Erasmus+ Partnerships for Cooperation Project 2021-1-NL01-KA210-ADU-000033999

Building circular skills in adult education

Non-formal learning methodology

GREEN SKILLS

CIRCULAR ECONOMY

2023

FENAN Consulting

Non-formal learning club "WE"

Content

Introduction

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The impact of our throwaway culture on the planet and societies is destructive. We are living in a time of rampant pollution and waste, resource scarcity, biodiversity loss and warming global temperatures: all of which are linked in some way to our rising levels of consumption. A social and economic system that has this impact on its natural environment cannot be called healthy.

As society has extracted and consumed the Earth's natural resources at alarming rates—tripling in the last half century—warning calls have surfaced repeatedly. Fifty years ago the Club of Rome's landmark book Limits to Growth predicted that rapid economic growth and natural resource exploitation would lead to the collapse of civilization by 2040 (Meadows et al., 1972). And new research shows that we appear to be, unfortunately, right on schedule (Intergovernmental Panel on Climate Change, 2021).

The circular economy is nature's equivalent of 'living within your means.' Just as living beyond your economic means can be risky and lead to problems, living beyond our planetary means

is threatening the planet and its safety. The circular economy is an alternative: an approach for living within the means of our planet, while still providing for the global population. Despite a rich history across nations and sectors of society, the circular economy only merged in mainstream policy discourse about ten years ago.

Our planet functions in a naturally circular manner, and has done so for billions of years. In nature, there is no waste: all materials have value and are used to sustain life in a myriad of ways. Natural processes are run from renewable energy: the oak tree, for example, consumes sunlight to create sugar, which allows acorns to grow—precious food for squirrels. The discarded acorn casings then become nutrients for worms, which turn them into soil.

For the most part, early human societies relied on careful resource use and respect for the natural environment. Some societies today still use traditional, and inherently circular, practices: but the majority of the world has entered the linear economy. Now and for the past 200 years, the hallmark of global consumption and resource-use can be aptly described as 'take-make-waste': a linear economy.

The world's mission was to produce more and grow economically, and for consumers to consume. In feeding our hungry appetites we have stripped the Earth of life-sustaining systems such as forests, clean oceans, rich soil and clean air and replaced them with swathes of monocultured land and concrete jungles. Now, in many parts of the world, much of our consumption has become unrelated to meeting human needs (UNEP, 2020).

Growth in consumption was also inevitably tied to waste. As the linear economy began to take hold, planned obsolescence that artificially shortens products' lifespans became commonplace from the 1930s onwards, leading to a peak in consumer waste generation (Ellen MacArthur Foundation, 2015).

In the past half-century, the world's population has more than doubled, yet the amount of material flowing through the economy has more than tripled (Circle Economy, 2022). Our use of natural resources to make more 'stuff' is not predicted to slow down and looks set to increase from 100 to between 170 and 184 billion tons by 2050.

From the bicycles we ride, to the books we read and the buildings we inhabit, nearly all facets of daily life are shaped by materials. And as we do more— be it travelling, buying goods and even eating—we use more resources. According to the Circularity Gap Report (Circle Economy, 2022), in the global economy we only cycle 8.6% of what we use. Over 90% of what we take from the earth to fulfill our needs and wants goes to waste.

There are already various substantial initiatives working towards realizing a circular economy. All these initiatives have one thing in common: they bring together the entire value chain. Indeed, this is because addressing the challenges surrounding waste requires the collective knowledge, resources and efforts of multiple parties. These parties are:

Legislators. They range from the European Union to national governments, regional authorities, and municipalities. They can support the transition towards a circular economy

by developing enabling legal frameworks and creating effective incentives to accelerate change.

Experts and academics. They are essential to initiating new research, collecting and creating new knowledge and insights, and developing a strong knowledge base from which new solutions can emerge. Knowledge and innovation are crucial.

Societal and non-profit organizations, trade & industry associations, and partnerships. They can ensure that the transition to a circular economy and the necessary solutions become a priority for governments, politicians, knowledge institutions and the business community. They can also provide neutral and independent fora for cooperation to develop and facilitate impactful, innovative solutions.

Industry. Producers have increasingly focused on meeting consumer needs. They have made products and packaging easy to handle, smaller and lightweight for on-the-go use, and appealing to the eye. Now, consumers are also demanding more sustainable brands and products. While nobody will deny the importance of responsible end-user behavior, this alone cannot combat waste; we must avoid shifting responsibility for this issue from the industry to the consumer. Producers are ultimately responsible for advancing the shift towards a circular economy.

Consumers. In recent years, consumers have become more aware of how their purchasing decisions affect their ecological footprints. As the most significant stakeholders of brands and companies, consumers can significantly influence the lifecycle of products. It's not up to consumers to solve the world's biggest issues. However, citizen-powered approaches need to be part of the solution, too. Every day, millions of people buy clothes with nary a thought about the consequences. European shoppers buy about five times more clothing now than they did in 1980. In 2018, that averaged 68 garments a year. As a whole, the world's citizens acquire some 80 billion apparel items annually. And on average each piece will be worn seven times before getting tossed, according to a 2015 study by the British charity Barnado's. In China, it's just three times, says the Chinese fashion-rental platform Y Closet.

Why do we need to build consumers' circular skills?

We need the common effort of governments, NGOs, businesses and consumers to save the planet. Building the circular skills of young adults, the consumers of the future, is crucial for the successful transition towards a circular economy. Adult education can help citizens to gain green skills, knowledge and competencies for sustainable development and empower social transformation towards the circular economy.

Adult education plays a central role in raising awareness about ecological issues and provides access to information and peer learning on sustainability and climate change. It empowers learners to become 'change agents'. According to a recent concept paper prepared by EAEA Working Group on Sustainability (2023), adult education also promotes social cohesion and community building at the local level, bringing together generations, and creating inclusion across cultural and social boundaries. The Marrakech Framework for Action of the UNESCO, adopted in June 2022, recognizes the importance of adult education for sustainability, by empowering adults to adapt their consumption patterns and lifestyles, and engage actively in democratic debates and initiatives to protect and preserve the environment.

Following this conceptual framework, the partners from the Netherlands and Lithuania have developed an online course "Green skills for circular economy" for young adults. The objective of the project is to advance the transition towards the circular economy by building circular skills of young adults. Developing non-formal learning methodology for adult and youth educators and ecological activists will support them in building the circular skills of their learners. We aim to create innovative non-formal learning tools for adult education to empower adult educators with efficient methods to develop circular skills in their learners. Our methodology involves members of disadvantaged social groups (senior citizens, migrants from developing countries, citizens from remote rural areas) as non-formal trainers in circularity.

This methodology is developed for adult educators working with young adults, social workers involved with disadvantaged social groups (senior citizens, people from remote rural areas, migrants from developing countries), ecological and local community leaders who work with young adults.

Other beneficiaries of the non-formal learning methodology include:

- young adults who will get access to innovative methodology for building their circular skills;
- local environmental organizations and international NGOs;
- business community involved in transition towards circular economy;
- adult educators gain innovative non-formal learning methodology for building circular skills in their target groups;
- adult educators will be empowered with efficient methods to develop circular skills in adult learners;
- members of disadvantaged groups (senior citizens, migrants from developing countries, citizens from remote rural areas) will gain more social involvement and recognition of their circular skills;

- local communities, regions and EU countries will gain ecological benefits from building circular skills of citizens;
- society in general will advance the transition towards a circular economy.

By developing this non-formal learning methodology, we expect the following results:

- adult educators gain innovative non-formal learning methodology for building circular skills in their target groups;
- adult educators are empowered with efficient methods to develop circular skills in adult learners;
- social involvement of members of disadvantaged groups (senior citizens, migrants from developing countries, citizens from remote rural areas);
- potential for transferability of the innovative non-formal methodology to various learning objectives and various target groups.
- increased professionalization of adult educators;
- increased opportunity to involve members of the disadvantaged social groups as non-formal adult educator
- better quality of adult education services;
- building circular skills will provide ecological benefits for local communities, regions and EU countries;
- increased competencies of adult educators in building circular skills will benefit adult learners and the community.

We aim at the following long-term results:

- increased competences of adult educators in building circular skills;
- more opportunities for social participation for disadvantaged social groups;
- new competences of adult educators in empowering disadvantaged social groups to share their skills with young adults;
- raised awareness of adult educators of circular economy principles and circular skills;
- raised awareness among public officials of adult educators, adults learners needs;
- transfer of knowledge and practices between project partners;
- dissemination of knowledge and practices at local and regional levels;
- improved knowledge of adult educators.

Chapter 1. Theoretical framework

1.1. What is the circular economy?

The circular economy can create the conditions for sustainable development, meeting the needs of the growing population without relying on the use of primary resources. The circular economy is based on three principles: eliminate waste and pollution, keep products and materials in use, and regenerate natural systems.

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In a circular economy, products, materials, and components never become waste. Through redesign, materials or substances that would become waste are eliminated, become feedstock for another production process, or are safely returned to the biosphere.

