plants; check each plant’s requirements regarding soil (type, drainage, pH, etc.), watering method, sunlight, temperature, etc. * Some plants may be toxic or have sharp leaves; avoid them if there are small children or pets in the home.   **Unit 3: Plants in the garden, organic growing methods.**  **Section 1: Choosing plants.**  Selecting the right plants for an urban garden is essential for gardening success, resource conservation, and environmental protection. Native plants are usually the best choice, as they are naturally adapted to local climate and soil conditions. These plants require less water, fertilization, and maintenance compared to many exotic species. Moreover, they support local wildlife by providing food and habitats for pollinators such as bees, butterflies, and birds. Examples of native plants in Poland: field poppy, clover, wormwood, honeysuckle spotted and moth.  On the other hand, plants like Japanese knotweed are among the most invasive species in the Europe and are considered one of the 100 most invasive species worldwide, originally from East Asia. Japanese knotweed harms native species, as its rapid growth and tendency to form dense clusters limit other plants’ access to sunlight. It also releases substances that inhibit the growth of other plants. Like other invasive species, Japanese knotweed reduces biodiversity.  For urban residents, choosing perennial plants is another step towards sustainable gardening. These plants come back each year, reducing the need for annual replanting, saving time and costs. Perennials like lavender, sage, hollyhocks, and catnip are not only easy to maintain but also attract pollinating insects, creating a healthy ecosystem. These plants are well-suited to urban gardens, even small ones.  A key factor in plant selection is adapting them to local light conditions. Plants like tomatoes, peppers, and cucumbers need full sun, which means at least 6-8 hours daily. In contrast, shade or partial-shade plants like lettuce, spinach, and kale thrive in areas with limited sunlight, such as north-facing balconies. Choosing plants based on light conditions minimizes the need for additional watering and improves crop yield.  **Section 2: Natural gardening.**  Natural gardening aims to maintain soil and ecosystem health without synthetic fertilizers or pesticides. Instead, it uses composting, mulching, and crop rotation.  Composting is one of the best ways to create nutrient-rich soil for plants. It makes use of organic kitchen waste, such as coffee grounds, fruit scraps (except citrus), vegetable leftovers, and garden waste like grass clippings or leaves. Compost not only improves soil quality but also reduces waste, which is especially important in urban lifestyles. Instead of throwing away organic waste, city dwellers can turn it into natural fertilizer for their plants.  Mulching involves covering the soil with organic materials like straw, bark, wood chips, or leaves. Mulch serves several important functions: it helps retain soil moisture, prevents erosion, and protects against weed growth. Additionally, organic mulch decomposes over time, enriching the soil with micronutrients. In urban settings, where natural soil is limited, mulching is an effective way to improve soil structure and increase biodiversity.  Crop rotation involves changing the types of plants grown in the same area year after year. Proper crop rotation is the most cost-effective way to improve soil fertility and enhances crop quantity and quality.  Permaculture, derived from “permanent” and “culture,” is a design system where different elements work together, creating a sustainable ecological system that includes soil, plants, animals, buildings, and people. Permaculture is a type of horticulture modelled on natural processes in nature, taking into account the circulation of matter and energy. After a few years of proper care, a permaculture garden becomes nearly self-sustaining, requiring minimal fertilization and watering.  Natural pest control methods are also crucial in eco-friendly gardening. Instead of using chemical pesticides, consider planting pest-repellent plants, like marigolds, which protect vegetables from nematodes. Another solution is companion planting – growing plants that mutually support each other's growth and protect against pests. For instance, planting onions and carrots together deters pests that attack their roots.  **Section 3: Building shelters for animals and the micro-environments that support them.**  Urban gardens, meadows, and home gardens can support local wildlife by creating microhabitats that help increase biodiversity in the city. Adding insect hotels, birdhouses, and a small pond can contribute to healthy ecosystems in urban spaces.  Insect hotels are essential in cities where natural insect habitats are often destroyed. These structures attract pollinators, which are crucial for the growth of flowers, fruits, and vegetables. By providing simple shelters, you can support local pollinator populations and improve crop yields in urban gardens. However, it’s essential to choose locations for insect hotels carefully so that the insects don’t become a nuisance for residents or neighbours.  