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Nature Based Education Program

**NATURE
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Earth Competencies

Introduction to our nature-based learning program

Many definitions of sustainability exist out there. In fact, the understanding can also differ. Many would still perceive sustainability as something solely related to environmental topics (recycling, lowering CO2 footprint, protecting nature from pollution, etc.). We can surely agree that the environment is a very important part of sustainability, however it is certainly not the only component of it.

For example, the Pennsylvania State University sees sustainability as: “...the simultaneous pursuit of human health and happiness, environmental quality, and economic well-being for current and future generations.” This means that a stable environment is an important part, but so, too, is gender equity, no poverty, healthy communities, etc.¹

Many stakeholders - different organizations, institutions, governments, businesses, schools, and other types of actors – worldwide therefore decided to align their sustainability efforts and frame them according to the internationally recognized system of goals towards sustainable development, known as the United Nations’ Sustainable Development Goals (SDGs).²

We can easily understand these goals as a general call to action to protect our only planet, end poverty and hunger, and ensure that we all can enjoy peace and sustainable prosperity. We can then say that these goals are leading us on the path towards handling these challenges for the environmental, social, and economic good of everyone, ideally by 2030.

Addressing the SDGs will be very much affected by our interactions with the natural environment, and how we will manage the changes in our societies and economies that are inevitable (referring to education, transportation, food security, health care, tourism, and many more). – We believe that innovative approaches in the field of education are one way of tackling and addressing these issues. Putting more effort into education towards sustainable development, environmental education

¹ <https://sustainability.psu.edu/about-us/what-is-sustainability/>

² <https://sdgs.un.org/goals>

and nature-based education will empower individuals and communities to become powerful contributors to climate actions and be the real and positive change-makers. They will not only be passive receivers of external knowledge, but they will also become active creators and co-creators of their own educational processes where skills are gained, and positive attitudes shaped.

When we talk about education in our context, we mean self-driven and motivated life-long learning mostly using non-formal educational methods and informal learning processes and developing the whole range of competences. The purpose of this kind of education is not only to develop one's knowledge but also skills and attitudes, respectively behaviors. Behaviors which are "...creating environments for healthy human development and a healthy biosphere for generations to come."³

In this sense we can say that our relationship with nature needs to be redefined and education recognizing nature's core values – to change societal and economic behaviors – be put in place. We can simply talk about building human-nature connectedness, e.g., via integration of nature in urban areas through green architecture, green infrastructure, and access to nature. And if we want to frame it, we can refer to this kind of education as nature-based education.⁴ An approach that utilizes the natural environment as the context for learning. While this learning occurs where nature is present.

Generally speaking, people who respect the environment and feel an emotional attachment to the natural world and understand the link between themselves and nature, are considered environmentally literate people and citizens. Such a person understands and has the competences to take responsible decisions that consider their relationship to nature, communities and also the future generations.⁵ Then to be nature-based educated, respectively having Earth-focused competences represents one's competences that touch upon sustainability and sustainable development areas, eco-conscious actions and environmentally responsible behaviors, close to zero waste behavior, practicing the 5R's approach – refuse, reduce, reuse, repurpose, and recycle, knowledge of climate challenges, a positive influence on others as part of environmental literacy, and more.⁶ In the


³ <https://naturalearning.org>

⁴ <https://www.naturebased.education>

⁵ Inspired by NAAEE: <https://www.youtube.com/watch?v=23kDevXTsxY>

⁶ Inspired by: Carol A. Brewer, Alan R. Berkowitz, Bill Borrie, 2013: Environmental literacy, ecological literacy, ecoliteracy: What do we mean and





following text we will focus on defining nature-based learning and competences, as well as green and sustainability competences, and how all these concepts interrelate. We will also give an answer to the question “How does the sustainability, green and nature-based education relate to the Sustainable development goals of the United Nations?”. All this information will then feed into defining general earth competences and their relation to the SDGs.

Read, learn and enjoy!



how did we get here? https://www.researchgate.net/figure/Components-of-environmental-literacy-adapted-from-Simmons-1995_tbl1_299484571



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Nature-based learning

Nature-based learning refers to an educational approach that emphasizes learning through direct experiences in natural environments. It aims to bring learners closer to nature and to promote hands-on learning, problem-solving, critical thinking and creativity. This approach is based on the idea that exposure to nature can have positive impacts on a person's well-being, cognitive development, and ability to learn.⁷

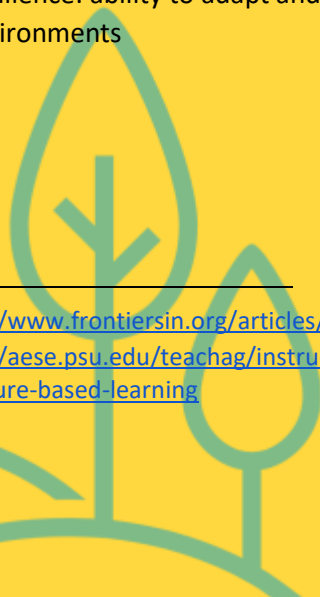
Nature-based competences

Nature-based competencies refer to the knowledge, skills, and attitudes that individuals acquire through experiences in and via natural environments. These competencies can include:⁸

- Environmental literacy: understanding of the interrelationships between humans and the natural world
- Ecological awareness: knowledge of the functioning of ecosystems and the impact of human activities on the environment
- Outdoor skills: proficiency in outdoor activities such as hiking, camping, and orienteering in natural environments
- Environmental ethics: appreciation of the value of nature and commitment to environmental stewardship and prevention of climate change
- Risk management: ability to assess and manage risks in outdoor environments
- Communication and teamwork: ability to work effectively with others in a natural setting
- Creative thinking: ability to think outside the box and generate innovative solutions to environmental challenges
- Resilience: ability to adapt and thrive in challenging natural environments

⁷ <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00305/full>

⁸ <https://aese.psu.edu/teachag/instructional-classroom-resources/envir-edu-and-nature-based-learning>



These competencies can contribute to a person's personal and professional development, as well as to the overall sustainability of natural resources and the environment.⁹



Green competences

Green competences refer to the knowledge, skills, and attitudes necessary to live and work sustainably, promote environmental protection, restoration, and address the challenges of climate change. Some common green competences then include the following:¹⁰

- Energy efficiency: understanding of energy use and the ability to implement energy-saving measures
- Environmental management: knowledge of environmental regulations and the ability to implement environmental management systems
- Sustainable production and consumption: understanding of sustainable production and consumption practices and the ability to implement them
- Climate change mitigation and adaptation: knowledge of the causes and effects of climate change and the ability to implement measures to mitigate its impact
- Waste management: understanding of waste management practices and the ability to implement waste reduction and recycling programs

⁹ <https://www.nature.scot/professional-advice/social-and-economic-benefits-nature/nature-based-jobs-and-skills>

¹⁰ <https://greenskillsresources.com/category/generic-green-skills>

- Sustainable transportation: understanding of sustainable transportation options and the ability to implement sustainable mobility solutions
- Biodiversity conservation: knowledge of biodiversity and the ability to implement measures to protect and conserve biodiversity
- Sustainable agriculture and forestry: understanding of sustainable agricultural and forestry practices and the ability to implement them

These competences are essential for all individuals and organizations to contribute to the transition to a more sustainable society and to tackle the pressing environmental and sustainability-related challenges facing our world today and having a huge potential to influence it tomorrow.

Sustainability competences

Sustainability competences refer to the knowledge, skills, and attitudes, respectively behaviors necessary to understand and promote sustainability in all aspects of life. Sustainability competences encompass a wide range of areas, including all the aspects of environmental, social, and economic sustainability.



Some common sustainability competences include the following:¹¹

- Systems thinking: understanding of the interconnectedness of social, economic, and environmental systems and the ability to analyze sustainability related issues in a holistic manner
- Environmental literacy: knowledge of the natural environment around us and the ability to understand and respond to environmental issues or challenges
- Social responsibility: understanding of the impacts of human actions on the societies of today and tomorrow and the ability to act in a socially responsible manner
- Economic literacy: understanding of economic systems and the ability to make informed decisions about the allocation of resources keeping in mind the environmental and social aspects
- Climate literacy: knowledge of the causes and impacts of climate change and the ability to take action to mitigate its effects for current and future generations
- Cultural competence: understanding and appreciation of cultural diversity and the ability to work effectively with people from different cultural backgrounds, always bearing in mind the potential environmental consequences of own actions
- Ethics: understanding of ethical principles and the ability to make decisions based on ethical considerations
- Leadership: ability to inspire and motivate others to work towards sustainability goals, using the SDGs framework or other

These competences are important for individuals and organizations to promote sustainability in their own lives and communities, and to contribute to the creation of a more sustainable future.



¹¹ https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en

Relations among sustainability, green and nature-based competences and education

Sustainability, green, and nature-based competencies are interrelated, and all contribute to the development of an environmentally conscious and responsible individual and society as such. So, then sustainability, green, and nature-based education are also inter-related in that they all focus on promoting a more sustainable future by developing an understanding of the environment and sustainability issues.



Sustainability competences encompass a wide range of skills and knowledge related to sustainability, including environmental, social, and economic sustainability. Therefore, sustainability education aims to educate individuals about the interrelated social, economic, and environmental systems and the importance of considering sustainability in all aspects of life. It emphasizes the development of sustainability competencies, such as systems thinking and social responsibility.

Green competencies focus specifically on environmental sustainability and the knowledge, skills, and attitudes necessary to live and work in a sustainable manner. These competencies include understanding of energy efficiency, environmental management, and sustainable production and consumption. Green education then focuses specifically on sustainability and the green competences related to it.

Nature-based competencies emphasize the importance of direct experiences in natural environments for personal and professional development. These competencies include outdoor skills, environmental literacy, and ecological awareness. Nature-based education is then an educational approach that emphasizes learning through these direct experiences in natural environments. It aims to bring learners closer to nature and to promote hands-on learning, problem-solving, critical thinking, and creativity. This approach is based on the idea that exposure to nature can have positive impacts on a person's well-being, cognitive development, and ability to learn, and is intended to develop nature-based competences, such as environmental literacy and outdoor skills mentioned above.

In essence, the three sets of competences complement each other to form a comprehensive approach to sustainability. By developing these competences, individuals and organizations can contribute to the creation of a more sustainable future and play a key role in addressing environmental and sustainability challenges. That is also the reason why sustainability, green, and nature-based education are all important elements in promoting environmental awareness, understanding, and action.