Materials in the circular economy can flow in two cycles, the technical cycle and the biological cycle. In the technical cycle products and their materials can continuously cycle through the system so that they can be maintained at their highest value at all times. In a circular economy, products and materials are kept in use at their highest value at all times. Reuse is the preferred option wherever relevant.

- **Reuse** is an operation by which a product or component is used repeatedly and for long periods of time, for its original purpose, without being significantly modified, remade, or recycled.

- **Repair** is an operation by which a faulty or broken product or component is returned back to a usable state. Durability is the ability of a physical product to remain functional and relevant over time when faced with the challenges of normal operation.
- **Recycling** is the process of reducing a product back to its basic material level, reprocessing those materials, and using them in new products, components or materials. Recycling is an important part of a circular economy, yet the loss of embedded labor and energy and the necessary costs to make products from their raw materials mean that it is a lower value process than reuse and remaking.
- **Upcycling** is the operation by which a new product is created from existing products or components. This operation can include disassembling, re-dyeing, restyling, and other processes to improve emotional and physical durability.

1.2. How the circular economy works

In our current economy, we take materials from the Earth, make products from them, and eventually throw them away as waste – the process is linear. In a circular economy, we stop waste being produced in the first place. The circular economy is a solution that tackles global challenges like climate change, biodiversity loss, waste, and pollution. It is a resilient system that is good for business, people and the environment.

We must transform every element of our take-make-waste system: how we manage resources, how we make and use products, and what we do with the materials afterwards. Only then can we create a thriving circular economy that can benefit everyone within the limits of our planet.

Recycling and the circular economy: what's the difference?

Recycling is the action or process of converting waste into reusable material. Recycling begins at the end - the 'get rid' stage of a product's lifecycle. The circular economy, however, goes right back to the beginning to prevent waste and pollution from being created in the first place. In the face of our current environmental challenges, recycling won't be enough to overcome the sheer amount of waste we produce.

A circular economy challenges us to consider waste and pollution as design flaws. Recycling is what you might call 'end-of-pipe', while a circular economy's 'upstream' solutions address potential problems right at the source. While recycling is undoubtedly a necessary component, we need to ensure that products and materials are designed, from the outset, to be reused, repaired, and remanufactured. It's the consequences of decisions made at the design stage that determine around 80% of environmental impacts.

1.3. A way to transform our system

What will it take to transform our throwaway economy into one where waste is eliminated, resources are circulated, and nature is regenerated? The circular economy gives us the tools to tackle climate change and biodiversity loss together, while addressing important social needs. It gives us the power to grow prosperity, jobs, and resilience while cutting greenhouse gas emissions, waste, and pollution.

The circular economy is based on three principles:

1. Eliminate waste and pollution
2. Circulate products and materials (at their highest value)
3. Regenerate nature

1. Eliminate waste and pollution

The first principle of the circular economy is to eliminate waste and pollution. Currently, our economy works in a take-make-waste system. We take raw materials from the Earth, we make products from them, and eventually we throw them away as waste. Much of this waste ends up in landfills or incinerators and is lost. This system cannot work in the long term because the resources on our planet are limited.

There is no waste in nature, it is a concept we have introduced. From tiny, short-lived products, like crisp packets, all the way up to seemingly permanent structures like buildings and roads, the economy is filled with things that have been designed without asking: What happens to this at the end of its life?

For many products on the market, there is no answer. Take a crisp packet, for example. These multi-material flexible plastic packages cannot be reused, recycled or composted, so end up as waste. For products like these, waste is built in. They are designed to be disposable. But waste is not inevitable. It is actually the result of the existing manufacturing practices.

Many products could be circulated by being maintained, shared, reused, repaired, refurbished, remanufactured, and, as a last resort, recycled. Food and other biological

materials that are safe to return to nature can regenerate the land, fueling the production of new food and materials. The goal of a circular economy is to eliminate the concept of waste.

How to eliminate waste for a circular economy? Many companies are adopting reusable packaging as a way to eliminate waste, while some, like Lush and many others, are simply selling products without packaging. Lush has redesigned some of its liquid personal care products to be sold as solid formulations that replace liquid products in plastic bottles. Their 'naked' range now includes shampoo, conditioner, body wash, toner, and deodorant.

2. Circulate products and materials

The second principle of the circular economy is to circulate products and materials at their highest value. This means keeping materials in use, either as a product or, when that can no longer be used, as components or raw materials. This way, nothing becomes waste and the intrinsic value of products and materials are retained.

There are a number of ways products and materials can be kept in circulation and it is helpful to think about two fundamental cycles – the technical cycle and the biological cycle. In the technical cycle, products are reused, repaired, remanufactured, and recycled. In the biological cycle, biodegradable materials are returned to the earth through processes like composting and anaerobic digestion.

In a circular economy, we eliminate waste and pollution, circulate products and materials, and regenerate nature. The circular economy system diagram, known as the butterfly diagram, illustrates the continuous flow of materials in the economy. There are two main cycles – the technical cycle and the biological cycle. In the technical cycle, products are kept in circulation in the economy through reuse, repair, remanufacture and recycling. In this way, materials are kept in use and never become waste. In the biological cycle, the nutrients from biodegradable materials are returned to the Earth, through processes like composting or anaerobic digestion. This allows the land to regenerate so the cycle can continue.

Technical cycle

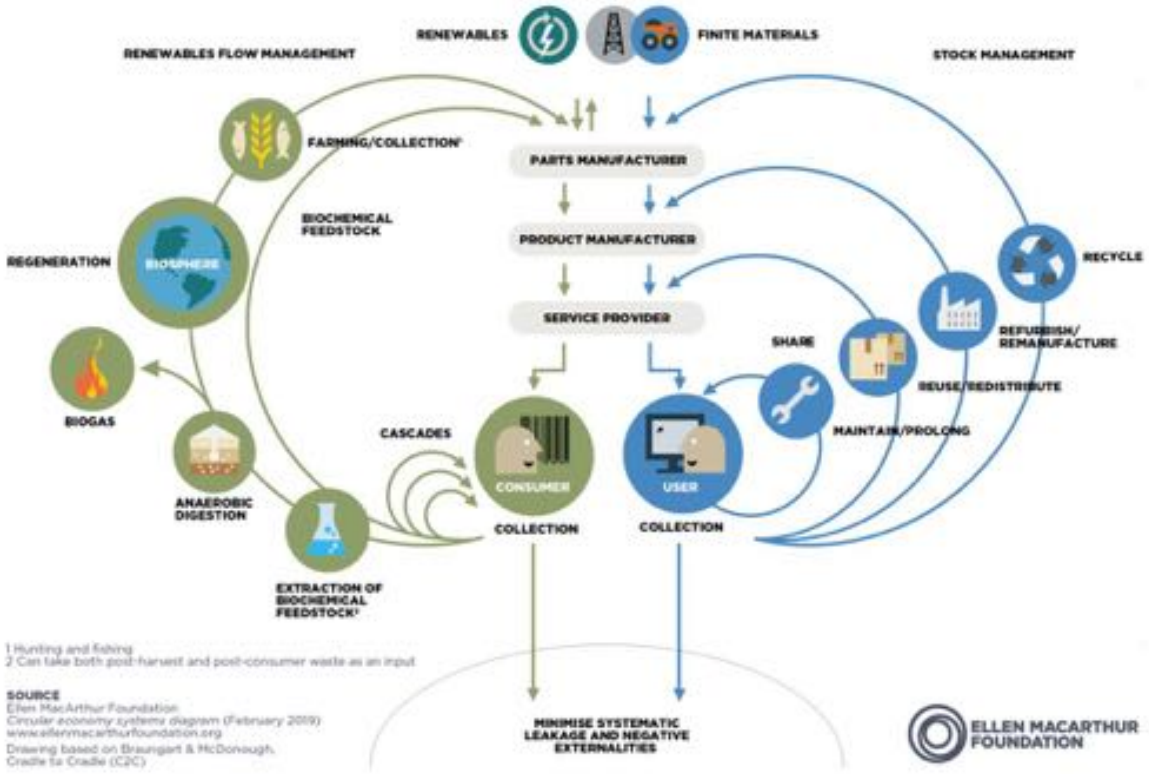
The most effective way of retaining the value of products is to maintain and reuse them. Take a phone for example: it is far more valuable as a phone than as a pile of components and materials. So the first steps in the technical cycle are focused on keeping products whole to retain the maximum possible value. This could include business models based on sharing, so users get access to a product rather than owning it and more people get to use it over time. It could involve reuse through resale. It could mean cycles of maintenance, repair, and refurbishment.

Eventually, when the product can no longer be used, its components can be remanufactured. Parts that cannot be remanufactured can be broken down into materials and recycled. While recycling is the option of last resort because it means the embedded value in products and components are lost, it is vitally important as the final step that allows materials to stay in the economy and not end up as waste.

