This project is co-funded by
the European Union and the Republic of Turkey.

Technical Assistance for Assessment of Turkey's Potential on Transition to Circular Economy

EuropeAid/140562/IH/SER/TR

Support for the process of coordination and development the work of the EUSAIR pillar Environmental Quality in Innovation Eco-Innovation and Circular Economy Best Practices in EUSAIR TSG3

Senad Oprašić, PhD - EUSAIR

Activity 1.2.1. Circular Economy Training
12th May 2022 - Antalya, Türkiye

REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT,
URBANIZATION AND CLIMATE CHANGE

Environment and Climate Action
Sector Operational Programme

deep
Türkiye Döngüsel Ekonomi Eylem Planı

DAI

What is EUSAIR?

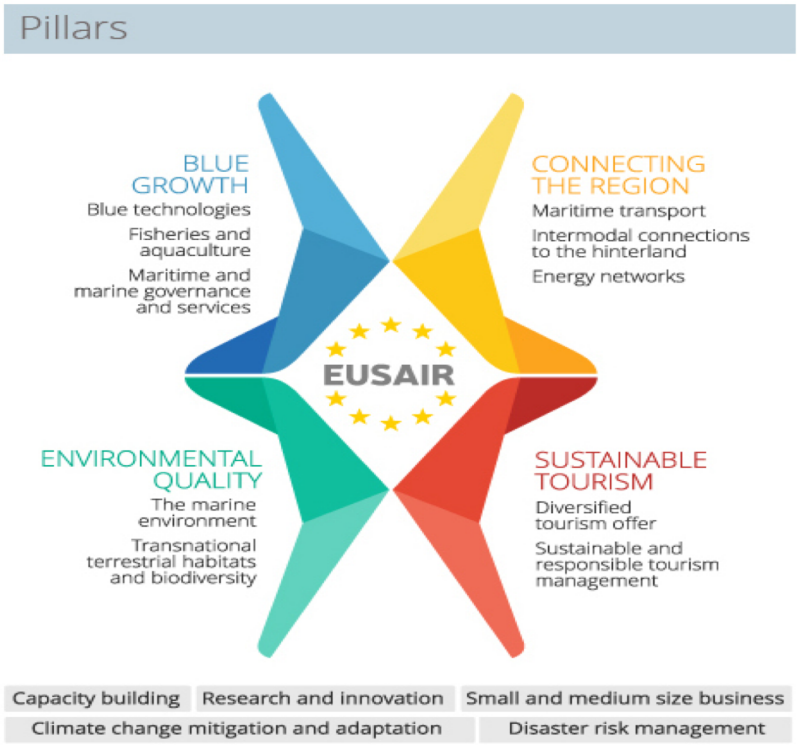
4 EU Member States (Croatia, Greece, Italy, Slovenia)
6 non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, San Marino, Serbia)

The general objective of the EUSAIR is to promote economic and social prosperity and growth in the region by improving its attractiveness, competitiveness and connectivity. With four EU members and four non EU countries the strategy will contribute to the further integration of the Western Balkans.

The participating countries of the EUSAIR agreed on areas of mutual interest with high relevance for the Adriatic-Ionian countries, being it common challenges or opportunities.

The countries are aiming to create synergies and foster coordination among all territories in the Adriatic-Ionian Region in the four thematic areas/ pillars:

EUSAIR pillars



The specific objectives for pillar 3 are:

-To ensure a good environmental and ecological status of the marine and coastal environment by 2020 in line with the relevant EU acquis and the ecosystem approach of the Barcelona Convention.

-To contribute to the goal of the EU Biodiversity Strategy to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restore them in so far as feasible, by addressing threats to marine and terrestrial biodiversity.

-To improve waste management by reducing waste flows to the sea and, to reduce nutrient flows and other pollutants to the rivers and the sea.

1. Background of the study and methodology presentation

The aim of the study is to prepare the grounds for further planning of activities to stimulate eco-innovation and elements of circular economy across the defined flagships in TSG3:

- **3MPS** – Monitoring and Management of Marine Protected Species,
- **ASOSCoP** – Transnational contingency plan in the event of accidents at sea,
- **ICZM & SME** – Sustainable development of the coastal and maritime zones
- **PET HAB ECO** – Protection and enhancement of natural habitats and terrestrial ecosystems) and the presentation of the methodology as well as the results achieved in 2 meetings of TSG3 members or Facility Point project partners.