At this point – knowing what these types of education are about and what competences they support to develop – we can ask this question: “How does the sustainability, green and nature-based education relate to the sustainable development goals of the United Nations?”

Sustainability, green, and nature-based education are closely related to the SDGs of the United Nations. The SDGs are a set of 17 interrelated goals that aim to end poverty, protect the planet, and ensure peace and prosperity for all people.

For example, sustainability education helps to promote SDG 4: Quality Education by developing the knowledge, skills, and attitudes necessary to understand and respond to sustainability issues. It also supports SDG 13: Climate Action by promoting an understanding of climate change and the importance of taking action to mitigate its impact.

To continue with green education, it directly contributes to several SDGs, including SDG 7: Affordable and Clean Energy, by promoting the use of sustainable energy sources, and SDG 12: Responsible Consumption and Production, by encouraging the use of sustainable production and consumption practices.

Finally, nature-based education supports SDG 14: Life Below Water and SDG 15: Life on Land by promoting the understanding and conservation of marine and terrestrial ecosystems. It also supports SDG 3: Good Health and Well-being by emphasizing the positive impacts of exposure to nature on personal health and well-being.



In conclusion, sustainability, green, and nature-based education are critical components in achieving the SDGs and promoting a more sustainable future. By developing the necessary knowledge, skills, and attitudes, individuals and organizations can play a key role in addressing the global sustainability challenges and contributing to the implementation of the SDGs in peace and with joint efforts.

Earth competences

Speaking about sustainability, green, and nature-based competences, we should not be forgetting the earth competencies which also refer to the knowledge, skills, and attitudes necessary to understand and promote environmental sustainability, and to take action to mitigate the impacts of human activities on the planet.

Earth competences encompass a wide range of areas, including environmental literacy, systems thinking, and climate literacy. In this sense, earth competences are similar to green and nature-based competences, as they all focus on promoting a more sustainable future by developing an understanding of the natural environment and sustainability related challenges. However, earth competences may be broader in scope and may also encompass issues related to resource depletion, waste management, and sustainable production and consumption.

Developing earth competences is very important for individuals and organizations to play a role in addressing environmental and sustainability related challenges and to contribute to the creation of a more sustainable future. Earth competences are by their nature also closely related to the Sustainable Development Goals. They play an important role in achieving the SDGs by promoting environmental sustainability and the knowledge, skills, and attitudes necessary to understand and respond to sustainability issues.

Developing earth competences supports several SDGs, including:

- SDG 4: Quality Education - by developing the knowledge, skills, and attitudes necessary to understand and respond to sustainability issues.
- SDG 7: Affordable and Clean Energy - by promoting the use of sustainable energy sources and energy efficiency.
- SDG 12: Responsible Consumption and Production - by encouraging the use of sustainable production and consumption practices.
- SDG 13: Climate Action - by promoting an understanding of climate change and the importance of taking action to mitigate its impact.
- SDG 14: Life Below Water - by promoting the understanding and conservation of marine ecosystems.
- SDG 15: Life on Land - by promoting the understanding and conservation of terrestrial ecosystems.

In conclusion, earth competences are critical components in achieving the SDGs and promoting sustainability. By developing the necessary competences, everyone can play a key role in addressing the local as well as global sustainability challenges and contribute to the implementation of the SDGs for a livable planet.

Nature-based learning connects us to the natural world, offering transformative educational experiences. Stepping outside traditional classrooms, we unlock benefits like sensory awareness, critical thinking, and emotional intelligence. We list here a few easy nature-based learning techniques from Nature Mentor:

- Embracing the outdoors. Direct experiences in nature enhance learning, fostering observation skills, stress management, and empathy.
- Cultivating the inner naturalist. Developing our own naturalist skills enables us to guide students effectively, inspiring curiosity and passion.
- Starting with Feelings, not information. Positive emotions and associations with nature create an optimal learning environment, fueling curiosity and wonder.
- Engaging the senses. Mindful sensory engagement deepens learning, as students observe, listen, and connect with nature. For more inspiration, please visit [Nature Mentor](#).



Understanding adult learning



Introduction

The main difference between adult learning and learning when we are young is that we as adults choose what we want or need to learn. When we are young, we must go through education, and we won't be able to choose the specific direction until we get to the age where we choose what type of education we want in order to get the type of job we want.

In adult education and learning we already have chosen or have formed our direction in life and what we learn from that time on is about what

we need to learn or what we want to learn. We choose to enter an education or we learn something that we need through a course or through research.

In formal adult education such as the introduction programs for refugees, the students also need to follow the curriculum for language learning and social studies. This is a program they need to go through to start their life in the new country they have moved to.

Definitions

Adult education

“Education specifically targeting individuals who are regarded as adults by the society to which they belong to improve their technical or professional qualifications, further develop their abilities, enrich their knowledge with the purpose to complete a level of formal education, or to acquire knowledge, skills and competencies in a new field or to refresh or update their knowledge in a particular field. This also includes what may be referred to as ‘continuing education’, ‘recurrent education’ or ‘second chance education’.”

<https://uis.unesco.org/en/glossary-term/adult-education>



Andragogy

"Refers to methods and principles used in adult education. The word comes from the Greek άνδρ- (andr-), meaning "man", and άγωγός (agogos), meaning "leader of". Therefore, andragogy literally means "leading men", whereas "pedagogy" literally means "leading children"."

Non-formal educational approach

When educating adults, we can use the adult learning theory (andragogy). Adult learning needs to be more adapted and suit the style for each learner in a way that suits them best. It is about each learner's perspective. How they learn and how they like to learn. This is also important to keep an independent self when going through new training. They also have experience to build our learning on which we draw knowledge and references from. Adults are ready to learn if there is a reason like growth or related to work. What they need is learning things that can be practical in our everyday life. To solve problems or do our job better. They have their own reasons to learn.



4 principles of Andragogy

- they need to be involved in how the training is planned. Control how and what they learn
- they learn more if they can connect it with earlier experiences. This adds greater context to learning.
- They do not learn by memorizing facts, but through problem solving and reasoning
- They need to be able to use the information now

So how can you also adapt this theory if you are teaching adults that are in an introduction program? Some of what they need to learn are set but often the curriculum is made to be adapted to each individual. So, it is important that the learners include and build the learning for the adult student.



Resource Bank (links, videos, activities existing out there related to our topic, etc.)

<https://www.learnupon.com/blog/adult-learning-theory/>

<https://nature-mentor.com/nature-based-learning/>

Community Gardening

Introduction

The aim is for the local communities to learn more about sustainability, to adopt new green living practices, and to lessen our ecological footprint along the way. The philosophy of the project is a new implementation of the sharing economy as we know it, which looks at sharing with the aim of increasing environmental protection.

A community garden is a plot of land that has been gardened or farmed by a number of individuals or groups of people. In community gardens, the ground is typically divided into separate plots. Each gardener is in charge of their own plot, and they are also responsible for its productivity or yield.[\[1\]](#)



The gardens may be on public or private property, and they may be run by a third party (such a charity or land trust) or by the gardeners themselves (perhaps with the help of a paid coordinator). Participants range from individuals hoping to make their neighborhoods more aesthetically pleasing to those who believe community gardens are a more sustainable supply of fruits and vegetables. Some participants engage in this activity for social or health-related reasons. One aspect that sets community gardening apart from related endeavors like (some forms of) market gardening, where gardeners may get a compensation, is the fact that participants will typically be volunteers.[\[2\]](#)


Definitions

The American Community Garden Association (the ACGA) defines and describes a community garden as a place; that can be urban, suburban, or rural. It can serve for flowers, vegetables, or community gatherings. It can be one community plot or many individual plots. It can be at a school, hospital, or in a neighborhood. It can also be a series of plots dedicated to "urban agriculture" where the produce is grown for a market.^[3]

Gardening is the planning and upkeep of a piece of land set aside entirely or primarily for the growth of plants like flowers, herbs, or vegetables.^[4]

Fertility (the capacity to provide plant nutrients) and physical condition of the soil must be regulated. It is necessary to supply and release nutrients in plant-available forms.^[5]

By fostering more culturally relevant interactions, reducing food insecurity, and increasing social interaction, gardening activities may enhance wellbeing. It is suggested that community gardening has advantages that go beyond the individuals who participate in it, such as stronger communities, better physical environments, and the sharing of the products.^[6]



Non-formal educational approach

The project's goals are to increase public participation, advance knowledge among the populace, and enhance the environment all at once. This also entails creating instructional materials for use in adult education across the three participating nations. The initiative is anticipated to produce information and materials that may be shared among nations, where everyone participates. All educational institutions, organizations, and people interested in green projects with sustainability as a guiding concept will find the instructional program valuable. Get an opportunity to exchange experiences and get to know new methods. With this project, we are creating a community together to learn from each other, participate and share knowledge and ideas about sustainability. The target group is adults, but in fact all groups of all ages can participate in the project. We collaborate with the local community, where fresh knowledge and experience are developed, encouraging innovation, so the project may benefit the entire community. The three participating nations arrange their own portions through workshops and field trips, bringing knowledge and concepts that benefit the community, such as vegetable planting, care, and harvest.

People are also encouraged to pick up the spade due to the growing public demand for basic skill self-sufficiency. The taste of homegrown vegetables in the kitchen is superior to that of store-bought produce, giving the gardener a sense of accomplishment. Some people are motivated to grow the greenery and color near their own doorsteps by an increased awareness of risks to the environment and the dullness of many inner cities.^[7]

Local realities

One of the most fulfilling endeavors you can engage in - is starting or joining a community garden. Just the concept of it conjures up visions of sunny days, digging in the dirt with family, friends, and neighbors, reaping a rich harvest of organic crops that will endure for many years. Any of those are possible. It does, however, provide a number of challenges. 1) You will need approval to start a garden, 2) Finding supplies like seeds, soil, and building materials that are required for starting and maintaining the garden, 3) Deciding upon which vegetables or flowers to grow, 4) Keeping the community garden grounds secure, 5) Rouse the younger generations' interest in organic farming and gardening so that they can get involved right now.[\[8\]](#)



Resource Bank (links, videos, activities existing out there related to our topic, etc.)

[What are the health and well-being impacts of community gardening for adults and children: a mixed method systematic review protocol](#)

[Learn how arugula leaves are used in food preparation and its oil benefits extracted from seeds](#)

[Benefits of a Community Garden](#)

[A library where you can check out seeds](#)

[A garden in my apartment](#)

[How we can eat our landscapes](#)

Community Garden Procedures, Benefits, and Goals

<https://study.com/learn/lesson/community-garden-benefits-purpose-what-is-a-community-garden.html>

Plant a Seed & See What Grows, <https://seewhatgrows.org/>

Sources

[1] "What is a community garden?". American Community Garden Association. Archived from the original on 2007-12-04.