Biological cycle

Biodegradable materials that cannot be reused, like some food byproducts, can be circulated back into the economy in the biological cycle. By composting or anaerobically digesting organic materials, valuable nutrients, such as nitrogen, phosphorus, potassium, and micronutrients, can be used to help regenerate the land so we can grow more food or renewable materials like cotton and wood.

Some products, like cotton clothing or wooden furniture, can be circulated through both the technical and biological cycle. They can be maintained, reused, repaired, and sometimes even recycled, but eventually they can be returned to the biological cycle from which they came. Composted or anaerobically digested, they can feed the soil to grow new cotton or wood.



3. Regenerate nature

The third principle of the circular economy is to regenerate nature. By moving from a take-make-waste linear economy to a circular economy, we support natural processes and leave more room for nature to thrive.

By shifting our economy from linear to circular, we shift the focus from extraction to regeneration. Instead of continuously degrading nature, we build natural capital. We employ farming practices that allow nature to rebuild soils and increase biodiversity, and return biological materials to the earth. Currently, most of these materials are lost after use and the land used to grow them is depleted of nutrients.

There is no waste in nature. When a leaf falls from a tree it feeds the forest. For billions of years, natural systems have regenerated themselves. Waste is a human invention.

Source: Unsplash (free license)

The food industry

The obvious place to start when shifting to an economy that regenerates nature is the food industry. The way we produce food today is a significant driver of both climate change and biodiversity loss. It relies upon ever-increasing quantities of synthetic fertilisers, pesticides, fossil fuels, fresh water, and other finite resources. These are a source of pollution and damage to ecosystems and human health. Industrial agriculture and livestock farming is also a source of spreading infections from animals to humans.

By producing our food regeneratively, the focus is on improving soil health. Regenerative farming practices can significantly reduce greenhouse gas emissions from food production by reducing reliance on synthetic inputs and by building healthy soils that absorb rather than release carbon. As well as helping restore the natural carbon cycle, healthy soils are better able to hold water, reducing the impact of droughts, and are better able to absorb water, reducing the risk of flooding. More sustainable livestock farming and agriculture could help fight the root causes of droughts and floods.

These regenerative food production practices include conservation agriculture and growing trees around or among crops or pasture. This results in agricultural land that more closely resembles natural ecosystems like forest and native grassland, providing habitat for a wide range of organisms, thereby increasing biodiversity. By reducing the need for synthetic inputs

and pesticides, pollinators and microbes in the soils, which are essential for the maintenance of healthy ecosystems, can thrive.

More space for nature

In addition to the food system, there are other benefits for natural ecosystems by adopting a circular economy. By keeping products and materials in use, less land is required for sourcing virgin raw materials, e.g. from mines. If we gradually decouple economic activity from material extraction by keeping materials in circulation after use, more and more land can be returned to nature and rewilding can happen.

In a circular economy, land dedicated to material sourcing will increasingly be focussed on renewable resources, grown in a regenerative way, rather than the extraction of finite materials, which will increasingly remain in circulation. All this will be underpinned by a transition to 100% renewable energy, produced using infrastructure designed for reuse, repair, remanufacture, and recycling.

Tackling climate change

Transitioning to renewable energy alone will only tackle 55% of global greenhouse gas emissions. The rest come from the way we make and use products and food, and manage land – this is where the circular economy comes in. The economic, health, and environmental benefits of a circular economy for food alone would be worth USD 2.7 trillion a year by 2050. By adopting circular economy principles, the food industry could halve its projected greenhouse gas emissions in 2050.

Chapter 2. Non-formal learning methodology

In developing our online course "Green skills for circular economy", we used the following conceptual frameworks:

- The Sustainable Development Goals (SDGs)
- Greening Education Partnership (UNESCO)
- European Green Deal (EU)
- GreenComp (EU)

2.1. Conceptual Frameworks

Sustainable Development Goals (UN)
The Sustainable Development Goals (SDGs) set out an ambitious plan - called Agenda 2030 - to achieve a better and more sustainable future for "people, planet and prosperity". Adult education is one of the important tools to achieve the 17 SDGs. One of the goals aims to ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity.

Greening Education Partnership (UNESCO)
In 2022, UNESCO launched a new Greening Education Partnership that aims to deliver strong, coordinated and comprehensive action to ensure that every learner can acquire the knowledge, skills, values, and attitudes to tackle climate change and to promote sustainable development.

European Green Deal (EU)
The European Green Deal (EU) aims at green transition in learning programs and exchange of good practices.

> *"There is a need to enable a profound change in people's behavior and skills, starting in the education systems and institutions as catalysts. Actions should be geared towards changing behavior, boosting skills for the green economy, fostering new sustainable education and training infrastructure and renovating existing buildings, thereby creating conducive environments for this change." (Green Deal)*

GreenComp (EU)

The GreenComp (EU) framework for sustainability competences provides a common ground to learners and guidance to educators with the definition of sustainability competences. It *responds to the growing need for people to improve and develop the knowledge, skills and* attitudes to live, work and act in a sustainable manner, and it is designed to support education and training programs for lifelong learning for all learners, irrespective of their age and their education level and in any learning setting – formal, non-formal and informal.

2.2. Methodological principles

In developing the didactic tools, we followed the methodological principles emphasised by the European Association for the Education of Adults (EAEA) (2023):

- Building partnerships for the green transition
- Focusing on co-creation
- Promoting (g)local approaches
- Focusing on joint advocacy action

Building partnerships

We identified stakeholders, including ecological activists, adult educators, researchers and adult learners from. We formed associated partnerships with 20 local and international organizations to help each other by sharing and evaluating their learning materials and intellectual outputs developed within their projects and initiatives, promoting each other's news and activities on our project websites, and participating in conferences and events organized by associated partners. The associated partnership has proven to be successful since it provides our project with external evaluation and enriches our results with useful suggestions and extra information provided by associated partners.

Focusing on co-creation

Our educational materials are co-developed together with members of the local community, including members of socially disadvantaged groups, such as refugees and migrants, senior citizens, and people living in remote rural areas. They are involved as non-formal educators in our projects, sharing their knowledge, skills and circularity practices with young adults from affluent urban areas.

Promoting (g)local approaches

In our educational materials, we often use local initiatives and innovative approaches developed by green activists, such as the Repair Café Repair initiative by the Dutch journalist Martine Postma. At the grassroots level, there are a variety of innovative initiatives and approaches to link green transition with adult learning, such as platforms for sharing products, reselling used items and workshops on upcycling old materials. Local communities play a central role in this. We introduced these initiatives to young adult learners in an attractive way to encourage them to join them locally or to start similar initiatives in their own area. By doing that, we aim to inspire adult learners across Europe and beyond to contribute to building their circular skills and practices and create new circular initiatives.

Joint advocacy, inclusivity and social cohesion

Climate change is a politically divisive topic that creates tensions between generations, social groups, and areas of the planet. In our project we aim to reduce these tensions by making the emphasis on inclusivity and social coherence. We strongly believe that young adults and senior citizens, people living in rural and urban areas, people from affluent EU countries and migrants from the developing world can learn from each other and join forces to make the transformation towards the circular economy. Our methodology is based on the following principles:

- Involving people from disadvantaged groups (e.g., senior citizens, migrants, refugees from Ukraine) to share their circular practices with young adults

- Empowering vulnerable citizens by involving them as non-formal educators
- Using social inclusion to advance transition towards circular economy

2.3. Didactic tools

Online learning has changed educational practices quite substantially during the last decade and especially during the COVID-19 pandemic, when learners who had previously avoided digital innovations (such as online courses and teleconferences) were forced to use them for work, education, and entertainment.

Building upon this more broad acceptance of online education, we have developed the online course "Green skills for circular economy" for young adults. Young adults are known to be the social group that is highly involved in the issues of climate change and sustainability, and they are also the social group that is the most comfortable with online learning tools.

Therefore, our course is tailored to the young adult learners and allows them to study course materials, watch inspirational videos and listen to the interviews with community members any time and on any device. This creates the freedom of learning the young generation appreciates.

Changing habits
The transition towards a circular economy requires not only knowledge and skills, but also massive change in everyday behavioral habits of young adults, including what they eat, how they shop, what transport they use and how they get rid of their trash. Long-term behavioral change is extremely difficult to achieve. Changing habits requires massive motivational and cognitive resources and can lead to ego depletion and reduced self-control, explaining why firm restrictions usually work short-term but fail to achieve sustainable behavioral change. Pleasurable, relevant and joyful interaction is a key to successful behavioral change programs, especially for young adults.

Dual information processing
Our didactic approach is based on the framework of dual information processing (Kahneman & Frederick, 2002; Van Raaij, 2017). Information can be processed quickly and automatically via intuitive associations or relatively slowly and consciously using rational thinking. In everyday decision-making, people are using automatic systems guided by heuristic information processing, which requires fewer cognitive resources and are driven by emotion and habit (Fiske, 2010). Educational materials aimed at sustainable behavioral change need to rely on both systems.