Definition - eco-innovation and circular economy (1)

Eco-innovations are a subset of all innovation in an economy (Wagner 2008).

Eco-innovation is defined as "any innovation that reduces the use of natural resources and decreases the release of harmful substances across the whole life-cycle" (Eco-Innovation Observatory 2013).

Eco-innovations provide a win-win situation for companies and environment (Horbach 2008) and are further "central to the promotion of sustainable and smart growth because of the benefits, which can be brought to the economy and the environment" (European commission 2012).

Eco-innovation plays an increasingly important role for the competitiveness of companies

Definition - eco-innovation and circular economy (2)

Broader and the newest concept on which we focused is **circular economy**, defined by the Ellen MacArthur Foundation as "an industrial system designed to be regenerative that aims to rely on renewable energy; limits, tracks and reduces the use of toxic chemicals; and eliminates waste through the design of materials, products, systems and business models."

Circular economy is a model of industrial ecology that suggests concrete solutions to achieve a sustainable way of living and an environmentally friendly economy (Kobza and Schuster 2016).

In December 2015, the European Commission adopted a Circular Economy Action Plan to give:

- a new boost to jobs,
- growth and investment and
- to develop:

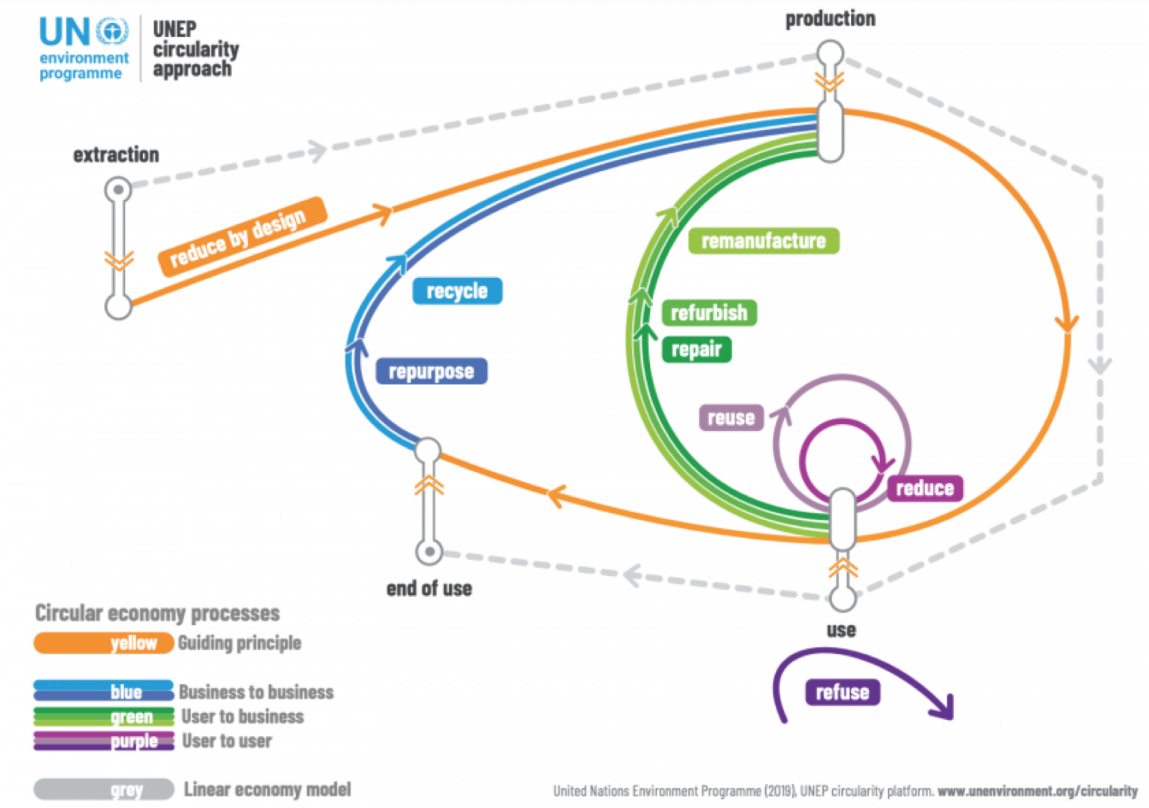
    - a carbon neutral,
    - resource-efficient and
    - competitive economy

The 54 actions under the action plan have now been completed.