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[3] What is community gardening
<https://communitygarden.org/resources/>

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[5] Encyclopædia Britannica. (n.d.). Gardening. Britannica Academic. Retrieved February 5, 2023, from <https://academic.eb.com/levels/collegiate/article/gardening/109762>

[6] <https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/2047-2382-3-20>

[7] Encyclopædia Britannica. (n.d.). Gardening. Britannica Academic. Retrieved February 5, 2023, from <https://academic.eb.com/levels/collegiate/article/gardening/109762>

[8] <https://seewhatgrows.org/5-challenges-community-garden/>



Permaculture, Herbals, Compost, DIY at home or at a community garden

Introduction


Permaculture is an approach to agriculture and community design that focuses on working with natural systems to create sustainable and self-sufficient ecosystems. It emphasizes the use of locally adapted and resilient crops, sustainable water management, and soil conservation techniques. In line with this approach, community gardening has emerged as a way to promote sustainable food production, community building, and education.



Herbals are plants that have medicinal properties and can be used for various health and wellness purposes. In many cultures, herbals have been used for centuries and continue to be an important part of traditional medicine. In recent years, interest in herbals has grown, and many people are turning to natural remedies as an alternative to conventional medicine.



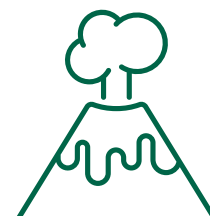
Compost is a key component of permaculture and sustainable gardening. It is a process of decomposing organic matter to create a nutrient-rich soil amendment that can improve soil fertility, water retention, and plant growth. Composting also reduces waste and contributes to a more circular economy.



Iceland, Norway, and Slovakia are countries with different weather conditions and soil components, which present both challenges and opportunities for community gardening. In Iceland, the climate is harsh and cold, with short growing seasons and limited daylight. However, geothermal energy is abundant and can be used to heat greenhouses, making it possible to grow a variety of crops year-round. Norway has a milder coastal climate, but the mountainous terrain and acidic soil can be challenging for gardening. In Slovakia, the climate is continental, with hot summers and cold winters, and the soil is generally fertile.

Given the unique weather conditions and soil components in each country, different crops may be more practical and cheaper to grow. In Iceland, root vegetables like potatoes and carrots, as well as hardy greens like kale and chard, can be grown in greenhouses or using geothermal heat. In Norway, cold-tolerant crops like kale, turnips, and leeks, as well as berries and fruit trees, are practical options. In Slovakia, a variety of crops can be grown, including vegetables like tomatoes, peppers, and cucumbers, as well as fruit trees like apples and plums.

Overall, permaculture, herbals, compost, and community gardening offer a holistic approach to sustainable agriculture and community development. With careful planning and attention to local conditions, community gardens can be a valuable source of fresh, healthy food, education, and community building.



Iceland

Because of the unique unforgiving climate in Iceland there is not a long tradition of home gardening, except for potato plots. The problem is finding suitable garden plants that can thrive in the short cool summers, where the temperatures rarely reach 20°Celsius.





By pre-sowing, we speed up the harvest of vegetables. It is good to start sowing in March/April, although it varies by species. There is usually good information on the back of the seed packets. Pre-cultivation usually takes about 3-6 weeks.



When there are no more night frosts, usually at the beginning of June, the pre-sown vegetables are moved to the gardening beds outside. It is good to harden the plants a few days before. This is done by putting them out during the day and bringing them in at night and can prevent cold damage at the beginning of cultivation.

It is good to place an acrylic sheet over the bed for the first 4-6 weeks to keep the temperature constant and to keep the cabbage from flying away. Make sure the sheet does not constrict the plants by loosening it a little so that it rises with the plants. Choose a sunny and sheltered place. Fertilization is necessary when the plan is in growth, it is suitable to use organic fertilizers like compost and dried animal droppings.

It is important to water the plants thoroughly each time and preferably in the afternoon.

There are several ways to get support on starting your own garden in Iceland:

- **Contact the national gardening group:** Every year, the association hosts a variety of talks and workshops, events of many types, including picture exhibits and demonstrations, that are open to both members and non-members. The association has managed or made contributions to educational and gardening programs on radio, television, newspapers, magazines, and the Internet for many years. The association actively engages in counseling inside gardening groups, participates in Facebook through its own page, does online distance meetings, and offers online distance learning courses. The clubs typically have their own Facebook groups as well.
- **Contact the local gardening group:** The departments oversee and organize the national gardening group projects in the neighborhood, and they rely on dedicated volunteers to carry out their duties selflessly for the good of the club and enthusiastic neighborhood dwellers. The local clubs typically have their own Facebook groups as well.
- **Consult with a gardening expert:** If you need more in-depth advice on starting your garden, you can consult with a gardening expert. Gardening experts perform a wide range of duties linked to the growth and management of edible plants as well as all varieties of forest and garden plants. They also handle sales and offer advice on anything concerning their line of work.
- **Visit a gardening store:** Visiting a gardening store can be a great way to get advice on what to grow in your home garden. The staff at these stores are often experienced gardeners themselves and can offer advice on what plants will grow well in your area, what kind of soil and fertilizers to use, and how to care for your plants.
- **Join a community garden:** A fantastic approach to begin gardening is by joining a community garden. You can pick up tips on what to grow and how to take care of your plants from seasoned gardeners, share tools and resources, and learn new gardening techniques. In

Iceland, there are not many community gardens, although that number is growing.

This year, community gardens have been created in two libraries in Iceland so more people are becoming interested in the concept of community gardens.

Gardening school in Hveragerði

Since 1939, gardening has been taught at Reykjum, a college in Reykjavik Prior to becoming a component of the Agricultural University of Iceland, the institution first existed independently. The Horticultural School joined the College of Suurland (Fsu) in the fall of 2022.

Students learn to use nature in a variety of ways since Reykja's environment and natural resources play a significant role in school activities. Currently, they have roughly 120 students—mostly Icelanders—enrolled in individual studies. They have research on climate change coming from all over the world.

At the school they have been working on a wildflower garden and believe that for optimal growth, seed bombs should also contain grass seeds. Since they require no maintenance and help honeybees, wildflower gardens are becoming more and more popular in Iceland.

Sólheimar

In the south of Iceland, there is a sustainable community called Sólheimar where more than 100 individuals coexist and work together. Sólheimar was established in 1930, and the area around it places a strong emphasis on the development of both people and the environment. In Sólheimar, a variety of activities are carried out, including the management of horticulture and forestry facilities that both engage in organic farming.

The best tomatoes are those that grow naturally and are heated by green thermal water. They cultivate them by using a soil and mushroom mix, adding fresh layers. In mushroom soil, there aren't many weeds, thus this mixing is helpful for growth.

In addition to tomatoes, other crops grown at Sólheimar include grapes, potatoes, carrots, peas, zucchini, and pot marigolds. They also try to avoid producing waste, such as when they press nettle plants in barrels to produce oil that is utilized as fertilizer. In addition, they utilize Tulsi, an Indian herb that is similarly squeezed in a barrel, as a fertilizer and pesticide.



Norway

Norway is a country of a long and varied land. Growing conditions differ from the most tempered to permafrost.

Before potatoes and other vegetables arrived in the 1700s, mainly different varieties of turnips could be found here, grown by the farmers. In most of the country fields, you can grow wide variety of vegetables,



Elisa from Helgebostad Hagebruk, a local farm that focuses on growing your own food and sharing knowledge

with the seasonal window being longer in southern and fjord climates, and an abridged season in the North. Because of that, the range of plants will also differ a lot with the location within the country.



In general, most of the root vegetables are compatible with the Norwegian climate. Also, some of the cabbage varieties and kale sorts, onions, leafy vegetables such as lettuce, different kinds of peas and broad beans.

There are several ways to get support on starting your own garden in Norway:

- Join a community garden: Look for groups on Facebook and projects online for community gardening. There are more and more starting up both in smaller places and in the city with urban gardening. If you cannot find any maybe you can start one?
- Contact a local gardening group: The interest in planting and gardening is becoming more popular. There are different groups and communities that work together in sharing knowledge. Maybe your municipality has their own group, in Hitra they have a project called “Green Hitra” which focuses on exchanging experiences. Maybe you can find something similar in your own town?
- Visit a gardening store: The gardening stores have a lot of knowledge, and you can find help to start planting. Especially the smaller ones and the “market gardens” have an extra engagement in the field and wanting to make an impact on making us eat and produce the local grown food.
- Consult with a gardening expert: There are many different accounts on social media that shares their expertise in gardening. You could learn from their content and engage with them online. There are also experts that work with sharing information in different companies.

Slovakia

The specific plants that can be grown in your home garden in Slovakia will depend on a number of factors, including the region, climate, soil conditions, and available space. However, there are many types of plants that can thrive in the country's climate.

Some vegetables that are commonly grown in Slovakia include tomatoes, cucumbers, zucchini, peppers, cauliflower, broccoli, and various types of greens such as lettuce, spinach, and arugula. Root vegetables like carrots, parsley, beets, and potatoes also do well in the region.

Fruit trees such as apples, pears, plums, and cherries are popular in Slovakia, as are small fruit shrubs like raspberries, currants, and gooseberries. Herbs like parsley, basil, thyme, and rosemary are also popular choices grown in home gardens, and so are flowers such as marigolds, petunias, or sunflowers.

The timing for planting in Slovakia will depend on the specific region and microclimate. In general, the planting season for vegetables starts in late April or early May, while fruit trees are often planted in the fall or early springtime.

When planning a home garden in Slovakia, it is important to consider the soil conditions and to amend the soil as needed. Composting can be a great way to improve the quality of soil, and permaculture principles can also be applied to help create a sustainable and low-maintenance garden. Additionally, using herbal remedies can be a natural and cost-effective way to protect crops and promote growth.



By choosing practical plants that are well-suited for the local climate and soil conditions, home gardeners in Slovakia can enjoy a bountiful harvest and a rewarding gardening experience.