Birdhouses are another way to support local wildlife. Birds play an important role in ecosystems by helping control pest populations. Additionally, birds spread seeds, promoting the distribution of plants within the city. Birdhouses are easy to install even in small gardens and balconies. It's essential, however, to select birdhouses suited to specific bird species and place them appropriately; consulting an ornithologist or finding reliable online resources can be helpful.  Ponds or small water basins for birds and insects are a valuable addition to an urban garden ecosystem. In cities, where access to natural water sources is limited, these features provide essential hydration for wildlife. Even a small pond can attract a variety of species, such as dragonflies, frogs, and birds.  **Recommendations:**   * Choose native plants to reduce water and fertilizer usage and support local wildlife, especially pollinators. * Opt for perennial plants that return yearly, saving time and money on replanting. * Use mulching to reduce the need for frequent watering, retain soil moisture, and protect plants from weeds. * Apply natural plant protection methods, such as pest-repellent plants, and try companion planting. * Set aside part of your garden for wild, natural vegetation; these areas serve as valuable habitats for beneficial insects, birds, and small mammals such as hedgehogs or squirrels.   **Precautions:**   * Avoid introducing non-native or incompatible plants into your garden, as they may disrupt the local landscape. * Refrain from using chemical products in your garden, including pesticides and treatments for moss, ants or slugs. Remember that chemicals can harm soil quality, groundwater, and the edibles you later consume. * Avoid frequent, low mowing of lawns, as short grass is not a suitable habitat for beneficial insects or birds. Instead of a traditional lawn, consider a wildflower meadow or ground-cover plants.   **Unit 4: Green building applications.**  **Section 1: Green roofs.**  Green roofs are one of the most innovative solutions in sustainable construction, gaining popularity in cities worldwide. Roofs covered with vegetation not only enhance the aesthetic appeal of buildings but also provide essential ecological and economic benefits. Green roofs help manage rainwater, improve building insulation, reduce energy costs, and contribute to air quality improvement by filtering pollutants.  Extensive green roofs are lightweight structures covered with low-maintenance plants such as sedums or mosses. They are often installed on residential and commercial buildings to avoid significant structural weight. These roofs require minimal upkeep, making them an attractive option for those wishing to introduce greenery without high maintenance costs.  Intensive green roofs allow for growing plants that require more water and care, and also small trees. Intensive roofs often serve as rooftop gardens, offering spaces for relaxation and leisure. They can also be used to grow vegetables and fruits, which is especially beneficial in cities with limited space for cultivation. Intensive green roofs are popular on large office buildings, hotels, and public buildings where the roof space can be fully utilized.  Wetland roofs, also known as multifunctional roofs, are based on wetland and marshland biotopes. These can be installed on residential buildings, underground garages, also on refuse shelters. Rainwater is collected on the sealed roof, and plants purify it, gradually releasing it through evaporation.  Green roofs enhance the energy efficiency of buildings through natural insulation properties – they retain heat inside buildings in winter and prevent overheating in summer. Additionally, green roofs help reduce the urban heat island effect, positively impacting the climate in cities. Vegetation on roofs also absorbs rainwater, easing pressure on sewage systems and reducing the risk of local flooding.  **Section 2: Green walls.**  Green walls, also known as living walls, are an innovative way to introduce greenery to vertical spaces, both inside and outside buildings. Green walls not only add aesthetic appeal but also offer numerous ecological benefits – they improve air quality, reduce noise, and aid in thermal insulation of buildings.  Exterior green walls are an excellent solution for urban buildings where space for traditional gardens is limited. Plants on green walls absorb carbon dioxide and air pollutants, contributing to the improvement of the urban environment. Additionally, exterior green walls act as natural insulation, protecting buildings from excessive heat in summer and cold in winter. Green walls can also support local biodiversity by attracting pollinating insects like bees and butterflies.  Interior green walls are an ideal way to improve air quality in offices, homes, and public spaces. Plants in these systems humidify and filter the air, absorbing pollutants and releasing oxygen. Green walls also positively impact residents' well-being and mental health, helping reduce stress and improve focus. In workplaces, they can boost employees' productivity and creativity.  