Our didactic tools include both formal educational materials (such as PowerPoint presentations and video lectures) aimed at developing knowledge and skills and non-formal tools aimed at raising motivation and ability to implement circular practices in everyday life of learners (such as interviews with community members about their circular lifestyle, video of sustainable leisure activities offering fun and exciting experience.

Our educational materials include:
1. Video lectures

2. PowerPoint presentations
3. Interviews with people from vulnerable groups (e.g., migrants, refugees, senior citizens) about their circular practices
4. Videos of circular activities (e.g., flea market on Koningsdag)
5. Popular science articles
6. News blog
7. Learning materials created by other NGOs and environmental organizations

Below we provide some examples of our educational materials. All materials can be found on our website Green skills for circular economy (https://circular-skills.org)

1. Video lectures

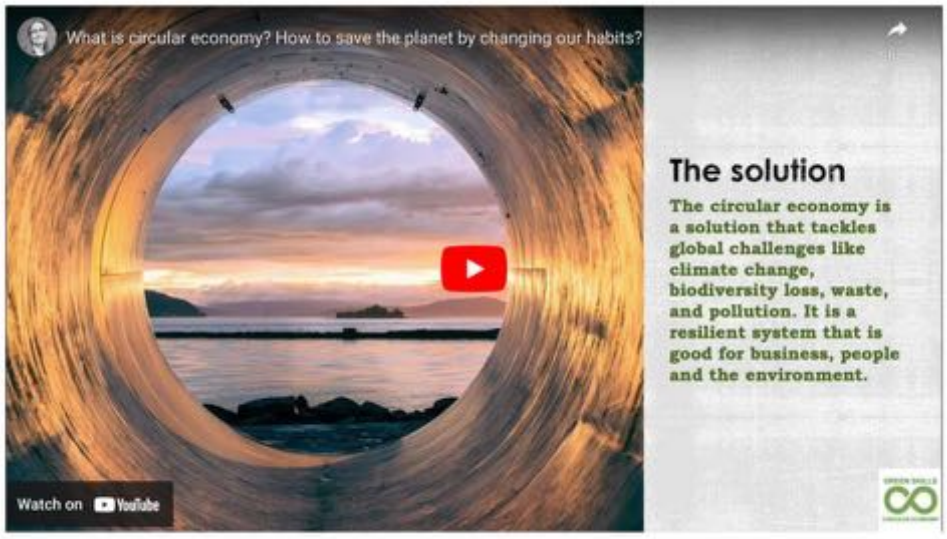
- **Tips from older generation.** People of the older generation treat things more carefully: "Our grandparents and parents had this stuff, and they lived with it, and they used it. And the best way is to give it another life: try to sell it, do not throw it in the garbage!" They are passing this knowledge to their grandchildren: "When I sold some of my toys, I felt happy that they could be with other people. They can make other people happy." Use things longer, reuse and resell old things. Save the planet!

- **Find your old things a new owner.** Do not throw your old things away! Maybe, your old dress or children's toys can make somebody happy. Find them a new owner! Reselling things you don't need anymore can be fun.

2. PowerPoint presentations

- **Building the circular fashion system.** The fashion sector is responsible for nearly 20% of all industrial water pollution annually. The fashion industry is responsible for 10% of the green gas emissions. We don't need that much stuff! All we need is durable products that withstand the wear and tear and are made from materials that are easily recycled.

- **Introduction to Upcycling.** Upcycling is a process by which old products get a second life and are turned into a new product. Upcycling is reusing an object in a new way without degrading the material it is made from, unlike recycling which involves breaking down the original material and making it into something else, using more energy. The end result is a new product with more value than the original value of the sum of all its components.



What is circular economy? How to save the planet by changing our habits?

3. Interviews with community members about their circular practices

- **How to turn recycling into business?** Six and Sons is a concept store in Amsterdam that sells clothes and lifestyle products made of recycled materials. The owner and employees of the store hope that their concept soon becomes normal: all the stores will be selling only recycled items and our shopping habits will not harm the environment.

- **Think twice before throwing things away.** “When I want to throw something away, I always think about my grandmother,” says Maryna Vyshnevska, an English teacher from Kyiv, Ukraine. The old generation did not have a lot of things, so they knew how to repair everything and make old household items, such as tin jars and kitchen tiles, look new and beautiful. These techniques are simple and good for the environment.

4. Workshops by community members on how to preserve food, repair products and upcycle used materials

- **Circular habits: How to save natural resources.** In developed countries, too much resources are thrown away. In this video, chef cooks from Ukraine, Moldova and Nigeria give their tips on how to cook sustainably to save natural resources, time and money.

- **"My battle is cleaning our planet"** "My battle is helping our planet to become cleaner", says Ukrainian TV director Liubov Drozdovka who has been practicing creative upcycling since her childhood. Liubov had to flee the war in Ukraine, and she orginized a small workshop in a refugee camp in the Netherlands, where she makes new beautiful items out of old sweaters and jackets.

5. Videos of circular activities

- **Vintage shopping.** To ease this massive burden on the environment, consumers need to shift from buying and disposing to reducing and reusing. Vintage shopping is a growing trend. Learn how you can combine hunting for antique treasures with a sustainable lifestyle.

- **Plastic fishing in Amsterdam.** Amsterdam canal belt has been on the UNESCO World Heritage List since 2010. It is important to make sure that these beautiful canals remain so beautiful. Plastic fishing in Amsterdam is fun and good for environment! You can do it together with colleagues, family, friends or students.

6. News blog

- **Buy green or buy less?** On February 2, 2023, Anna Fenko and Asja Šerić presented their research on green marketing and green demarketing at the International Etmaal 2023 Conference at the University of Twente, Netherlands.

- **The Circular skills project was presented at the EPALE meeting in Utrecht.** On October 19, 2022, FENAN Consulting presented the Erasmus+ project "Green skills for circular economy" at the conference in Utrecht organized by EPALE, the Electronic Platform for Adult Learning in Europe.

- **Nokia's new phone is easy for anyone to fix.** E-waste is the world's fastest-growing waste stream, and much of it is handled unsafely, causing pollution, human health hazards, and the loss of valuable resources. People are increasingly invested in the right to repair the electronics they own.

7. Learning materials created by other NGOs and environmental organizations

- **New Plastics Economy.** Plastic packaging needs to be eliminated. We need a broad collaboration between consumers, designers, industries, businesses and NGOs to design the future without plastic packaging

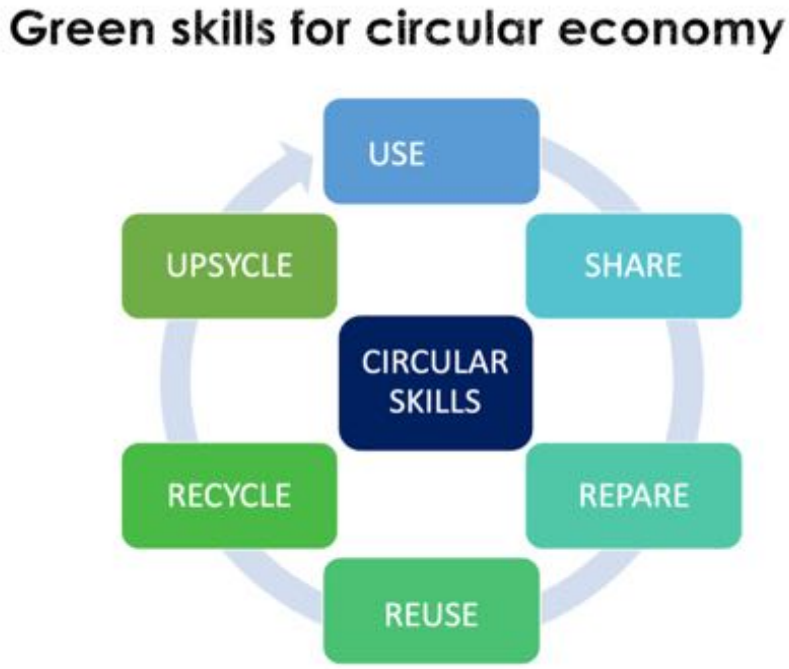
- **Recycling plastic.** What happens to plastic bottles when you recycle them? Do they get made into fresh bottles, or do they become something else? It's easier to turn bottles into workout shirts than it is to fully recycle the plastic.

- **What is the Repair Café?** Repair Café wants to show how much fun repairing things can be, and how easy it often is. People with repair skills get the appreciation they deserve. Invaluable practical skills are passed on. Things are being used for longer and don't have to be thrown away. This reduces the volume of raw materials and energy needed to make new products and contributes to a sustainable future and to the circular economy.