There are several ways to get support on starting your own garden in Slovakia:

- **Join a community garden:** Joining a community garden can be a great way to get started with gardening. You can learn from experienced gardeners, share resources and tools, and get advice on what to grow and how to care for your plants. There are many community gardens in Slovakia, and you can find one near you by searching online or asking around in your local community.
- **Contact a local gardening group:** There are many gardening groups and organizations in Slovakia that can offer support and advice to new gardeners. These groups often organize workshops, seminars, and other events to help people learn more about gardening. You can find a list of gardening groups in Slovakia online or by asking at your local gardening store.
- **Visit a gardening store:** Visiting a gardening store can be a great way to get advice on what to grow in your home garden. The staff at these stores are often experienced gardeners themselves and can offer advice on what plants will grow well in your area, what kind of soil and fertilizers to use, and how to care for your plants.
- **Consult with a gardening expert:** If you need more in-depth advice on starting your garden, you can consult with a gardening expert. There are many experts in Slovakia who offer consultations and advice to new gardeners. You can find a list of experts online or by asking at your local gardening store.



Community garden at the cultural and creative center Nová Cvernovka, operated by the Cvernovka foundation, located in the area of the former chemical industry facility in the capital city

Overall, there are many resources available in Slovakia to help you start your own garden. By reaching out to your local community, joining a gardening group, or consulting with an expert, you can get the support and advice you need to create a thriving home garden.



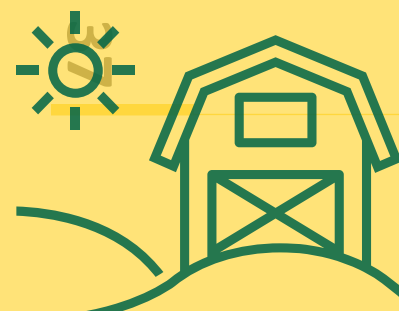
Community garden in Bratislava, on the rooftop of a shopping center that accommodates a central bus station in the basement



Community garden area in Zaježová, in the heart of Slovakia



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Active Community Engagement

Introduction

Active community engagement is a powerful tool for building strong and resilient communities. It involves bringing together individuals from diverse backgrounds to work collaboratively towards a common goal. This type of engagement promotes a sense of ownership, belonging, and shared responsibility for the community's well-being. By working together, communities can develop a shared vision, tackle shared challenges, and create a more vibrant and inclusive environment.

There are many different forms of active community engagement, including volunteering, participating in community events, and engaging in local decision-making processes. Volunteering is a great way to get involved and make a positive impact on the community. Whether it's helping out at a local soup kitchen, tutoring students, or cleaning up a park, volunteering provides a way for individuals to give back and connect with their community.

Participating in community events is another way to engage with others and build a sense of community. Events such as street fairs, festivals, and community cleanups bring people together and create a shared experience. By participating in these events, individuals can get to know their neighbors, learn more about the community, and have fun in the process.

Engaging in local decision-making processes is also an important aspect of active community engagement. Attending city council meetings, participating in public forums, and voicing concerns to local officials can all make a difference. By engaging in these processes, individuals can help shape the direction of their community and ensure that their voice is heard.



The benefits of active community engagement are numerous. By working together, communities can promote social cohesion, improve health outcomes, and create a more inclusive environment. Active engagement can also lead to increased civic participation and a greater sense of community pride. By fostering a sense of ownership and shared responsibility, active community engagement can create a more resilient and vibrant community.

In conclusion, active community engagement is a vital component of building strong and resilient communities. Whether through volunteering, participating in community events, or engaging in local decision-making processes, individuals can make a positive impact and create a more connected and inclusive environment. By working together towards a common goal, communities can create a brighter and more prosperous future for all.

Definitions

- Community engagement: The process of bringing people together to work collaboratively towards a common goal for the betterment of the community.
- Volunteering: Giving one's time and energy to help others, typically through an organized group or program.
- Civic participation: The active involvement of citizens in the decision-making processes of their community or society.
- Social cohesion: The degree to which individuals and groups in a community work together towards a common goal, while maintaining a sense of identity and belonging.
- Inclusivity: The extent to which all members of a community are valued and included, regardless of differences in culture, background, or other factors.
- Neighborhoods watch program: A community-based program designed to prevent crime and increase safety in a neighborhood by involving residents in a watchful and vigilant role.
- Public forum: A meeting or event in which members of the public are invited to share their thoughts and opinions on a particular issue or topic.
- Shared responsibility: The idea that all members of a community have a role to play in its success and well-being.
- Community development: The process of building a stronger and more sustainable community through various social, economic, and environmental initiatives.

- 
- Collective impact: A collaborative approach to social change that involves bringing together diverse stakeholders to work towards a common goal.

Here are some key takeaways from recent research and developments in active community engagement:

- Active community engagement has been increasingly recognized as a crucial element of effective governance, social change, and public policy implementation. (Source: "Community Engagement: A Key Strategy for Improving Health and Wellbeing" by the World Health Organization, 2020)
- Community engagement is a multifaceted process that involves a variety of strategies, such as community organizing, outreach, consultation, and feedback mechanisms. (Source: "Community Engagement and Health Improvement: A Review of the Literature" by the National Institute for Health Research, 2018)
- Successful community engagement requires a commitment to equity, inclusivity, and cultural sensitivity, as well as a willingness to share power and resources with community members. (Source: "Community Engagement in Public Health Emergency Preparedness and Response: A Literature Review" by the Centers for Disease Control and Prevention, 2018)
- Technology can be a powerful tool for community engagement, allowing for greater accessibility, participation, and transparency. However, digital engagement should not replace face-to-face interactions and should be tailored to the specific needs and preferences of the community. (Source: "Technology and Community Engagement: A Review of the Literature" by the Institute for Local Government, 2019)
- Active community engagement has been shown to have numerous benefits, such as increased civic participation, improved health outcomes, enhanced social cohesion, and more effective decision-making. (Source: "The Power of Community Engagement: A Systematic Review of the Literature" by the Robert Wood Johnson Foundation, 2017)
- To ensure the sustainability and impact of community engagement efforts, it is important to establish clear goals, measure outcomes, and build capacity within the community for ongoing engagement and leadership development. (Source: "Community Engagement and Empowerment in Health Promotion: A Review of Conceptual and Methodological Approaches" by the International Journal of Health Promotion and Education, 2021)

By understanding these terms, individuals and organizations can better navigate the world of active community engagement and make a positive impact on their community.

Non-formal educational approach

- Community-based projects: Adults can participate in community-based projects that aim to solve local problems. By engaging in hands-on, collaborative work, they can develop new skills and contribute to positive change in their community.
- Workshops and seminars: Adult learners can benefit from attending workshops and seminars that focus on community engagement topics such as leadership, communication, and advocacy. These events offer opportunities to learn from experts and connect with others who share similar interests.
- Community service: Volunteering for community organizations or non-profit groups can help adult learners to develop a sense of purpose and connection to their community. By working alongside others to make a positive impact, they can develop new skills and gain a deeper understanding of the needs of their community.
- Civic engagement events: Adult learners can participate in events such as town hall meetings, community forums, or other civic engagement activities to learn about the issues affecting their community and become more involved in local decision-making.
- Peer-to-peer learning: Adults can learn from each other by sharing their experiences and knowledge. This can be done through informal networking events, mentorship programs, or community groups focused on a particular topic or cause.
- Service-learning courses: Adult learners can take service-learning courses that provide opportunities for hands-on learning and engagement in the community. These courses integrate community service with academic learning, allowing adult learners to apply what they are learning in the classroom to real-world situations.

By utilizing these non-formal educational approaches, adult learners can develop the skills, knowledge, and confidence to become active and engaged members of their community. They can contribute to positive change while also gaining personal fulfillment and a sense of purpose.

Circular Economy & 5Rs

Introduction

Circular economy is an economic model that is based on the principles of reducing, reusing and recycling resources to minimize waste, pollution, and the depletion of natural resources. The goal of the circular economy is to create a sustainable system that ensures main principles:

- Design out waste and pollution: This principle focuses on designing products, processes and systems that minimize the creation of waste and pollution.
- Keep products and materials in use: This principle focuses on extending the life of products and materials through repair, refurbishment, remanufacturing, and sharing.
- Regenerate natural systems: This principle focuses on regenerating natural systems by using renewable energy, restoring biodiversity, and using natural resources in a sustainable manner.

Circular economy can bring a lot of benefits for companies, governments, and society. Companies can benefit from cost savings, innovation opportunities, and increased resource efficiency by implementing circular economy principles. Governments can promote a circular economy through regulations and standards, public procurement, and research and innovation. A circular economy can also bring benefits to society such as reduced environmental impact, increased economic growth, and improved social cohesion.

Implementing a circular economy requires collaboration and partnerships between different sectors and actors, including government, business, and civil society. It also requires a change in the way we produce and consume goods and services, as well as a shift in mindset towards a more sustainable future.

However, implementing a circular economy also poses some challenges, such as the lack of infrastructure and technology to recycle and repurpose materials, the cost of collecting and sorting waste, and the lack of information and education on circular economy principles. Additionally, it may be difficult to change the current linear economy model, which is based on extracting and disposing resources, to a circular economy model that focuses on reducing, reusing and recycling resources.

Using these progressive principals can help create a more sustainable future for all by reducing waste, pollution, and the depletion of natural resources.