Green wall systems can be built using traditional potted plants or modern hydroponic technology. Hydroponic green walls, which do not require soil, are easy to maintain and offer greater design flexibility. These solutions make green walls suitable for almost any space, regardless of available room.  **Section 3: Permeable Surfaces**  Permeable surfaces are areas that allow rainwater to be absorbed into the soil rather than running off quickly, as it would on impermeable surfaces like concrete or asphalt. Permeable surfaces help reduce the risk of floods and waterlogging, improve groundwater quality, increase water retention, improve the microclimate, enhance air quality, and mitigate the urban heat island effect. They also support urban biodiversity by fostering plant growth, which attracts insects, birds, and other animals. Reducing concrete surfaces and replacing them with green permeable areas creates better living conditions for many species. For example, lawns, gardens, or flower beds provide shelter for pollinating insects, which are crucial for the health of urban ecosystems.  **Recommendations:**   * If you have access to a residential building roof, consider installing an extensive green roof, which requires minimal upkeep and provides numerous environmental benefits. * Support local municipal initiatives and construction projects that promote green roofs on public, commercial, and residential buildings. * Install a small green wall on your balcony or inside your home to improve air quality and add natural aesthetics to your interior. * If you work in an office or run a business, consider installing a green wall to enhance employee well-being and improve air quality. * Establish lawns and home gardens, commonly found in residential areas, to contribute to water retention, and support plant and animal development.   **Precautions:**   * Avoid roofing solutions that channel water into storm drains or let it run onto hard surfaces. Instead, consider using a green roof or creating a rain garden fed by roof runoff. * Do not use building materials containing chemical additives; always check for safe ingredients and certifications. * Avoid hardening surfaces around your home, such as concreting, asphalting, or paving with concrete blocks for parking or driveways. Where hardening is necessary, use solutions that allow water to seep into the ground.   **Unit 5: Neighbourhood and urban green spaces.**  **Section 1: Urban parks, gardens, and meadows.**  Urban parks, gardens, and meadows play a crucial role in creating a healthy urban environment. These spaces not only serve recreational purposes but also have a significant impact on residents' health, air quality, and biodiversity. Parks provide access to greenery, places for walking, jogging, exercising, and social gatherings. They are a haven of peace within the often concrete-dominated and crowded city environment.  Flower meadows are an excellent alternative to lawns, which require regular mowing and large amounts of water. Meadows, full of diverse plant species, support pollinators like bees, butterflies, and beetles, and can enhance the aesthetic appeal of city parks and gardens. Flower meadows are easier to maintain and more environmentally friendly than traditional lawns, which need intensive watering and fertilisation. Left through autumn and winter, they can capture considerable amounts of urban dust pollutants.  Rooftop gardens are an increasingly popular solution in cities, utilising unused space on residential, office, or public buildings. Beyond their aesthetic benefits, these gardens help reduce rainwater runoff, improve building insulation, and lower energy costs. Vegetation on roofs also reduces the urban heat island effect, contributing to an improved microclimate in cities. Rooftops can support ornamental plants, vegetables, herbs, and even small habitats for wildlife, such as bees and butterflies.  Sensory gardens are designed to stimulate the senses – touch, smell, sight, and hearing. Plants with varied textures, colours, and fragrances offer relaxation and therapeutic benefits. In sensory gardens, plants like lavender, mint, and ornamental grasses invite interaction and provide city residents with a break from everyday stress. These gardens are often used in healthcare and educational facilities to support therapeutic processes.  Community gardens are an ideal solution for those who do not have their own plots. These shared spaces allow residents to grow plants, share knowledge, and make connections. Community gardens are usually located in residential complexes, schools, or public institutions. Through these gardens, people learn about eco-friendly food production and develop skills for maintaining a healthy ecosystem. To establish a community garden, start by obtaining permission from the landowner, such as the city/municipality, housing cooperative, or school/university. The next step is to involve interested participants. Funding for plants and landscaping can often be obtained from external grants.  