Chapter 3. Educational materials

The structure of the course is based on the definition of circular skills developed by the World Economic Forum (Burdett et al,.2022):

1. Using products longer to avoid waste
2. Reusing products to reduce consumption and avoid waste
3. Sharing products with others to reduce consumption
4. Repairing old products to increase their lifespan
5. Recycling materials that can't be reused
6. Upcycling old materials to create new products



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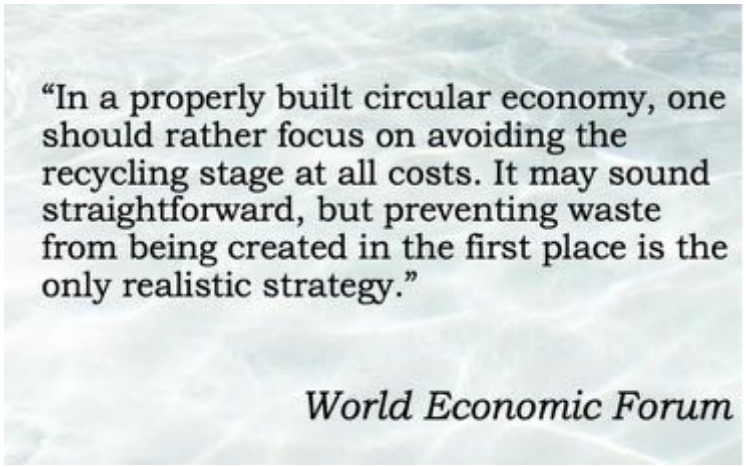
3.1. How to maintain products and use them longer

As a whole, the world's citizens acquire some 80 billion apparel items annually. And on average—average—each piece will be worn seven times before getting tossed, according to a study by the British charity Barnado's. In China, it's just three times, says the Chinese fashion-rental platform Y Closet.

- Less than 2% of textile workers earn a living wage
- The fashion sector is responsible for nearly 20% of all industrial water pollution annually
- The fashion industry releases 10% of the carbon emissions
- Textile industry uses a fourth of all chemicals produced world-wide

Recycling is not enough!
Recycling is the process of converting waste into reusable material. In the face of our current environmental challenges, recycling won't be enough to overcome the sheer amount of waste we produce. The circular economy aims to prevent waste and pollution from being created in the first place.



The solution
We don't need that much stuff! All we need is less garments that we can wear longer. We need durable products that withstand the wear and tear and are made from materials that are easily recycled.

The fast fashion monster
Millions of tons of clothes end up in landfill every year—it's one of the fastest-growing categories of waste in the world. How can the fashion industry continue to grow while addressing the environmental need for people to buy fewer clothes? One of the solutions: demarketing. Buy less, use longer!

What can we do? We can start by reading clothing labels and considering where and how items are made before buying them. For what we already own, we can wash less, repair more, toss less and consider resale. We can give our wardrobes a longer life—and be far less casual, as an ethical matter, about our clothes.

Buy products that can be redesigned and recycled. What is it made from? Choose materials that can be used for another production process or safely returned to the biosphere. How was it made? Production of renewable materials must not negatively impact or degrade natural ecosystems, including forests and other landscapes.

Choose products that are designed and manufactured in such a way that they can be reused, remade, recycled. Re-making can include disassembling, re-dyeing, restyling, and other processes to improve emotional and physical durability.

Choose the products that are both physically and emotionally durable. Buy a garment that can resist damage and wear. Buy items that can stay relevant to you over time and that can be desirable to multiple users after you stop using them.

Reduce food waste and pollution

Few things have as much influence on our lives as food. Food is deeply rooted in culture, tradition and identity. Food has a profound impact on people's health and wellbeing at every stage of their lives, as well as on the local and national economies and the environment. The food system is responsible for one-third of global greenhouse gas emissions resulting from human activity, while one third of the food that is produced globally is wasted.

How to support a circular food system?

1. Shift towards more healthy and sustainable diets.
2. Eliminate avoidable food loss and waste.
3. Recycle unavoidable food waste back into productive uses.

Avoid food loss and waste:

1. Don’t buy too much
2. Think twice before throwing food away
3. Always make a shopping list
4. Use “first in, first out” rule
5. Store food correctly
6. Make a weekly menu
7. Use food preservation methods
8. Freeze extras

Source: Unsplash (free license)

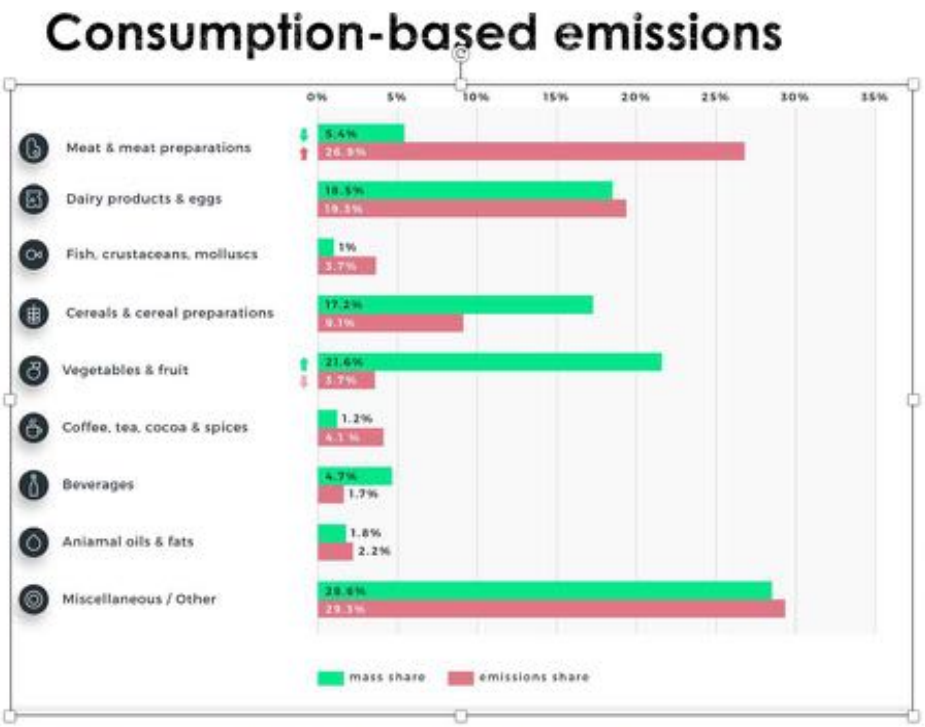
Diverse ingredients increase biodiversity and resilience

Diverse ingredients are those that come from a broad range of plant and animal species, as well as varieties within those species. For example, today, just a small selection of potato varieties are consumed, yet over 4,500 diverse varieties exist globally. The same is true for the production of other ingredients, such as sweeteners. Rather than using just three crops – sugar beet, sugar cane, and corn – to produce the majority of sweeteners, a greater diversity of crops can be used to fulfill the same properties. Buying locally from responsible farmers can reduce carbon impact and increase biodiversity.

Why shift to diverse ingredients?

Culinary traditions are often built around diverse local varieties of ingredients. Using more diverse ingredients increases biodiversity. A variety of food types benefit one another when grown together. Diversity enhances the resilience of the food system against threats such as pests, disease, and environmental shocks.

Shifting from animal products to lower impact plant alternatives
Different types of food and beverages generate different magnitudes of greenhouse gas emissions. Despite only representing just over 5% of the food (in tons), meat is responsible for almost 27% of consumption-based emissions. While vegetables and fruit make up a relatively large proportion (almost 22%) of the food (in tons), they have low consumption-based emissions (around 4%).



3.2. How to repair products that are broken or damaged

We throw away vast amounts of stuff. Even things with almost nothing wrong, and which could get a new life after a simple repair. The trouble is, lots of people have forgotten that they can repair things themselves. Especially younger generations who no longer know how to do that. Knowing how to make repairs is a skill quickly lost. This is a threat to a sustainable future and to the circular economy, in which raw materials can be reused again and again.

E-waste is the world's fastest-growing waste stream, and much of it is handled unsafely, causing pollution, human health hazards, and the loss of valuable resources.
People are increasingly invested in the right to repair the electronics they own. Repair cafes and other peer-to-peer gatherings build communities around prolonging the life of products.

Brands like Nokia, Fairphone and Framework are responding by turning repairability into a desirable feature that reduces environmental harm and saves people money. Nokia just announced the arrival of a new smartphone, Nokia G22. It's the first phone purposefully designed with repairability at its core, enabling users to easily access repair guides, tools and affordable replacements for damaged or worn-out parts. When a battery dies, a screen breaks or a charging port is bent out of shape, that's where users can find guides and purchase tools and parts they need to fix their phone. Nokia specifically constructed the G22 to make it easy for anyone to repair.

The movements for increasing repairability seek autonomous and open control on technologies calling for a systematic change of technology production. This challenges the current power-relationships between producers and users. In this sense, some argue that the phenomenon of repair is a counter-power against capitalism and demands for autonomy. In

a degrowth society, the autonomy on what people use, and the relationships between producers and users are essential to enhance autonomy on products as well as being free from the dependency on industrial products that deprive people's creativity.

A Repair Café is a place where people gather to work on repairing objects of everyday life such as electrical and mechanical devices, computers, bicycles, clothing, and other items. Repair Cafés are typically held at community locations including churches, libraries, and campuses where tools are available and where device owners can fix their broken goods with the help of volunteers. Repair Café is also a new form of the grassroots movement that aims to reduce waste, overconsumption, and planned obsolescence.