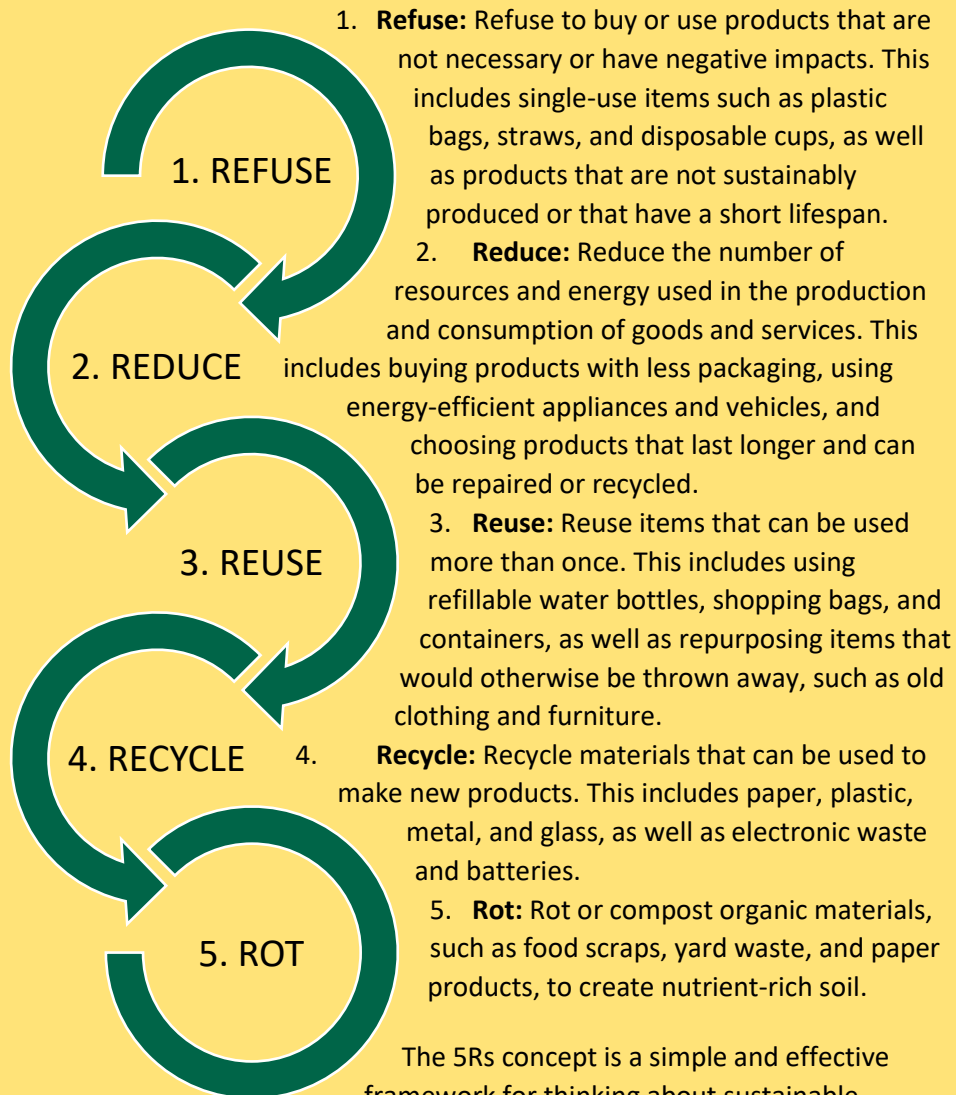


Gift shop in Solheimar, offering handmade, upcycled items, providing option for conscious shopping



5Rs:

The 5Rs concept is a framework for thinking about sustainable consumption and production. It encourages individuals and organizations to consider the environmental, social, and economic impacts of their consumption and production patterns, and to make changes to reduce those impacts. The 5Rs are:



The 5Rs concept is a simple and effective framework for thinking about sustainable consumption and production. It encourages individuals and organizations to take responsibility for the environmental, social, and economic impacts of their actions and to make changes that reduce those impacts. By following the 5Rs, individuals and organizations can reduce their environmental footprint, conserve resources, and create a more sustainable future.



The 5Rs concept (Refuse, Reduce, Reuse, Recycle, Rot) is a common framework used to promote sustainable consumption and production. However, there are other "Rs" that can be added to the list, depending on the context and the goals of the organization or individual using the framework. Some examples of additional "Rs" that have been proposed include:

- Repair: Repairing items that are broken or damaged, rather than buying new ones, can extend the life of a product and reduce the need for new resources.
- Remanufacture: Remanufacturing is the process of taking a used product and restoring it to like-new condition. This can include repairing, refurbishing, or upgrading the item.
- Rethink: Rethinking the way we consume and produce goods and services. This can include challenging the traditional linear economy model and moving towards a more circular economy.
- Rent: Instead of buying an item, renting it can be a more sustainable option. This is particularly true for items that are used infrequently, such as power tools or formal wear.
- Recover: Recovering energy or materials from waste streams, such as through incineration with energy recovery or gasification.



It is important to note that these additional "Rs" don't replace the original five but rather complement them and could be used in addition to the 5 Rs concept. The 5 Rs concept serves as a general guide for thinking about sustainable consumption and production and can be adapted to fit the specific needs of an organization or individual.



Definitions

- Circular economy: An economic model that is based on the principles of reducing, reusing, and recycling resources to minimize waste, pollution, and the depletion of natural resources.
- Linear economy: The traditional economic model that is based on the "take, make, use, dispose" model, where resources are extracted, used to create products, consumed, and then discarded as waste.
- Design out waste and pollution: The principle of designing products, processes and systems that minimize the creation of waste and pollution.
- Keep products and materials in use: The principle of extending the life of products and materials through repair, refurbishment, remanufacturing, and sharing.
- Regenerate natural systems: The principle of regenerating natural systems by using renewable energy, restoring biodiversity, and using natural resources in a sustainable manner.
- Closed-loop systems: A circular economy concept where resources are kept in use for as long as possible, and the waste and by-products of one process are used as inputs for another.
- Product-as-a-service: A circular economy business model where a company provides a service rather than a product, allowing customers to access the benefits of a product without owning it.
- Sharing economy: A circular economy concept where resources are shared among multiple users, reducing the need for each person to own their own resources.
- Industrial symbiosis: A circular economy concept where different industries work together to share resources and by-products, reducing waste and increasing efficiency.
- Cradle-to-cradle design: A circular economy design approach that aims to mimic the natural processes of growth, decay, and regeneration.
- Circularity: The degree to which an economic system is circular, measured by the proportion of materials and products that are kept in use and the proportion of renewable energy that is used.
- Circular materials: Materials that are designed to be reused, refurbished, recycled, or composted at the end of their life.

Non-formal educational approach

There are several ways to raise awareness about the circular economy using non-formal educational tools:

- **Community events and fairs:** Organize events such as festivals, fairs, and workshops that focus on the circular economy and its benefits. These events can include activities such as educational workshops, eco-friendly product demonstrations, and interactive exhibits.
- **Social media and online platforms:** Utilize social media platforms and online tools to share information and resources about the circular economy. This can include creating educational videos, infographics, and interactive tools that explain the principles of the circular economy and its potential benefits.
- **Public speaking and presentations:** Offer presentations and talks on the circular economy at community centers, schools, and other public venues. These can be tailored to different audiences, such as schoolchildren, business leaders, or policymakers.
- **Partnerships and collaborations:** Partner with other organizations and groups to raise awareness about the circular economy. For example, working with a local waste management company to organize a recycling event, or partnering with a school to develop a circular economy curriculum.
- **Gamification:** Using games and simulations as a tool for learning and raising awareness about circular economy, this can be done through online or offline games and activities that simulate circular economy, create scenarios and concepts, making it fun and interactive.
- **Public art and installations:** Use public art installations to raise awareness about the circular economy. For example, creating sculptures made from recycled materials, or creating a mural that illustrates the principles of the circular economy.

A whale installation from plastic bottle caps collected during a clean up action



It is important to note that these are just examples of ways to raise awareness about the circular economy, it is always good to tailor the message and the approach depending on the target audience and the context.



Plastic bottles collected during a clean-up action turning into a greenhouse wall

Raising awareness about the 5Rs concept and other sustainable consumption and production practices can be done through a variety of non-formal educational methods and tools. Here are a few examples:

- **Community events and festivals:** Organizing events and festivals that focus on sustainable living and the 5Rs concept can be a great way to engage and educate the public. Examples might include a zero-waste fair, a repair café, or a clothing swap event.
- **Social media:** Platforms such as Facebook, Instagram, and Twitter can be used to share information and resources about the 5Rs concept, as well as to engage with followers and promote sustainable living.
- **Community education and outreach:** Partnering with community organizations, schools, and universities to provide education and resources about sustainable living and the 5Rs concept can be effective in reaching a wide audience.
- **Online courses and webinars:** Online courses and webinars can be used to provide more in-depth education on the 5Rs concept and sustainable living. These can be interactive and can include quizzes, polls, and other interactive tools.
- **Role-playing games:** Creating games that simulate real-life scenarios and challenge players to make sustainable choices can be a fun and engaging way to raise awareness about the 5Rs concept.
- **Public speaking and presentations:** Giving presentations and talks at community events, schools, and universities can be a powerful way to raise awareness about the 5Rs concept and sustainable living.
- **Storytelling, videos and podcasts:** Storytelling, videos, and podcasts can be an effective way to raise awareness about the 5Rs concept and sustainable living. They are an emotional and engaging way to share information and can be easily shared on social media.
- **Field trips and hands-on activities:** Organizing field trips and hands-on activities, such as visiting a recycling facility, a sustainable farm, or a repair shop, can be a great way to educate people about the 5Rs concept and sustainable living in a tangible way.

Again, here it is important to note that the effectiveness of these methods and tools may vary depending on the audience, context, and goals of the awareness raising campaign. It is good to try different methods and tools and evaluate their effectiveness.

Resource Bank: existing relevant links, videos, and activities

It is possible to find information about circular economy by searching online for keywords such as "circular economy," "circular economy principles," "circular economy benefits," "circular economy implementation," "circular economy challenges," "circular economy resources" among others.

Websites such as the [Ellen MacArthur Foundation](#), the [World Economic Forum](#), the European Commission, the [Circular Economy Club](#), and the [Global Alliance for circular economy solutions](#), that provide a wealth of information and resources on circular economy, including research, reports, case studies, and best practices.

Additionally, videos and articles from experts in the field, such as circular economy consultants, researchers, and academics, which are great ways to learn more about the topic, and to have access to a wide range of information and examples.

The European Union (EU) has several laws and strategies in place to promote a circular economy and reduce waste. Here are some key examples:

- **Circular Economy Action Plan:** The EU adopted a Circular Economy Action Plan in 2015, which aims to increase resource efficiency and reduce waste. The plan includes measures such as increasing recycling rates, promoting the use of secondary raw materials, and encouraging the design of more circular products.
- **Waste Framework Directive:** The EU's Waste Framework Directive, adopted in 2008, sets binding targets for recycling and reduction of waste, and establishes a framework for waste management throughout the EU.
- **Landfill Directive:** The EU Landfill Directive, adopted in 1999, sets targets for reducing the amount of biodegradable waste sent to landfills and encourages the use of alternative waste treatment methods, such as recycling and composting.
- **Packaging and Packaging Waste Directive:** The EU Packaging and Packaging Waste Directive, adopted in 1994, aims to reduce the environmental impact of packaging by setting targets for recycling and recovery of packaging waste.
- **Resource Efficiency Roadmap:** In 2011, the EU adopted a Resource Efficiency Roadmap, which sets out a plan for increasing resource

efficiency and moving towards a circular economy. The roadmap includes targets for recycling and reducing waste, as well as measures to promote the use of secondary raw materials.

- **EU Single-Use Plastics Directive:** In 2019, the EU adopted the Single-Use Plastics Directive, which aims to reduce marine litter and the environmental impact of single-use plastics. The directive includes measures such as reducing the use of certain single-use plastics, promoting the use of alternatives, and increasing the recycling of plastic waste.
- **EU Green Deal:** in 2019, the European Commission proposed the EU Green Deal, a comprehensive plan to make the EU's economy sustainable by turning climate and environmental challenges into opportunities across all policy areas and making the transition just and inclusive for all.