The first step of building a circular economy is circular design and production processes.

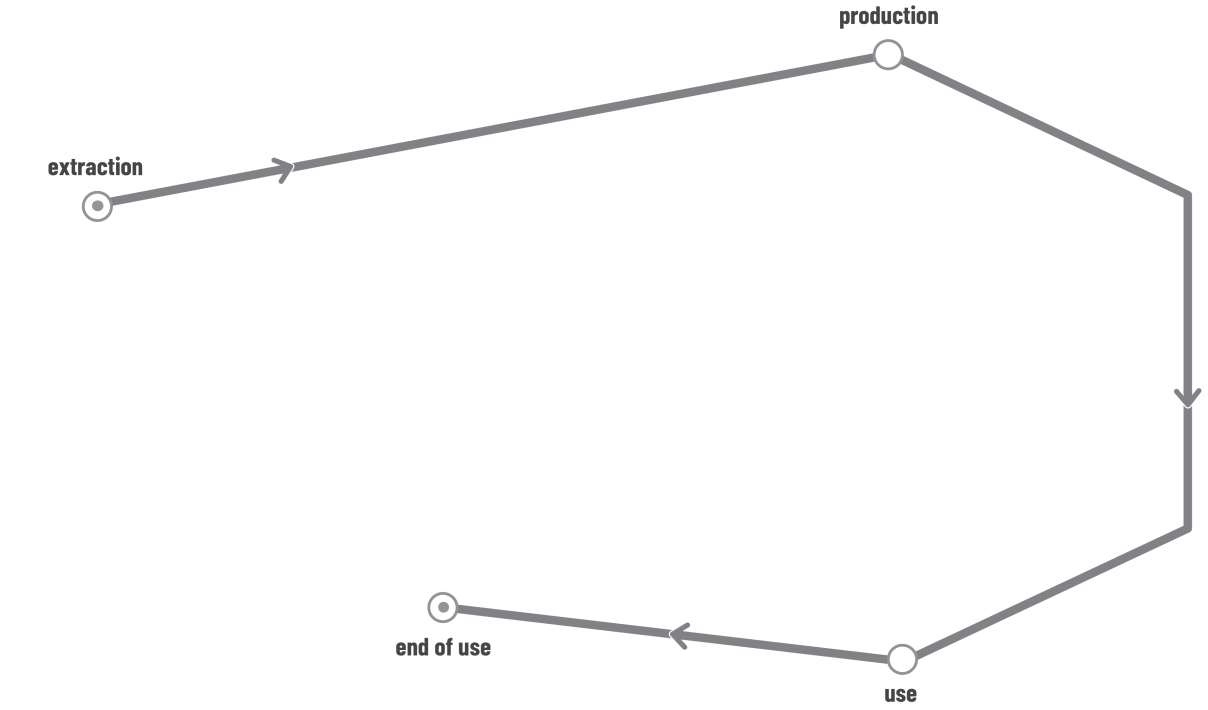
Second, need to empower consumers

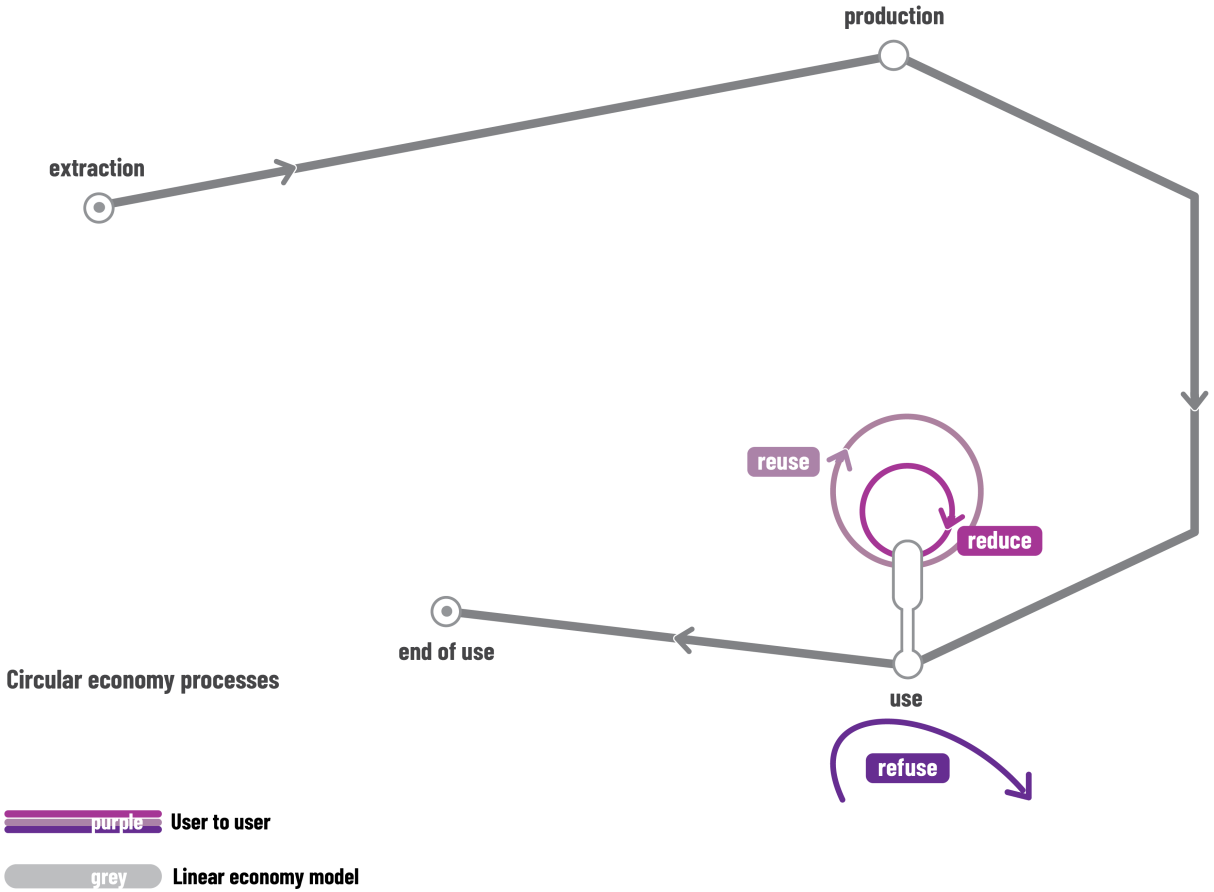
Third concept of building a circular economy is about turning waste into resources.