Dutch journalist Martine Postma who wants to drive local-level sustainability introduced the Repair Café grassroots movement in Amsterdam, the Netherlands, in 2009. The first Repair Café was held at Fijnhout Theater, Amsterdam-West. In 2010, the Repair Café Foundation was set up to support local groups around the world in setting up their own Repair Cafés.

Since then, the number of Repair Cafés has grown quickly. In 2016 Postma registered more than 1,000 Repair Cafés worldwide, 327 in the Netherlands, 309 in Germany, 22 in the UK, 21 in the US, 15 in Canada, four in Australia and one in India. In 2018 the number of Repair Cafés climbed over 1,500, in 2021 the number reached 2,000.

In terms of knowledge and skill sharing, the individuals who join the repair cafe workshops are usually happy to help others to repair broken items and teach what they know about repairing as well. They would also make the enclosed knowledge accessible to their members through hacking practices with no regard to the copyright.

Repair Café is a way to avoid consumerism by participating in a circular economy. Repair Café can have impacts on downsizing and slowing down economic inputs and output regarding

energy, human capital and environmental materials. It shapes the relationship between producers and users into a non-hierarchical degrowth way and reconnects the users with the means of production.

Repair Café is a space to reconstruct human relationships based on common interests and through working together. People with repair skills get the appreciation they deserve. Invaluable practical skills are passed on. Things are being used for longer and don't have to be thrown away. This reduces the volume of raw materials and energy needed to make new products. It cuts CO2 emissions, for example, because manufacturing new products and recycling old ones causes CO2 to be released.

3.3. How to reuse products for new purposes

Each year millions of tons of clothes are produced, worn, and thrown away. Every second, the equivalent of a rubbish truck load of clothes is burnt or buried in landfill. The fashion industry is one of the major contributors of plastic microfibers entering our oceans.

Fashion is one of the world's most polluting industries, so there's every reason to buy fewer new items. The future of shopping is looking a little more vintage, as a growing secondhand-seller market is projected to topple the mighty fast-fashion industry.

Thrift buyers are replacing fast-fashion purchases with secondhand clothing, and resale is expected to be more than twice as large as fast fashion by 2030. The trend is being driven by millennials and Gen Z consumers, who have shown greater demand for sustainable products as mega retail chains are increasingly criticized for their environmental impact and material waste. A purchase of one item that's used, versus new, is estimated to displace 17.4 pounds of carbon emissions normally released during clothing production, reducing its carbon footprint by 82%.

Much like fast fashion, cheap and mass-produced furniture has led to an alarming rise in waste. A 2017 report by the European Environmental Bureau states that 10 million tons of furniture are discarded by businesses and consumers in EU countries each year. A 2019 UK survey found that 30% of respondents had thrown out furniture, electrical items and homewares that were in good enough condition that they could have been reused, sold or donated.

To ease this massive burden on the environment, consumers will need to shift from buying and disposing to reducing and reusing. Clothing resale is booming and giving fast fashion a run for its money as conscious shoppers shift to secondhand. Much of that rapid growth is propelled by how frictionless apps have made the process of searching and buying, and shipping and selling.

Tips from older generation

People of the older generation treat things more carefully: "Our grandparents and parents had this stuff, and they lived with it, and they used it. And the best way is to give it another life: try to sell it, do not throw it in the garbage!" They are passing this knowledge to their grandchildren: "When I sold some of my toys, I felt happy that they could be with other

people. They can make other people happy.” Use things longer, reuse and resell old things. Save the planet!

Find your old things a new owner
Do not throw your old things away! Maybe, your old dress or children’s toys can make somebody happy. Find them a new owner! Reselling things you don’t need anymore can be fun.

Vintage shopping
To ease this massive burden on the environment, consumers need to shift from buying and disposing to reducing and reusing. Vintage shopping is a growing trend. Learn how you can combine hunting for antique treasures with a sustainable lifestyle.

Reusable packaging
Solutions to tackle plastic pollution are within reach. We can avoid a future in which there are more plastic than fish in our oceans by switching from disposable plastic bags and containers to reusable bags and containers.

Dutch supermarket started package-free shopping

The Dutch supermarket chain Albert Heijn introduced a new concept that allows customers to fill reusable containers (bags or jars) with products like pasta, rice, muesli, tea, coffee or nuts, and use less plastic packaging. Customers can bring their own bags and jars or buy reusable containers at the supermarket.

There are 70 different products consumers can buy package-free. The chain started this program in one of their large supermarkets in Rotterdam. Two more shops will follow soon in Amsterdam. Next year the chain plans to introduce this option in 50 other supermarkets.

Albert Heijn is planning to use 20 tons less packaging material by 2025 and to use only 100% recyclable material for their private labels. For the last 6 years, AH has been chosen by consumers as the most sustainable supermarket in the Netherlands.

3.4. How nature, people and society can benefit from sharing products

The sharing economy is a **new model of consumption** related to the development of the internet and new technologies of information and communication. The notion of the sharing economy is based on the **exchange, the sharing, and collaboration between individuals of goods, services, resources, time or knowledge, with or without monetary exchanges**, via dedicated platforms.

How does the sharing economy help the environment?

- **Sustainability**: The exchange of goods and services between consumers means we buy fewer items overall. This means there is less of a need to manufacture new products - cutting pollution and waste across the whole supply chain
- **Reducing use of natural resources**: We need to make a collective effort to stop using the world's natural resources and damaging the environment, for example, cutting down trees. The sharing economy means we put less pressure on these resources and allows us to better protect our environment.

Understanding the Sharing Economy
Communities of people have shared the use of assets for thousands of years, but the advent of the Internet—and its use of big data—has made it easier for asset owners and those seeking to use those assets to find each other. This sort of dynamic can also be referred to as the share economy, collaborative consumption, collaborative economy, or peer economy.

Sharing economies allow individuals and groups to make money from underused assets. In a sharing economy, idle assets such as parked cars and spare bedrooms can be rented out when not in use. In this way, physical assets are shared as services.

For example, car sharing services like Zipcar can help illustrate this idea. According to data provided by the Brookings Institute, private vehicles go unused for 95% of their lifetime. The same report detailed the lodging sharing service Airbnb's cost advantage over hotel space as homeowners make use of spare bedrooms. Airbnb rates were reported to be between 30-60% cheaper than hotel rates around the world.

The Sharing Economy is Evolving

The sharing economy has evolved over the past few years where it now serves as an all-encompassing term that refers to a host of on-line economic transactions that may even include business to business (B2B) interactions. Other platforms that have joined the sharing economy include:

- Co-working Platforms: Companies that provide shared open work spaces for freelancers, entrepreneurs, and work-from-home employees in major metropolitan areas.
- Peer-to-Peer Lending Platforms: Companies that allow for individuals to lend money to other individuals at rates cheaper than those offered through traditional credit lending entities.
- Fashion Platforms: Sites that allow for individuals to sell or rent their clothes.
- Freelancing Platforms: Sites that offer to match freelance workers across a wide spectrum ranging from traditional freelance work to services traditionally reserved to handymen.

Why share?

- Your impact on Earth will be less
- You will be fulfilled because you give a joy to other who gets your thing
- You can get something also for free (win-win situation)

What can you share?

- Everything what you don‘t need and others could be happy with that
- We should avoid fast fashion. Consider using second hand clothes. Donate your own clothes to second hand shops.
- Donate toys.
- Share your books.
- Share support, understanding and smile – share a joke

How to share?

- You can find in different platforms possibilities to share online
- To bring to second hand shops
- To donate for organizations
- Become a member of sharing groups. In each country, village, town – you can find sharing goods, things and groups – join it!
- You can search online or ask your neighbors
- Figure out where you can bring your goods for donation

Sharing principles:

- Be sure that things you want to donate are usable
- Things should be clean
- Share your time, knowledge - become a volunteer

Online sharing rules:

- Be aware what you share or reshare online

- Follow online rules
- Be aware not to share false, disinformation, misinformation, propaganda

3.5. How to recycle products to extract value from materials

In the past 50 years, plastic usage has increased significantly – and with it, the amount of plastic waste. In Europe, plastic production reached nearly 58 million tons in 2019, and continues to increase1. If we do not take action now, the annual flow of plastic into the ocean will nearly triple by 2040, to 29 million tons per year. Plastic leakage into the environment is a key issue, and a lack of collection infrastructure is one of the leading causes. However, it is not the only issue. A holistic approach is required to switch from our linear *take-make-waste* model to a circular economy (CE) for plastics.

Turning challenges into opportunities
Plastic provides us with challenges and opportunities. It is a functional, durable, versatile and lightweight material that underpins our global economy. The transition towards a circular economy for plastics will enable full potential use of limited resources, significantly reduce greenhouse gas emissions, and potentially create up to 700,000 extra jobs by 2040. Ultimately, this will yield an economic gain of 80–120 billion dollars per annum (€65–100 billion per annum), an amount which is currently wasted given a short single-use cycle.