Videos

[Circular Economy](#)

[Fashion industry & Circular Economy](#)

[Ellen MacArthur - Learning & The Circular Economy](#)

[Circular Economy: definition & examples | Sustainability Environment](#)

[Circular economy -- system perspectives for a new enlightenment: Ella Jamsin at TEDxLiege](#)

[5 R's In Waste Management](#)

Other resources

[Podcasts](#)

[Courses](#)

Sources

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- European Commission. "Circular Economy." https://ec.europa.eu/environment/circular-economy/index_en.htm
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- ChatGPT. "5 Rs concept" conversation with a user. OpenAI, 19 February 2023.
- ChatGPT. "Circular Economy" conversation with a user. OpenAI, 01 February 2023.



Zero waste

Zero waste is a philosophy and approach to living that focuses on minimizing waste and reducing the amount of material sent to landfills and incinerators. The goal of zero waste is to redesign the way we use and produce goods, so that there is no waste generated at any point in the product's life cycle.

The zero waste approach involves several key principles, including:

1. **Refusing** what we do not need
2. **Reducing** our consumption
3. **Reusing** items as much as possible
4. **Recycling** materials that cannot be reused
5. **Composting** organic waste

By adopting a zero waste lifestyle, individuals and communities can significantly reduce their impact on the environment, conserve natural resources, and protect human health. Zero waste also supports a circular economy, where waste is minimized, and resources are reused and regenerated. This will power a transition away from our current linear and extractive economy and towards a circular system that supports people and nature's right to a safe and healthy environment.



Solheimar, zero waste - handmade beauty products



Urta Islandica, zero waste shop in Iceland



Zero waste cooking

Creating a meal with no waste, also known as zero waste cooking, is an approach that aims to reduce the amount of food waste generated during the process. This means using all parts of the ingredients, minimizing the use of single-use packaging and plastic, and repurposing leftovers. By adopting this concept, we can reduce the environmental impact of our cooking and make the most out of the food we have, while also saving money and supporting sustainable food systems. There are several small steps we can take that lead us towards more sustainable practices in our kitchen. Here are several ideas and areas where to start.

At Friðheimar the zero waste principle dictates that everything that is cultivated but is unfit for sale is used in the kitchen or for goods in the stores.



Using shrimp peel for making broth in fish soup

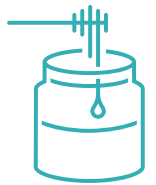


Source reduction

The first step in a zero-waste approach is to reduce the amount of waste generated in the first place. This can be achieved by using ingredients and materials that are reusable or recyclable, and by avoiding overproduction and overconsumption.

Proper storing

Each food product has a preference of conditions in which it can last the longest. Knowing the different specifics can help us store the food for longer without letting them spoil. Fruits of farm-plants that thrive stored in dark colder and dry conditions with appropriate air circulation are for example apples, potatoes, pumpkins, beets, and other root vegetables, which can be also dug into a sandbox, to prolong their freshness.



Composting

Composting is the process of breaking down organic materials, such as food scraps and yard waste, into a nutrient-rich soil amendment. Composting can be done at home, in a community garden, or through a municipal composting program.



Plastic bottles and cans reused for growing seedlings

Recycling

Materials that cannot be composted, such as glass, plastic, and metal, should be recycled whenever possible. This helps to conserve natural resources and reduce the amount of waste sent to landfills.



Old lamp shade turned into plant holder

Use most of the food

- Cook vegetable stock on vegetable scraps.
- Make the best seafood/fish stock from shrimp or fish peel off.
- Cook bones after cutting the meat. Make healthy bone broth.
- Eat the potato skin, that is the nutritious part anyway.
- Cook with cut offs and things like organs that's normally thrown away.

Eat, and cook with ingredients in season


Let us explore what it says when we say eat according to season. Every part of the world has different harvest seasons, and each crop-plant has its specific time of the peak yield. So, when the harvest season is at its peak, those specific local fruits, berries, legumes, vegetables are way cheaper and they don't have to travel from afar to reach us, which reduces their CO2 footprint and supports the local agriculture. It is also a perfect time for preparing sauces and products suited for freezing. During the winter/early springtime, where our greens are not accessible in nature, we can supplement the missing nutrients in our diet by sprouting seeds. This technique keeps us from buying food grown in different parts of the world, using our local resources while not compromising our health. Legumes are a popular sprouting choice, especially mungo beans, but various types of lentils are used too, chickpeas, alfalfa, broccoli seeds, wheat, rye, oat seeds, barley. We should be careful about large beans, which are not suitable, or seeds designated for planting, those tend to be treated by growth-enhancing chemicals that could be toxic if eaten. There are different ways to germinate your sprouts, with various products available on the market, such as germinating glasses and bowls, which keep the sprouts moisty but prevent them from rotting on getting mold by the right amount of air influx.

Preserving food

Once the crop has its season, we can have abundant resources of the crop type. To avoid wasting what we cannot consume during that period and minimize buying products during their off-season, we can preserve our supply in different ways, either preserving the whole piece or capturing the nutrients in more storable form, which we can use later on.

Freezing, canning, drying, fruit leather, salts and sugars, ice cubes, brine, and salt, creating tinctures, transforming into powder, oils, pickled veggies or flowers (f.e. magnolia flowers). A way to start with foraging the food is to find a local professional, or farmer skilled with local flora, since we can forage not only fruits of crops, but also a great number of herbs and plants found in the wild, if we know which are safe to be consumed.



 Co-funded by the European Union
Elderflower processed into a sirup, or refreshing lemonade



Frozen fruits used off-season for porridge

Reusing food-packaging

Reusing containers, bags, and other food packaging can help to reduce waste and conserve resources. For example, bringing reusable bags to the grocery store or using a refillable water bottle instead of buying bottled water can make a big difference.

Many items we buy have packaging that can be reused many times like pickling jars. Glass containers with a lid can also be a very good way of storing liquids like stock, sauces, juices. The lid is often metal with some plastic coating inside and also with other metal items be aware of corrosion and possibly contaminating the food. This is bare metal that can react with acidic content like vinegar and tomato sauce. If you are not sure, a thin layer of food grade plastic wrap can be put between lid and jar.

Food grade plastic containers have markings on them, usually under. These two are most common that is food grade:

PE, polyethylene.

PP, polypropylen

Reusing plastic containers can be done many times before the need for a new recycling process.

Urta Islandica is using compostable substitution for plastic packaging

Donation

Donating surplus food to food banks and other charitable organizations can help to reduce food waste and support those in need. Even the simple act of donating your food within your community individually or by organizing food swaps or public free food kiosks for those who might need it and use the food at the moment.

Nose to tail

The nose-to-tail movement is a culinary philosophy and approach to cooking that promotes the use of the whole animal in food preparation, rather than just the "prime cuts" traditionally favored by many Western cuisines. The concept was popularized by British chef Fergus Henderson in his book "The Whole Beast: Nose to Tail Eating," which encourages chefs and home cooks to embrace a wider range of cuts and parts of animals, including offal (organs), bones, and other less popular parts.

The nose-to-tail movement aims to reduce food waste, support sustainable farming and butchering practices, and create new and interesting culinary experiences. By using the whole animal, chefs and home cooks can maximize the use of resources, reduce the environmental impact of food production, and discover new flavors and textures. The movement has gained popularity in recent years as part of a broader trend towards sustainable and ethical food practices.



Friðheimar farm, using 100% of their tomato plants, for produce of various tomato-based products, or composting the rest of the plants

Dumpster Diving

Dumpster diving is the practice of searching through trash containers, typically those located behind grocery stores, supermarkets, or other food-related businesses, to find discarded but still edible or usable items such as food, clothing, or electronics. This practice is often associated with the freegan movement, which advocates for reducing waste and consumerism by living on discarded or surplus goods.

Dumpster diving can be a way to obtain free or low-cost food, reduce food waste, and promote sustainable living. However, it is important to note that dumpster diving may be illegal in some places and can come with certain risks, such as exposure to hazardous materials or confrontations with law enforcement or business owners. Additionally, it is essential to practice safe food handling and only consume food that is still fresh and safe to eat.

Joint Cooking

Common cooking can be of economic benefit for unrelated flat mates but eating together also gives a family better health and improves the social bonds as a bonus to it. By joint cooking, the amount of leftover material is being reduced and by joining the household cooking the price and energy effectiveness can be significantly influenced in a positive way.