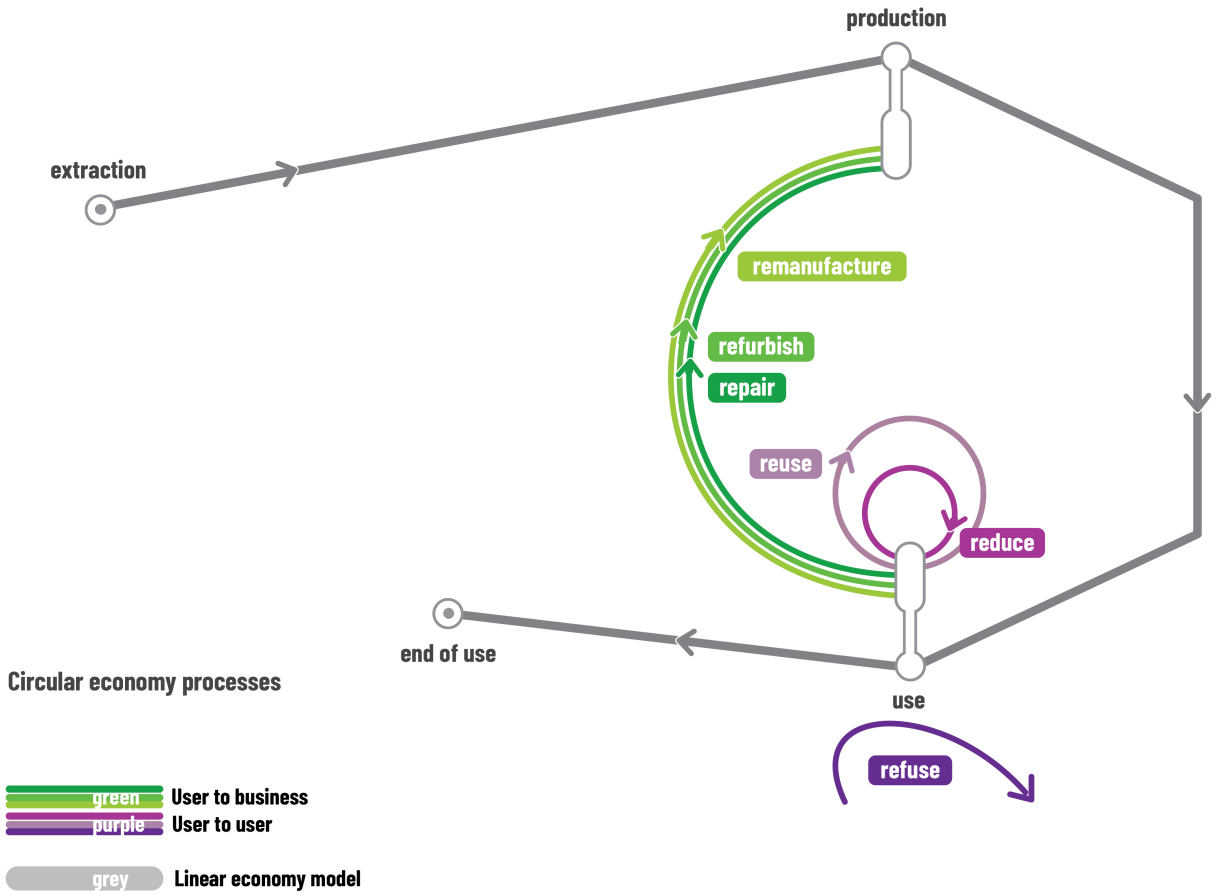


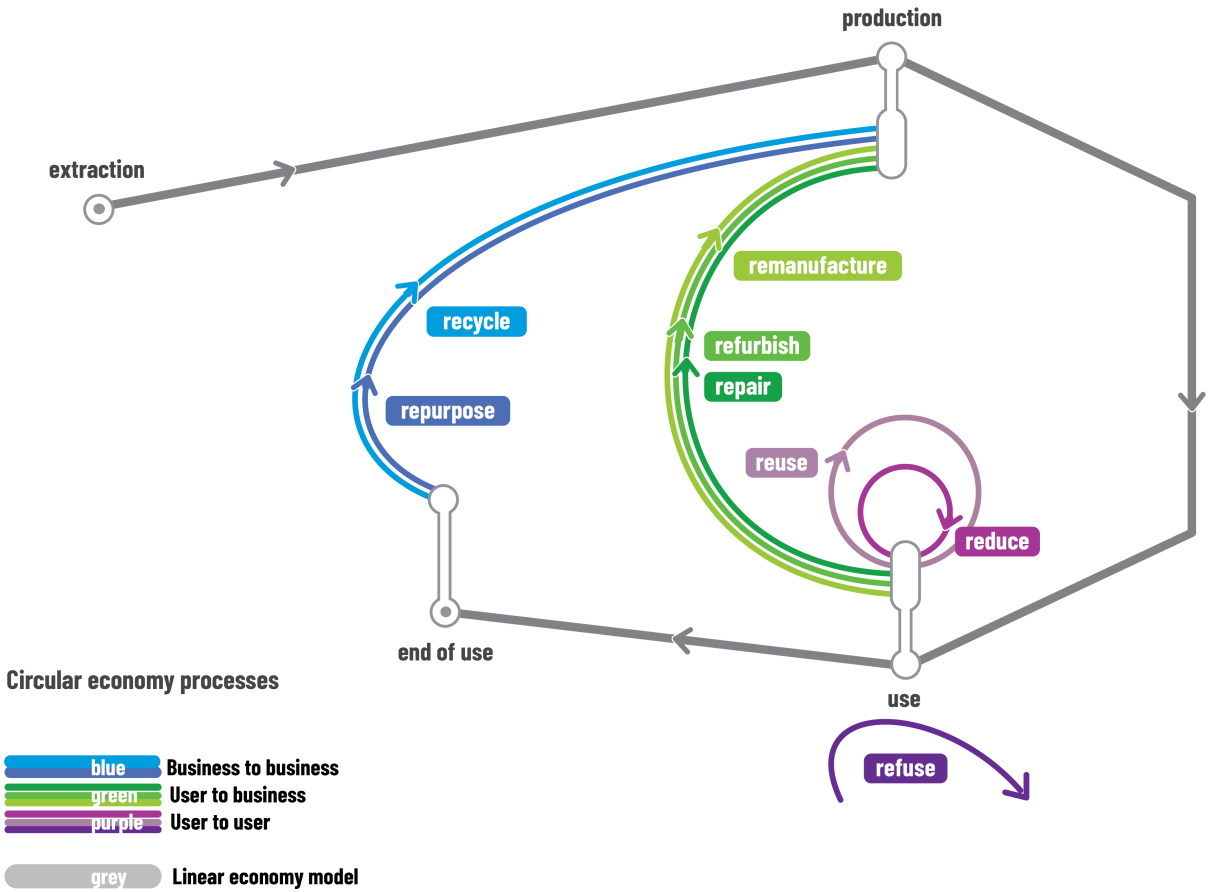
The newest concept for the pursuit of global sustainability is **circular economy strategy,** which has in the last five years gained intensive attention in research.