Urban farms are also an exciting option, enabling city residents to grow larger quantities of plants even in limited spaces. Cities like Paris, New York and Lisbon have established urban farms that use innovative techniques, such as hydroponics (growing plants without soil), which allows for efficient water and space management.  The primary difference between a community garden and an urban farm is scale and purpose. Community gardens focus on integrating the local community, providing space for relaxation and joint activities. Urban farms concentrate on larger-scale food production and are often more commercial or experimental in nature. Both forms of urban greenery enhance quality of life in cities, though their main goals and methods differ.  **Section 2: The role of green spaces for fauna.**  Urban greenery plays a vital role in supporting wildlife. Vegetation in cities provides habitats for various species, including birds, insects, bats, and small mammals. The presence of insects attracts birds. Plants provide birds with food in the form of seeds and fruits, and they also offer nesting sites. Bats feed on insects, including those bothersome to humans, such as mosquitoes. Insects also form a primary food source for hedgehogs, while nuts and seeds are staples in the diet of squirrels.  Urban greenery, especially when rich in diverse plant species, supports local pollinators like bees, butterflies, and bumblebees. Pollinators are essential for plant reproduction, and their presence increases the productivity of urban gardens and flower meadows.  Green corridors are stretches of greenery that connect scattered green spaces, allowing animals to move safely between them. In cities, where natural habitats are often isolated, ecological corridors enable migration and genetic exchange among animals, which is essential for maintaining healthy populations.  In cities, ecological corridors can take various forms – from tree-lined avenues to green strips along rivers, or specially designed crossings over roads and railways. These solutions reduce the risk of animal-vehicle collisions and allow migration between habitats that would otherwise be cut off by transport infrastructure.  **Section 3: Renaturalisation of degraded areas.**  Renaturalisation is the process of restoring degraded urban areas to a state closer to their natural condition. This involves introducing native plants, improving soil quality, and creating habitats that support biodiversity. The aim is to restore ecosystems in places previously damaged by human activity, such as post-industrial sites, polluted soils, regulated rivers, or abandoned urban spaces.  Renaturalisation offers many ecological benefits. It aids in rainwater retention, improves air and soil quality, and supports the return of plant and animal species that once inhabited the area. In cities, renaturalisation can transform unused spaces into attractive green areas, which can be used as parks, meadows, or recreational spaces.  Successful examples of renaturalisation include converting old railway tracks into urban parks or creating flower meadows on abandoned factory grounds. Such initiatives provide residents with new green spaces and make cities more environmentally friendly. Another example is restoring river meanders that were previously straightened. Even artificial river bends can quickly create a river valley habitat similar to natural ones, supporting both flora and fauna.  Ruderal vegetation grows on areas altered by human activity, such as urban spaces, and pioneer plants are those that quickly colonise human-disturbed areas, like soil mounds near construction sites. These species are resilient to challenging conditions, such as polluted soils, water scarcity, or extreme temperatures. Ruderal vegetation can play an important role in renaturalising urban areas by improving soil quality and supporting biodiversity. It also stabilises soil and reduces erosion. In cities, where soils are often polluted or degraded, ruderal vegetation can be an affordable way to enhance land quality. These plants frequently appear on wastelands, along railway tracks, roads, or in abandoned industrial spaces.  Examples of ruderal plants include mugwort, milk thistle, perennial ryegrass, fireweed, as well as invasive species like Canadian goldenrod, field thistle, and Japanese knotweed.  **Recommendations:**   * Persuade neighbours in your block of flats or colleagues in your company to create a communal garden on the roof of your building. * If you don't have the opportunity to set up your own garden and there is an accessible area in your neighbourhood, set up a community or sensory garden there with your neighbours. * Talk to your councillors about restoring degraded areas in your town. * Install bird boxes and insect houses in your green space to support local fauna. * If you have access to an undeveloped common space, consider turning it into a flower meadow or garden.   **Precautions:**   * Avoid solid fences, such as those with closely spaced bars or dense mesh, as they prevent small mammals like hedgehogs from moving freely. * Avoid creating large areas without green islands, for example, in the design stage of new housing developments and city expansion. Ensure that green spaces within built-up areas are connected, even by narrow strips. * Avoid converting green areas into built-up or paved spaces. Encourage others to preserve green spaces as naturally as possible, and resist converting them into parking lots or buildings. * Do not overlook the potential of improving a degraded area, even if it initially seems beyond help. Nature can reclaim even the most unfriendly spaces, especially with a little assistance. * Do not remove native plants that have self-seeded around your home, in your garden, or near fences. These are not “weeds” but often plants that enhance biodiversity and provide valuable shelter and food for beneficial insects and birds.   **SUMMING UP**  **Greening your own home**  By introducing greenery into your home, you improve your health and well-being. Nothing tastes better than growing your own herbs, vegetables and fruit. By planting trees and bushes next to your house, and less demanding plants on the roof, you improve the insulation of your home and save on heating in winter, and cooling in summer.  **A healthy house**  When renovating or decorating your house, you can easily bring even more green inside. Green walls, vertical gardens or climbing plants will make you feel better and forget about the dry air in winter.  **Growing your own garden**  If you are lucky to have your own garden, there are great opportunities to experiment with eco-friendly, healthy crops, eg. permaculture. Your garden can also be home to birds, beneficial insects and small mammals such as hedgehogs and squirrels.  **Greening up your city and neighbourhood**  It is pleasant to live in a quiet neighbourhood surrounded by greenery and clean air. It is possible, but like everything, it requires activity, in this case civic activity. Contacts with the municipality, the estate administration, your neighbours, can turn your town into a place where you want to live. |
| **Glossary** | **Biodiversity** - the variety of life on Earth, the variety of living things in a given ecosystem or region. Includes all living things, from bacteria, plants and animals to humans. https://eur-lex.europa.eu/EN/legal-content/glossary/biodiversity.html  **SMOG** - [eng. *smoke* and *fog*] - a mixture of smoke, gases and chemicals, especially in cities, which makes the atmosphere difficult to breathe and harmful to health. <https://dictionary.cambridge.org/dictionary/english/smog>  **Ruderal vegetation** - plants spontaneously colonising areas altered by man, especially urban environments. https://pl.wikipedia.org/wiki/Ro%C5%9Blina\_ruderalna |
| **Related Good practice** | Plaza Mayor. Sustainable gardens in the largest shopping centre in Malaga. https://www.eurecaedu.eu/best\_practice.php?id\_bp=8  Protective gabion wall in Teplého street, city of Pardubice – Dukla. https://www.eurecaedu.eu/best\_practice.php?id\_bp=12  Flower meadow in the city. https://www.eurecaedu.eu/best\_practice.php?id\_bp=15  Monsanto Green Corridor. https://www.eurecaedu.eu/best\_practice.php?id\_bp=16  Lisbon Horticultural Parks. https://www.eurecaedu.eu/best\_practice.php?id\_bp=21  Permaculture garden. https://www.eurecaedu.eu/best\_practice.php?id\_bp=1488 |

| **Self-evaluation (multiple choice queries and answers)** | **1. Which plants are beneficial for energy conservation in the house?**  a) Large trees near the house on the north and south sides.  b) Potted plants that purify the air.  c) A green wall inside the house.  **2. What function do houseplants grown in pots indoors have?**  a) Improve the interior microclimate.  b) A sound barrier.  c) Provide an additional source of heat.  **3. What method of gardening makes use of nature's natural processes, taking into account the cycles of matter and energy?**  a) Permaculture.  b) Crop rotation.  c) Compost fertilisation.  **4. What type of green roof is covered with low-maintenance plants?**  a) Extensive.  b) Intensive.  c) Swampy.  **5. Ruderal plants are:**  a) Plants that spontaneously colonise degraded areas.  b) Plants found in rural areas.  c) Garden plants ranging in colour from brown to red. |
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| **Learn More** | **Trees in the city** https://naukatolubie.pl/pochwala-drzew-zwlaszcza-w-miescie/  **Instead of grass** https://niepodlewam.pl/zamiast-trawnika-rosliny-lubiace-slonce/  **Swamp roof** https://www.muratorplus.pl/technika/dachy/ogrod-bagienny-na-dachu-dlaczego-warto-tworzyc-ogrody-bagienne-na-miejskich-dachach-aa-4uoU-5n9L-taQi.html  **Green roof**  https://obiektymieszkalne.muratorplus.pl/budowa/konstrukcja-dachu-zielonego-warstwy-dachu-obciazenie-aa-7TzG-2hLP-YG5X.html  **SMOG and air pollution in the city** https://airly.org/pl/smog-definicja-skutki-i-przyczyny/#co-to-jest-smog-definicja  **Permaculture** https://muratordom.pl/ogrod/eko-ogrod/permakultura-w-ogrodzie-na-czym-polega-zasady-uprawy-permakulturowej-warstwy-aa-AhHg-JQv6-jmff.html  **Downloadable guides: plants at home, composting, water and greenery, and more** https://izabelin.pl/ug/pl/artykul/poradnik-mieszkanca |