<https://nhi.no/familie/barn/familiemiddag-gir-bedre-helse/>

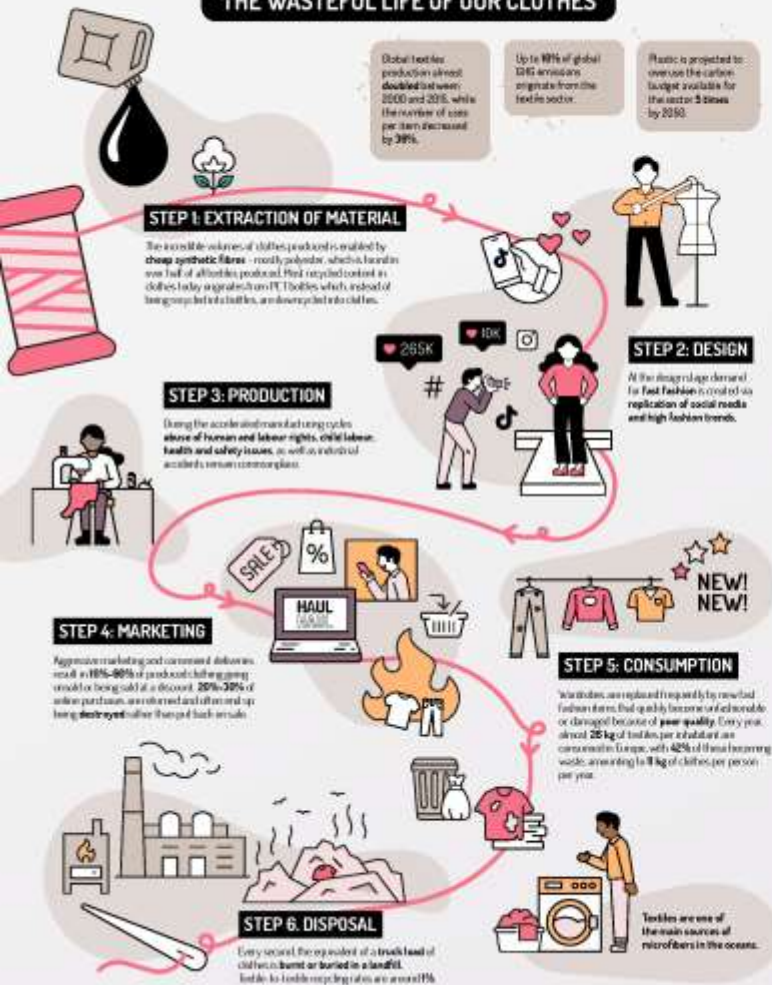


Zero waste fashion

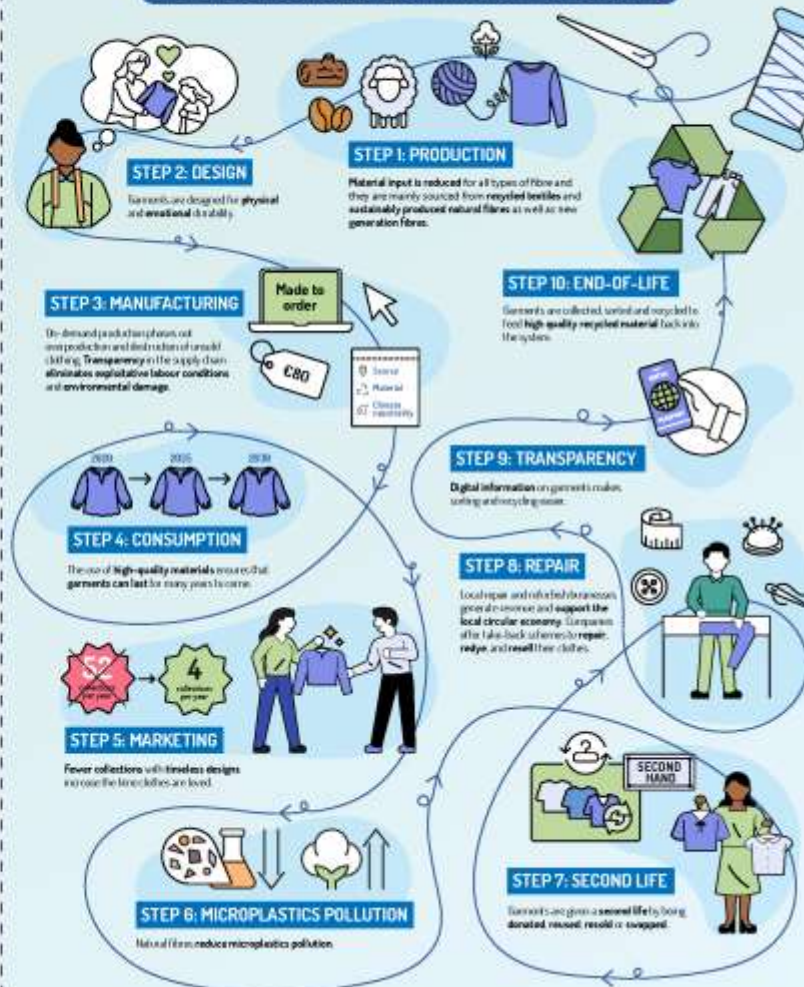
BEYOND CIRCULAR FASHION



THE WASTEFUL LIFE OF OUR CLOTHES



THE LIFE OF OUR CLOTHES IN A ZERO WASTE WORLD



Source: <https://zerowasteurope.eu/wp-content/uploads/2023/03/1956-Beyond-Circular-Fashion-infographic-FINAL.png>

DIY trends clothes and interior

Here are some examples of how you can adopt a zero-waste lifestyle in the fashion and interior design:

- DIY fashion: Instead of buying new clothes, you can try making your own clothes by upcycling old clothing items or using fabric scraps. This can include making simple alterations to garments to give them a new look or creating new items entirely from scratch. There are many online resources and tutorials available to help you get started.

- Thrifting and secondhand shopping: Another way to reduce waste in fashion is to shop for secondhand items. This can include thrift stores, consignment shops, and online marketplaces for secondhand clothing. By giving items a second life, you are preventing them from going to waste and reducing the demand for new clothing production.
- Reusable interior design: When designing your home, opt for reusable and eco-friendly materials. This can include using sustainable building materials, like bamboo or reclaimed wood, and choosing furniture made from natural materials like cotton, wool, or linen. You can also incorporate reusable elements, like reusable water bottles, cloth napkins, and washable dishware.
- DIY home decor: You can also make your own home decor items using upcycled materials. For example, you can turn old glass bottles into vases, create a wall hanging using fabric scraps, or make a rug using old t-shirts. By repurposing materials that would otherwise be thrown away, you are reducing waste.

Handmade beads and jewelry made from old newspapers and posters





Handmade coaster from metal bottle caps covered in leftover fabric, sown together

Zero waste principles for businesses

Looking from a business perspective waste is a symbol of an inefficient system where resources are being thrown instead of bringing income. All of this will again reflect a bad design.

Look at nature, the closed loop system in intact ecosystems show us a clear example of no such thing as waste. Waste is a sign of bad design in an intact system.

Someone's waste is another's gold.

Zero waste businesses follow a set of guiding principles:

- Raw materials should be obtained, whenever possible, from recycled materials and not from new extraction. Any new extraction should be only justifiable when it comes from a regenerating source. A Zero-waste business will be diverting 90% from landfill and incineration.
- The linear system of production needs to be changed into a circular system in which the recycling potential can be maximized.
- Production processes should be redesigned to avoid waste generation inside and outside the plant.
- Energy consumption and waste generation from the product/machine should be included in the optimization calculations.
- Applying eco-design and integrating product policy approach.
- Changing the focus from labor productivity to resources productivity.



Friðheimar farm, aiming for being a zero-waste business, reusing all the resources, applying circular economy principles

Non-formal educational approach

Ways to raise awareness about zero waste using non-formal educational tools are splendid. It can be done through a variety of non-formal educational methods. Here are a few examples:

Community events: Organizing events focused on zero-waste practices, engaging local zero-waste shops or individuals. Could expand to a zero-waste fair, an upcycling event, or a clothing swap event.

Social media: Platforms such as Facebook, Instagram, and Twitter can be used to share information and resources about the zero-waste principals as well as promote the zero waste local activities and initiatives engaged in it.

Community education and outreach: Partnering with community organizations, schools, and universities to provide education and resources about zero waste can be effective in reaching a wide audience.

Online courses and webinars: Online courses and webinars can be used to provide more in-depth education on the zero-waste concept. Those can include online tutorials on how to cook in zero waste manners, how to upcycle different items or how to properly store food.

Public speaking and presentations: Giving presentations and talks at community events, schools, and universities can be a powerful way to raise awareness about the zero-waste concept.

Storytelling, videos, and podcasts: Storytelling, videos, and podcasts can be an effective way to raise awareness about the zero waste practices and accessible local stores/institutions working within the concept. It is a modern engaging way to share information and can be easily shared on social media.

Field trips and hands-on activities: Organizing field trips and hands-on activities, such as visiting a zero-waste shop, restaurant or zero-waste facility, can be a great way to educate people about the zero-waste concept.

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Best practices

ICELAND

Gardening school in Hveragerði

Since 1939, gardening has been taught at Reykjum, a college in Reykjavik. Prior to becoming a component of the Agricultural University of Iceland, the institution first existed independently. Students learn to use nature in a variety of ways since Reykja's environment and natural resources play a significant role in school activities. They have research on climate change coming from all over the world. At the school they have been working on a wildflower garden and believe that for optimal growth, seed bombs should also contain grass seeds. Since they require no maintenance and help honeybees, wild flower gardens are becoming more and more popular in Iceland.

<https://www.fsu.is/is/namid/gardyrkjuskolinn-reykjum>

Sólheimar

In the south of Iceland, there is a sustainable community called Sólheimar where more than 100 individuals coexist and work together. Sólheimar was established in 1930, and the area around it places a strong emphasis on the development of both people and the environment. In Sólheimar, a variety of activities are carried out, including the management of horticulture and forestry facilities that both engage in organic farming.

The best tomatoes are those that grow naturally and are heated by green thermal water. They cultivate them by using a soil and mushroom mix, adding fresh layers. In mushroom soil, there are not many weeds, thus this mixing is helpful for growth.

<https://www.solheimar.is/>

Friðheimar

Despite the lengthy and gloomy winter, tomatoes are produced all year round at Friðheimar in electrically powered greenhouses. The family also offers tourists a warm welcome, demonstrates the process of cultivating tomatoes, and lets them sample the harvest. Currently, they grow 2 tons of tomatoes for the market in 10 greenhouses. They obtain 90° hot water for warmth from neighboring holes, combining old and new water to the appropriate temperature, resulting in a water circle that is 100% green.

<https://www.fridheimar.is/>



Kindergarten Gimli – Yoga with Sibba

Yoga and education for children together, where they discuss their emotions and practice being attentive rather than being preoccupied. Children and nature can be connected through sensory play, noticing changes in our surroundings, talking about them, learning new words, and arousing interest. For people to read and be present in nature, Sibba produced an electronic book with ideas and thoughts on indications in the natural way. She is concentrating on breathing, yoga postures, lying down and relaxing, and sending goodwill to the world. We practice yoga by telling stories about nature, animals, and other topics. Sibba teaches yoga to children in larger groups in the Reykjanesbaer public library.

<https://www.gimlijoga.is/>

The Green Kindergarten Tjarnarsel

Once a year, parents gather in Tjarnarsel for a workday to create the outdoors. They bring their own ideas or products they make at home. At the kindergarten, potatoes, garlic, onions, salads, and herbs are grown and used in the kitchen with children. To produce tomatoes and gather the seeds to replant the plants, they acquired a brand-new greenhouse. Kids are taking care of the flowers by planting them in their own patterns, where they want, and how they want, and by conducting experiments with various plants to study their life cycles.

https://www.facebook.com/p/Leiksk%C3%B3linn-Tjarnarsel-100057593374045/?paipv=0&eav=Afb7hZllw/NFGRlrjtLb-n3QQF-Sm_HxD6POU7oMDg1W409M9KKVEx5Vjh5nYiQZuB4&_rdr

URTA ISLANDICA

A family-owned company called Urta Islandica was established in the basement of the parents' home. The mother was an artist and wanted to make something with herbs, thus it all began with teas, specifically bilberry tea. The elderly are gathering their herbs. How can we use Icelandic herbs, for example, was one of their inquiries. We are aware of how to use herbs, then, and read the works of Herab for two years. They began by asking inquiries about how to preserve the nourishment in the plants. They began with 15 combinations of Icelandic herb teas. What is the history of the goods we use and consume?