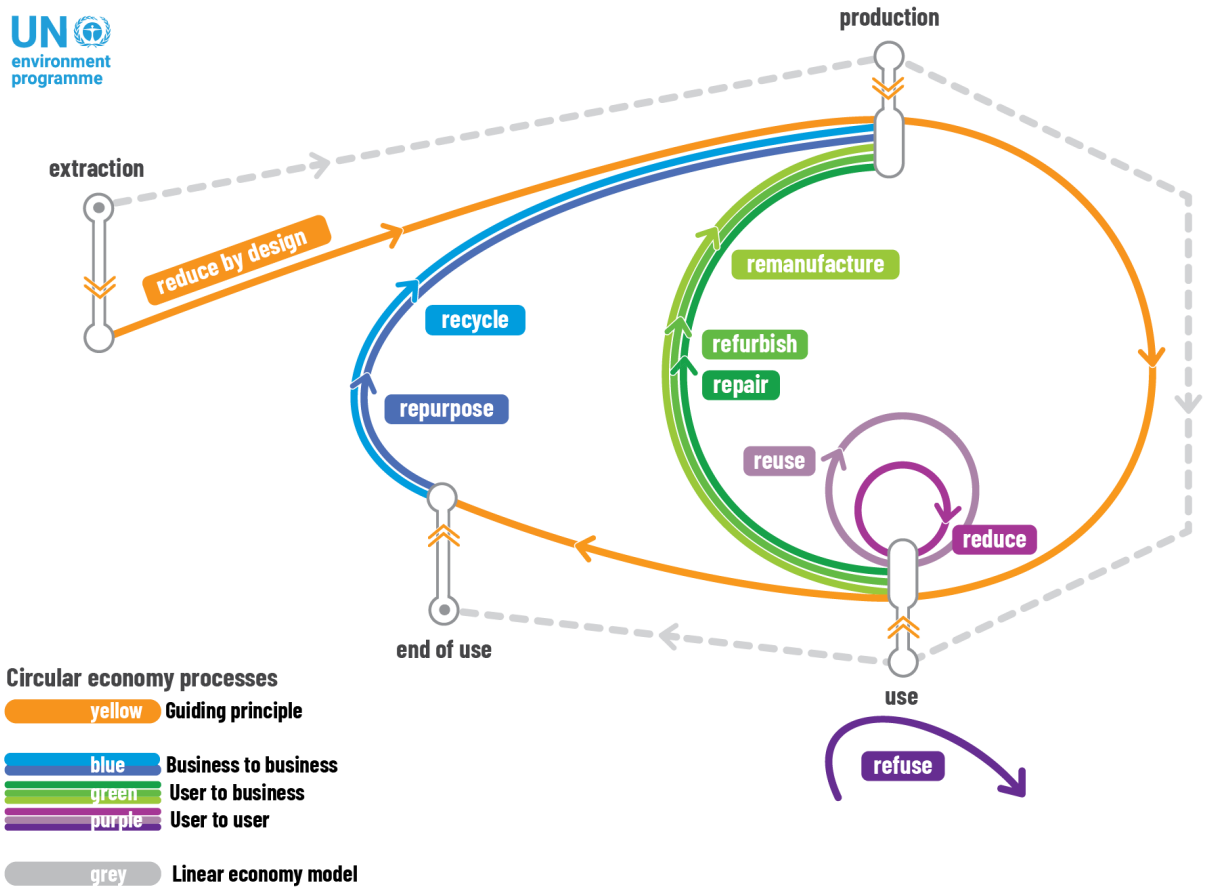
Figure 1: Circularity approach (UN environment program, 2021 https://www.unep.org/circularity


production
extraction
end of use
use
grey
Linear economy model


production
extraction
reuse
reduce
end of use
use
refuse
Circular economy processes
purple
User to user
grey
Linear economy model


production
extraction
remanufacture
refurbish
repair
reuse
reduce
end of use
use
refuse
Circular economy processes
green
User to business
purple
User to user
grey
Linear economy model


production
extraction
remanufacture
recycle
refurbish
repair
repurpose
reuse
reduce
end of use
use
refuse
Circular economy processes
blue
Business to business
green
User to business
purple
User to user
grey
Linear economy model