In a circular system, plastics remain within an open, semi-open or closed loop, with leakage into the environment eliminated by design. In addition, energy and water usage, as well as GHG emissions, are all taken into consideration and reduced substantially. Ultimately, this will avoid an outcome where valuable resources escape the circular loop and lose their potential value.

Accelerating a circular economy for plastics
Both environmentally and economically, there is a strong imperative to develop a circular economy for plastics. There has been step-by-step progress in improving individual phases of the current linear plastics value chain in recent years. The European Commission has already set high ambitions for 2030, as part of the European Green Deal, striving for Europe to become the first climate-neutral continent. To achieve these ambitions, the European Commission wants to:

- Set mandatory requirements for recycled content and develop waste reduction measures for crucial products such as packaging, construction materials and vehicles.
- Establish rules for the safe recycling of plastics into food contact materials.
- Increase sorting and recycling capacity fourfold.
- Make all plastic packaging that is placed on the EU market reusable or recyclable at minimum cost.
- Develop labelling, standardization, certification, and regulatory measures on the unintentional release of microplastics.

Plastic recycling is extremely important, both as a method to deal with our existing waste and as a component of both circular economy and zero-waste systems that aim to reduce waste generation and increase sustainability. There are social, environmental, and economic consequences surrounding our current waste generation and disposal habits, and whether

that is the issue of microplastics or an estimated $2.5 trillion in damage and lost resources to fisheries, aquaculture, recreational activities, and global wellbeing, the impact is no longer in doubt.

In Europe, still only around 30% of all plastic waste is collected for recycling. This proportion must increase. High-quality recycling relies on effective separate waste collection and sorting techniques.

What is PET and why does it matter?
PET, or PolyEthylene Terephthalate, is used to package 70% of carbonated soft drinks, fruit juices, dilutable drinks and bottled water. Light, durable, safe and with a smaller carbon footprint than alternatives, PET is the most recyclable plastic in the world. This unique material is vitally important as what our products are packaged with can have significant impacts for our environment and the sustainability of our economy.

Sorting waste at home
At home you should have a minimum of 3-4-5-6 different trash bin or places where you sort your waste (of course, it depends on your household size).

Organic waste (food waste, dry leaves, branches) can be composted or separately collected in organic waste containers.

Inorganic waste can be collected separately:

1. Paper Waste: HVS Paper, Used Beverage Carton (Food/Beverage Carton), Cardboard, newspaper, magazine
2. Plastic Waste: PET, HDPE, LDPE, PP, PVC, Styrofoam, and other types of plastic waste
3. Glass Waste: such as glass shards (please keep it safe for waste operators), glass bottle, mirror
4. Metal Waste: soft drink can, safety pin, nails

Toxic waste should be sorted separately.

- Used batteries: you can bring them to containers in a nearby shop or supermarket
- Liquid floor cleaners, electronic waste, pesticides, and hairspray should be sorted separately or directly brought to a recycling company
- To prevent the spreading of unwanted disease, please make a special waste bin for medical and infectious waste. Disposable medical masks, used syringes, and unused medicines are medical and infectious waste. Spray it with disinfectant and keep in a tight container. Give clear and precise labels/warnings to inform waste operators.

3.6. How to upcycle materials to create higher quality products

What is upcycling?
Upcycling is a process by which old products get a second life and are turned into a new product. Upcycling is reusing an object in a new way without degrading the material it is made from, unlike recycling which involves breaking down the original material and making it into something else, using more energy. The end result is a new product with more value than the original value of the sum of all its components.

Trash to treasure

People have been upcycling for centuries, using old clothing and furniture in new ways, although more out of need than for the environment. In developing countries where resources are few and poverty is high, upcycling is commonplace. In the developed world, upcycling is motivated by the commitment to sustainability, the belief that reuse is better for the environment.

Upcycling and Recycling: What's the Difference?

Recycling takes materials and breaks them down so their base materials can be remade into a new product, often of lesser quality. Upcycling is not breaking down materials but rather sorting and reusing them in a different way. The upcycled item is better or the same quality as the original.

Upcycling and Remanufacturing: What's the Difference?

Remanufacturing is a method of extending product life through reuse and refabrication of products. Refurbished products have the same purpose as new products (e.g., mobile phone, laptop). The goal of upcycling is to refashion and integrate discarded components and materials into new products, such as making bracelets from old flip flops, lamps from blenders, and turning skateboards into chairs and bookcases.

The Ecological Value of Upcycling

Manufacturing new products consumes energy. Consumerism results in growing landfills.

Upcycling contributes to the reduction of CO_2 emissions:

- Extending the lifetimes of the used materials
- Extending lifetimes of products and their components
- Spending less energy in extracting, transforming, or recycling materials, components and products

More and more manufacturers are taking items long considered to be nonrecyclable, including snack packaging, drink pouches, bicycle chains, and even cigarette butts, and upcycling them.

- Bags and drink pouches are made into messenger bags
- Bicycle chains become photo frames
- Cigarette butts are recycled into plastic shipping pallets

Upcycling furniture

Upcycling has been around for centuries. Its success has not been based on aesthetics or sustainability, but rather on a lack of available materials. However, upcycling can be restyling unwanted items into something unique. It can be upgrading something that can be loved again, like painting a tired, dark piece of furniture into something with a wow factor.

Why Upcycling Furniture?

1. It's Better for Environment
2. The Finished Piece Turns Out Unique
3. You Will Save Money
4. You Will Explore & Embrace Your Creative Side
5. You Are Encouraging Sustainability by setting an example for others

How to start upcycling furniture?

An item ready for upcycling can be something you currently have in the house or purchased from a second-hand store. Old furniture is often better made than the furniture we get today. With a little bit of time, love and care, you can create a completely unique piece of furniture for your home that no one else will have.

Furniture upcycling steps:

1. Clean item thoroughly and allow to dry
2. Check for any imperfections and fill any scratches or holes with wood filler
3. Sand item to take sheen off
4. Remove all the dust created from sanding
5. Paint!

Why Upcycling Clothes?

The energy required to upcycle clothing is much less than that required to recycle it. Upcycling prevents unnecessary waste from going into landfills. Reusing clothing reduces manufacturing costs and preserves natural resources. Upcycling brings out your creativity and innovation. You can choose to keep the design simple or experiment with different styles and techniques.

How to Use Patchwork

Sewers have used patchwork for centuries, sometimes to create works of art but overall in a more utilitarian way to keep families warm on cold nights. You can make patchwork by joining the same or identically shaped pieces of fabric into a larger piece of fabric. You can create patchwork by sewing fabrics into smaller sections and then joining the sections.

Patchwork Tips and Techniques

1. You need a sewing machine. It doesn't have to be expensive — most of your sewing will straight stitch.
2. You need three layers of fabric. For the beginners we advise to use either cotton or flannel.
3. Cut pieces and lay them out in a design you like.
4. Sew the pieces together.
5. Wash and Enjoy!

Chapter 4. Case studies

4.1. "Buy green" or "buy less"? Young adults responses to green marketing and green demarketing[1]

"Don't buy this jacket" was the slogan of Patagonia's Black Friday campaign in 2011. Patagonia placed this ad in The New York Times on the biggest shopping day of the year. With this campaign, Patagonia asked consumers to consider the environmental impact of their consumption practices on the planet. Patagonia was the first company that successfully used the "green demarketing" strategy (Armstrong Soule & Reich, 2015).

In recent years, we have witnessed a surge in sustainable environmental marketing practices, such as "green marketing" (Reich & Armstrong Soule, 2016), which promotes the consumption of sustainable brands and products manufactured in an environmentally friendly way ("buy green"). Unlike the green marketing strategy, the demarketing strategy encourages consumers *to buy less* in order to reduce their environmental impact.

Consumers find value in supporting reduced consumption, and green demarketing might help to build a sustainable brand image (Sekhon & Armstrong Soule, 2020). But will young adults choose demarketing over green marketing? It is important to reduce consumption, especially in the context of the fashion industry, which is one of the largest polluters in the world.

[1] **Based upon the following publication**: Anna Fenko and Asja Šerić (2023). "Buy green" or "buy less": The effects of green marketing and green demarketing on consumer responses to fashion advertising. Paper presented at ETMAAL Conference, on Feb. 2, 2023, at the University of Twente, Enschede, Netherlands. Co-funded by the University of Amsterdam.

The goal of this study was to compare the effect of a green marketing strategy and a green demarketing strategy on young adults. The online experiment compared the responses of participants to green marketing ("buy green") and green demarketing ("buy less") for brands with a positive vs negative environmental reputation.

The experiment was performed with 210 participants, mean age was 27, and 75% of them were female. They were shown advertisements for an unknown clothing brand Happy Earth. The green marketing ad contained information that the product is made of recycled cotton. In the demarketing condition, participants were informed that the material is stronger, which allows them to buy clothes less often. Environmental reputation of the brand was manipulated by using either positive (9/10) or a negative (2/10) independent environmental rating.