They adhere to the philosophy of a plastic-free food store beginning in 2019. Glass is not imported because it is already used by manufacturers. Naturflex is a line of compostable packaging made from plants. Additionally, all vacuum packing is 100% biodegradable and compostable.

<https://webshop.urta.is/>

SLOVAKIA

Institute of Circular economy

NGO spreading and manifesting the CE concept across the country, educating the public society in sustainability and CE facts, principles, assessing and advising companies or organizations, that incline towards greener functioning, such analysis and advisory meetings by this institute were applied also in the Slovak presidential palace.

<https://www.inciem.sk/>

RecyVeci

An initiative created by 3 women, recycling, upcycling and reselling clothing in order to help chosen families in need, as well as embracing the principles of the circular economy in order to reduce waste.

<https://recyveci.sk/>

Goethe Institute

One of the many features this institute offers is a library of items to borrow. More specifically it provides a service where you can come and borrow tools, outdoor gear, or some sporting equipment, that you might not be needing daily, therefore you might not have to purchase and store them, but this way they can be shared by many, used more effectively, lowering the need for their expanded production.

<https://www.goethe.de/ins/sk/sk/kul/sup/bdd.html>

Upcycle.sk

A family group business that focuses on reusing the waste material from furniture manufacturing, scrap textile and leather pieces, giving them a new life by sewing them into useful objects. Their initiative does not stop there, this group is actively creating impact in their social environment, spreading the knowledge and ideas of upcycling and sustainability, planning on doing more for the circular society in the future.

<https://upcycle.sk/o-nas/>

EcoHero

A map, gathering all package-free, zero waste food shops in Slovakia, encouraging sustainable behavior, sharing knowledge and good practices done in specific regions.

<https://ecohero.sk/bezobalove-obchody-na-slovensku/>



Do vrecúška

Zero waste shop in Žilina, hosting zero waste living workshops, home-made hygiene products workshops, library of items to borrow, clothing and book swap, promoting and supporting community activism and local artists.

<https://www.facebook.com/dovrecuska/>

GrowNi

A youth oriented online initiative aimed for education purposes, mentoring, and mainly networking individuals and organizations in order to upgrade the sustainable life in Slovakia. You can find internship opportunities, self-growth, volunteering options, educational links, or job links.

<https://growni.sk/>

Zelená jedáleň

Sustainable oriented green canteen initiative, supporting vegan and more green eating habits, mainly cooperating and improving university campus canteen, transferring the skills of the university students.

<https://zelenajedalen.sk/>

Ekopolis foundation with green oasis

A grant project that included sustainability practices on the town/city levels, increasing the amount of green within the areas, creating spaces for water retention, bringing local farmers and craftsmen to the local market, promoting local production, supporting community gardens or trash collecting initiatives.

<https://ekopolis.sk/zivotne-prostredie/zelene-oazy>

Institute of Climate neutrality

Initiative that supports the sustainability practices incorporation into the regional level government sector and the private entrepreneur sector. Networking organizations, creating climate pacts towards climate neutral practices.

<https://www.climate neutrality.org/zelena-charta-green-slovakia-index/>

Stop Zelená

Local initiative from the capital, focused on sustainability awareness raising, providing sources of information regarding the climate and environmental news, eco-activists, organizing and attending climate conferences, hosting, and organizing workshops on preserving the environment and cultural heritage.

<https://stopzelena.sk/>

Živé rieky

Initiative aiming for sustainable practices and protecting of the water streams and water body in total, caring about the environment of the streams, but about reasonable water consumption practices, as well.

<https://www.ziverieky.sk/>

Sadíme budúcnosť

A tree planting initiative aimed to join the fight against climate change by multiplying our green surface, organizing planting events and acting as a pro climate agent.

<https://sadimebuducnost.sk/>

My sme les

A forest and wildlife protection initiative, gathering nature lovers who would like to contribute to preserving our national natural treasure especially in the national park areas, organizing events and civic active engagement awareness campaigns.

<https://www.mysmeles.sk/>

ODPADNESH

Is a company creating sustainable fashion products such as bags, packaging, cases, handbags or even stools - with modern design and created from waste advertising material. The company helps socially disadvantaged members of the society, by offering jobs. The mission of their workshops is to bring work and improve the skills of people endangered by poverty. Together with charitable organization "Úsmev ako dar" they give work particularly to single mothers or refugees who, by sewing bags, improve the conditions for their children.

<https://odpadnesh.com/en/home>

Nová Cvernovka

The cultural and creative center, operated by the Cvernovka foundation, is in the area of the former chemical industry. In addition to multifunctional spaces, an outdoor terrace, a stage, a community garden, public park, children's playground and a public library, there are 132 art and creative studios. This area provides a wide range of cultural and educational programs in the fields of music, fine arts, literature, film, theater, and multi-genre activities.

<https://novacvernovka.eu/o-nas?lang=en>



Ecovillage Zaježová

Eco community in Zaježová is a settlement within nature, inhabited by people preserving the cultural heritage of crafts, folk architecture, and environmental protection. The community is formed by families caring about education and sharing the message of preserving our natural and cultural heritage, showing by a great example how a community life can be run within a society and positively impact and interact with the rest of the society. They host and invent unique projects and initiatives, such as non-formal kindergarten, alternative community school, foodbank, straw houses, darkness mediation place and many more.

<https://zajezka.sk/onas>

A4 cultural center

Space for contemporary culture, forms of professional theater, dance, music, film, visual art, and new media. Established as a result of a joint effort between several civic cultural organizations, it became one of the first cultural centers in Slovakia founded by a bottom-up initiative. Since its beginning, A4 has been a vivid and active location on the Central European cultural scene, an open field for creative experimentation as well as a home for fresh and unique experiences. Besides presenting innovative contemporary art, it actively supports the new creative activities and education. A4 engages in public debate on important social issues, and attempts to foster conditions for non-commercial cultural activities, culturing of public space, urban development, etc.

<https://a4.sk/en/about-a4/>

Norway

Grønne folk

Specializing on food from “waste” vegetables from the local vegetable producers. Make new vegetarian products.

www.gronnefolk.no

Credo

Michelin star restaurant in Trondheim, world famous for their sustainability work. One example from Credo cooperation - Waste from seafood like langoustines are being sent to a ceramic crafter in Rorøs who uses it in glaze for pottery. New beautiful products are made with this waste.

<https://wathne-studio.no>

Gruten, Oslo

Selling products from coffee waste and mushrooms grown on coffee grounds.

<https://www.gruten.no>

Rest Restaurant

Fine dining in Oslo on food waste.

<https://www.restaurantrest.com>

Etikken

Shop in Trondheim selling packaging-free dry foods.

<https://etikken.no>

Bornholm

The Island of Bornholm is the first place in the world that has a goal on being waste free and will turn of their incinerators in 2023.

<https://zerowastebornholm.com>

<https://bornholm.info/en/bornholm-shows-the-way/>

In Norway they have plastic bottles with a refundable deposit. This is a great way to reduce plastic waste. In 2021, Infinitum achieved a record deposit return rate of 92.3 percent and a total collection rate of 98.2 percent. All returns are recycled, and Norway is a role model for other countries.

<https://infinitum.no/about-us/>



Helgebostad Hagebruk

Helgebostad Hagebruk is run by Elisa Helgebostad on Helgebostadøya, Hitra. The gardens have over a hundred different varieties of plants, perennial and annual, vegetables and herbs. Growing area is about 1,1 acre and covers a herb garden, market garden and a homebuilt growing tunnel and surrounds the house where she lives with her two sons. The gardens show a reflection of interest in heirloom varieties and seed saving, self-sufficiency and resilience for the future climate along with good nourishment. Guided tours are held all year if there is no snow. During season, guided tours are made with possibility to do direct shopping from the field, perfect for those interested in food. Vegetables and herbs are sold to restaurants and direct to locals. Elisa also run different cooking events, arranges workshops, and participates in various projects.

Through her work with the plants and food, the goal is to explore opportunities for the food gardens of the future, and the place of humans in this.


www.helgebostadhagebruk.no

Smaker fra Øyriket

(Taste from the Island Kingdom) is a corporate collaboration of local food producers from the islands Hitra and Frøya with roots in agriculture, the seafood industry, and the production of beverages. The network consists of enthusiastic and cooperative companies that share expertise and experience, and which complement each other in several ways. The companies each have a well-established production of their own brands, and overall long and broad experience.

The network collaboration has triggered several internal collaborative relationships between the participating companies with very good results. The collaboration has led to the companies becoming more aware of each other, exchanging experiences, and buying goods and services from each other. At the same time, they inspire each other to further product development. Although the business collaboration is relatively new (date), there are several examples that it has helped to lift small-scale production of food and drink in the region.

The network operates in a region with short distances between manufacturers and where it is easy to meet for product development and exchange of opinions – easy to meet. Several of the products that the network's members offer are clearly marked by the region's



geography, topography and flora, and the good climatic conditions that the Gulf Stream contributes to. In addition, the region is known for having an exceptionally good water quality. Good water is important and decisive in all kinds of food and beverage production.

<https://www.smakerfraoeyriket.no/en/taste-from-the-island-kingdom/>

Frøya Markedshage

A local gardening store who sells their own produced vegetables and herbs in Frøya

<https://www.facebook.com/froyamarkedshage/>

Bryggeriet Frøya

Bryggeriet Frøya's beers honor the traditions of the coast, both their logo, product names and the shaping of labels reflects that. They brew with top notch raw material and patient craft. They always have an idea behind the beers and that is to complete the amazing and diverse locally produced food at Frøya and the neighboring island Hitra.

One of the most exciting parts of brewing are all the possibilities, that is why they experiment with both new techniques and beer styles and keep their regulars.

As well as producing seasonal beer they also brew special beers for restaurants and pubs who want to offer a special beer only for their own costumers.

www.bryggerietfroya.no

Garnviks Røkeri

Garnviks Røkeri is a small company from Frøya that produces smoked salmon and trout of high quality. Here you get real ingredients with exquisite taste, quality guarantee and a combination of new and old food knowledge.

<https://garnvik.no>

Kystmuseet

Is telling the stories from Hitra and Frøya. They are also sharing the story and showing the modern salmon farming. They offer visits to a salmon farm and talk about the industry.

<https://kystmuseet.no/visningstur>

The project team visiting the salmon farm



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