UN environment programme
production
extraction
reduce by design
recycle
repurpose
remanufacture
refurbish
repair
reuse
reduce
end of use
use
refuse
Circular economy processes
yellow Guiding principle
blue Business to business
green User to business
purple User to user
grey Linear economy model

Best practices

Altogether it has been identified 4 best practices dealing with eco innovation and circular economy:

two from Slovenia, (**Toring Turbine and Clera One**)
one from Greece, (**Enaleia)**
one from Croatia. (**Agena Marin**)

Business practices have been analyzed with the same questionnaire along different aspects in order to describe their eco-innovation or circular economy business practice

Best practices

In the Study experts have encompassed the following information:

- short presentation of the company,
- motives and drives to start with eco-innovation
- main barriers and obstacles in its implementation
- benefits of their eco-innovation,
- potential rewards and funding,
- future vision of the company and
- lessons learnt, where relevant.

Toring Turbine (Slovenia) is example of eco-innovation, which solutions are being implemented in more then 72 countries and have references from almost every industry dealing with water.

With their eco-innovation, a specific turbine, which efficiently, innovatively, and sustainably transfers and injects air to water, supplies water with life.

Their aerators last longer, need less energy and are simpler for maintenance.

Toring Turbine is flexible, innovative and sustainable company which strives to provide the best energy efficient solutions for water, wastewater and recycling.

Thay have a knowledge and skills to implement cost-effective, fast to deliver projects with cutting-edge, state-of-the-art technologies.

With 11 years of experience, its products are used in more than 72 countries as part of the 242 worldwide projects.

They have references from almost every industry dealing with water. cover the most important markets, as we have tendency to spread on even more interesting new markets

Similarly, **Clera One (Slovenia)** is also an example of eco-innovation, but in its early stages, with only pilot projects implemented.

Their eco-innovation is a water recycling system for laundry rooms, to help them use water more sustainably.

The system collects wastewater, puts it through a filtration system to clean it up, and so reuses it.

Water scarcity and microplastic pollution are emergent global problems that need forward thinking solutions.

The company introduces the cutting-edge water recycling system for laundry rooms which will allow laundry rooms to use water sustainably.

Lessons learnt: Do not be too emotional and think of how much good you can do for the planet. Rather sell investors the story about the impact you have on the environment, because in the end investors are only concerned about ROI.

Enaleia (Greece), a non-profit enterprise was proposed because through their circular economy business practice “Mediterranean Clean-Up”, with which they aspire to implement a wide-scale cleanup of marine plastic in the Mediterranean region in collaboration with professional fishers.

It is a social, non-profit enterprise with a vision to make the marine ecosystem sustainable.

Estblished 2016 as the first school of professional, environmentally driven fisheries in Greece, educating fishers on sustainable fishing methods such as fishing tourism

The marine plastic collected by fishermen and the used fishing equipment is recycled and upcycled, being integrated into the circular economy.

Since the launch of Mediterranean CleanUp, thay have expanded activities in two continents, Europe and Africa, while in collaboration with more than 1.500 fishers in Greece, Italy, and Kenya, we have collected more than 250.000 kg of marine plastic and fishing gear.

In this way, all our projects are aligned with three pillars: Education, Mitigation, and Prevention.

Lessons learnt: The main lesson learned from our experience is that optimism is our main weapon against the climate crisis.

Given our humanity’s necessity to act for climate now, we say to the future eco-innovators to start today solving problems that really bother them.

We believe that through leading with our example, we can make a global impact, motivating policymakers to implement the sustainable development goals in a way to be more beneficial to the fishing communities, our primary drivers for climate action

Agena Marin (Croatia) is a producer of solar boats; electric boats that are truly sustainable, are long-lasting and made of eco-materials.

The design of the boats is cost-effective, while minimizing the negative impact on the marine environment.

The historic boat's line styling was inspired by the vessels from the 1920s. Built with a vacuum infusion technique, it uses a "sandwich" core made mostly of recycled PET bottles.