The results did not reveal any significant effects of marketing strategy on consumer responses. However, the analysis has revealed an indirect effect of green marketing strategy on consumer responses. The study also found the significant effect of environmental reputation on ad and brand attitude. Furthermore, there was a positive effect on environmental reputation.

The results show that positive environmental reputation may change consumer attitudes towards the fashion brand. Therefore, fashion brands will benefit from obtaining an independent environmental rating. Presenting this rating in their marketing communications can increase consumers' attitudes towards the brand.

Although we did not find significant differences between green marketing and green demarketing strategies, green demarketing can still be considered as a viable marketing strategy by sustainable fashion brands. Not only may green demarketing lower the negative impact of the fashion industry on the environment, but it may also attract consumers who value sustainability and increase the sustainable brand image.

4.2. Combating greenwashing: Young adults learn to identify misleading green advertising[2]

Green advertising advocates for environmentally responsible lifestyles, makes claims of environmental friendliness, highlights corporate environmental initiatives, and/or depicts natural environments (Schmuck et al. 2017). It takes advantage of a growing consumer demand for green products and uses informational and visual cues to influence consumer's perceptions of a brand's ecological image. Unfortunately, presentations of a brand as green can be intentionally misleading to consumers. The practice of making a brand fallaciously seem green is referred to as greenwashing (de Freitas Netto et al. 2020). Two types of greenwashing have been identified: claim-based and executional. While claim-based greenwashing argues that a product has ecological benefits which creates a misleading environmental claim (de Freitas Netto et al. 2020), executional greenwashing uses nature-evoking elements in the execution of an ad to showcase that a brand has a positive relationship with the environment (Parguel, Benoît-Moreau, and Russell 2015). Studies suggest that nature-evoking elements delude consumers into perceiving brands as green (Schmuck et al. 2017).

Studies on greenwashing have found moderating roles of environmental knowledge, attitudes, concern, or behavior on consumer responses (Bickart and Ruth 2012; Hartmann, Apaolaza and Eisend 2016; Parguel, Benoît-Moreau, and Russell 2015; Schmuck, Matthes and Naderer 2018). Environmental involvement is a construct that encapsulates these perceptions and looks at how invested a consumer is on issues regarding the climate. Executional greenwashing is an increasingly used practice in the marketing world, which has received less attention in research than claim-based greenwashing. This leads to the following question: To what extent do nature imagery and eco-labels) influence a brand's ecological image and attitude towards the brand, and does it depend on a consumer's environmental involvement?

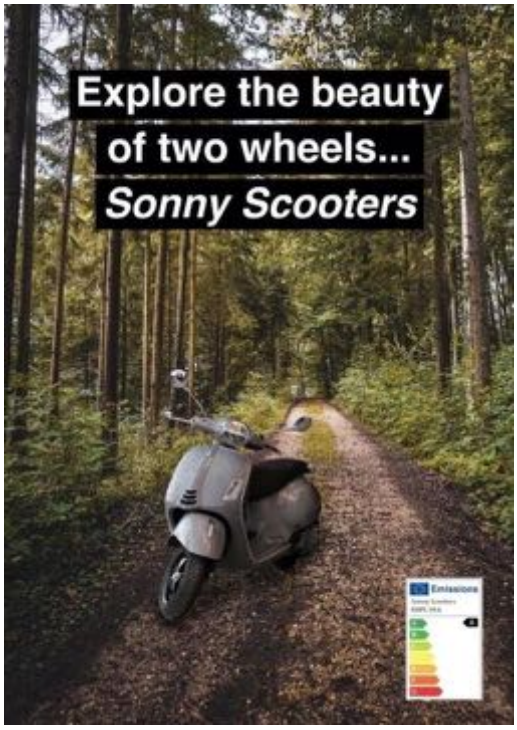
Executional greenwashing uses peripheral elements of nature that trigger false associations with greenness and subconsciously impact attitude formulation (Parguel, Benoît-Moreau, and Russell 2015). For example, presenting products in lush natural landscapes successfully induces perceptions of a brand's greenness by triggering ecological inferences through covert references to nature (de Freitas Netto et al. 2020). Nature imagery is frequently employed in advertising due to its effectiveness explained by Environmental Psychology Theory, which posits that exposure to nature imagery causes positive feelings (Frumkin 2003; Hartmann, Apaolaza and Eisend 2016).

Findings indicate that using nature imagery in ads leads to positive evaluations of the brand and its green image (de Jong, Huluba, and Beldad 2020; Hartmann, Apaolaza and Eisend 2016).

[2] **Based on the following publication:** Fenko, A. & Dyment, G.G. (2023). Combating Executional Greenwashing: The effects of central and peripheral cues on consumer responses to green advertising. Paper presented at ICORIA Conference in Bordeaux, on June 31, 2023. Co-funded by the University of Amsterdam.

Eco-labels signal a company's actual greenness. Eco-labels can be strategically used in advertising to communicate relevant, meaningful, and accurate information to consumers who want to consider sustainability in their purchasing decisions (Atkinson and Rosenthal 2014). The European Directive 1999/94/EC introduced the legal requirement of using a graphic symbol to label vehicle advertisements within the EU that indicate environmental performance (European Commission 2016). This tri-color Environmental Performance Indicator (EPI) has been found to be superior to basic eco-labels that are harder to decode, hold less concrete information, and are perceived as less credible (Parguel, Benoît-Moreau, and Russell 2015).

When consumers are invested in an issue, they are more critical and rely on central cues to analytically process information. When consumers are uninvolved, they rely on heuristic cues and peripheral cognitive processing routes to analyse information superficially (Friestad and Wright 1994; Schmuck, Matthes and Naderer 2018).

A 

B 

A: Green Environmental label, Natural landscape. B: Red Environmental label, Urban landscape

The Persuasion Knowledge Model (PKM) by Friestad and Wright (1994) predicts that consumers with high topic knowledge process ads more carefully and are more likely to see past the effects of executional greenwashing when they know a product is inherently not green (Friestad and Wright 1994). Research has shown that the more consumers are environmentally involved, the more critical they are and the more easily they can identify executional greenwashing (Bickart and Ruth 2012). If they identify misleading uses of green elements, their attitude towards the brand decreases (Schmuck, Matthes and Naderer 2018). However, some studies have found that the more environmentally involved consumers are, the more favorably they evaluate peripherally based green ads due to their emotional attachment to nature (Hartmann et al. 2016). These inconsistent findings require further investigation of environmental issue involvement (Bamberg and Rees 2015).

An online experiment was performed at the University of Amsterdam with 173 participants aged from 18 to 35 years (M = 26.6, SD = 9.28), of which 119 were females, 53 males and 1 was non-binary. The median education level was a bachelor's degree (n = 90). A fictional Instagram ad presents a scooter brand, Sonny Scooters (see Figures A and B).

The study provides empirical evidence that environmental labels have a significant effect on brand's ecological image and brand attitude. This effect is stronger for people who are environmentally involved, making them more likely to rely on environmental labels in evaluating a brand's ecological image (Bickart and Ruth 2012). Nature's image had a positive effect on a brand's ecological image, but not on brand attitude.

The results demonstrate that when consumers are given the information needed to make informed evaluations, they will use that information and process it critically (Atkinson and Rosenthal 2014). Therefore, environmental labels can be used to combat executional greenwashing. Policy makers can use labels to keep companies accountable for unsustainable practices by affecting consumer perceptions of brands. Green brands can use environmental labels as a marketing technique.

In line with previous studies, highly environmentally involved participants were more affected by central cues than peripheral cues in their perception of a brand's ecological image (Bickart and Ruth 2012; Schmuck, Matthes and Naderer 2018). When a green label was presented, the high and low involved participants evaluated ecological image similarly, but when red labels were presented, the low involved participants identified the ad as significantly greener.

Low involved individuals did not rely on imagery significantly more than high involved, confirming previous findings that participants who are less involved are equally likely to see past the effects of executional greenwashing (Parguel, Benoît-Moreau, and Russell 2015). This demonstrates that labels can oppose the misleading consequences of executional greenwashing on ecological image and brand attitude, regardless of issue involvement.

4.3. Upcycling as a lifestyle and a business model: A migrant's story

Conny was born in the Netherlands, one of the most densely populated countries in the world. She grew up in a village that has been absorbed by the growing urban area around Amsterdam, and she had a feeling that she was robbed of her beloved countryside. After she was diagnosed with a chronic illness, she moved to a remote rural area in the north of Spain, where she can enjoy nature.

Conny is a real sustainability enthusiast. She has started her own business: she is making reusable shopping bags out of textile waste. She gives fabric a second life and creates unique and beautiful bags which she sells at a local market.

Her company is called Del Corazón, 'from the heart'. This company is one of many examples of how you can contribute to the circular economy and support yourself with up-cycling. Conny not only creates valuable new products out of waste; she also helps her customers to reduce plastic waste by carrying reusable shopping bags. Conny is a great inspiration for our project.

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