With the help of advanced engineering, they have managed to create a light but robust, innovative boats.

The economical cruising speed is 5 knots, and maximum around 6,5 knots with 6 kW outboard engine

Agena Marin d.o.o. was established in 2010. Company mission is: »We do not sell boats, we sell proven business solutions!«
That means that besides just selling the 'bare product', we offer our customers full support in organizing and running their business. G

Good result of this approach is 55 PAX which was ordered by loyal client from the island of Krk/Croatia. Company's first product was 12PAX semiSUBMARINE and so far we have implemented it on more than 50 attractive places in the world in over 13 countries.

Beyond just creating the perfect vessel for our clients, we also feel an incredible sense of responsibility to our planet. In 2021 the company made significant progress toward sustainability and presented the new product SolarFerry - a fully sustainable, eco-friendly, and cost-effective commercial boat that uses only solar and electric power sources.

Lessons learnt: Due to the covid situation, material prices have increased, so we need to be even more effective and careful in selecting cost effective but suitable sustainable materials to design the best boats for our end customers.

Project and transnational programs related to TSG3 – Environmental quality dealing with eco-innovation and circular economy

Table 1. Number of projects used for the study funded in the period 2014 - 2020

No	No of Projets	Interreg	Horizon	Life	Funds (EUR)
1.	21	3	14	4	931.316.980,31
2.	38	27	8	3	494.087.604,16
3.	39	18	9	3	128.629.383,69
4.	9	2	7		27.593.228,49
Total	98	50	38	10	1.581.627.196,65

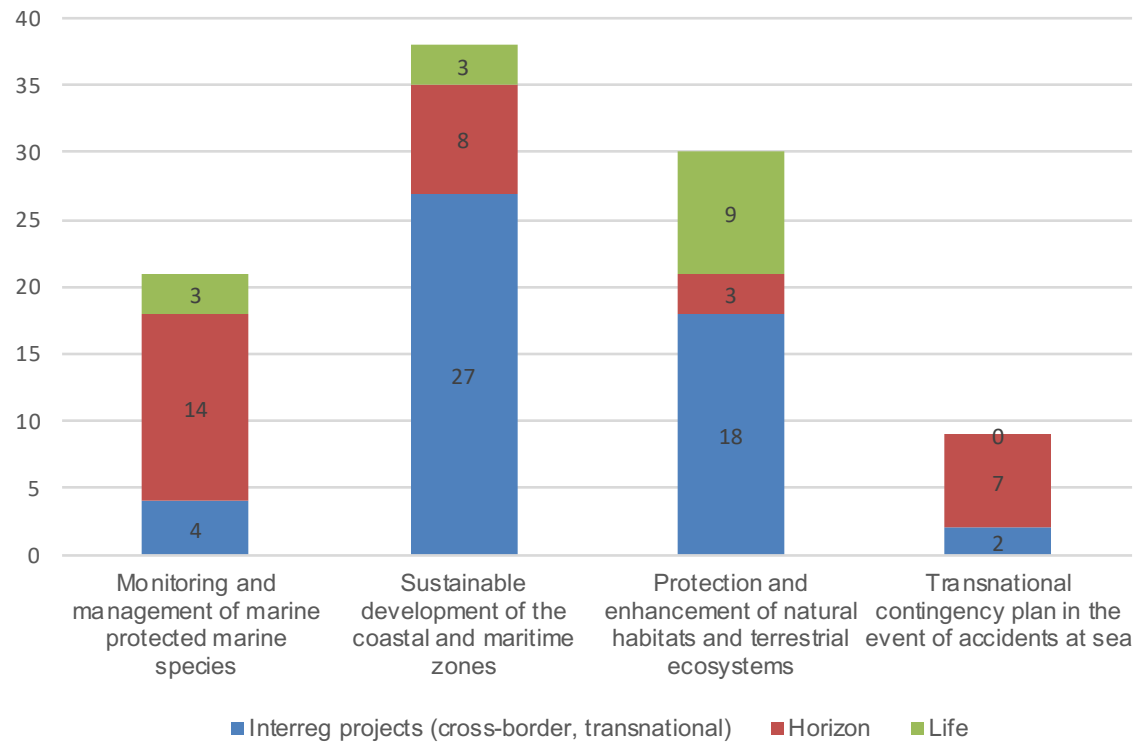


Figure 2: Shares of projects regarding the flagships of TSG pillar 3 – environmental quality and operational program

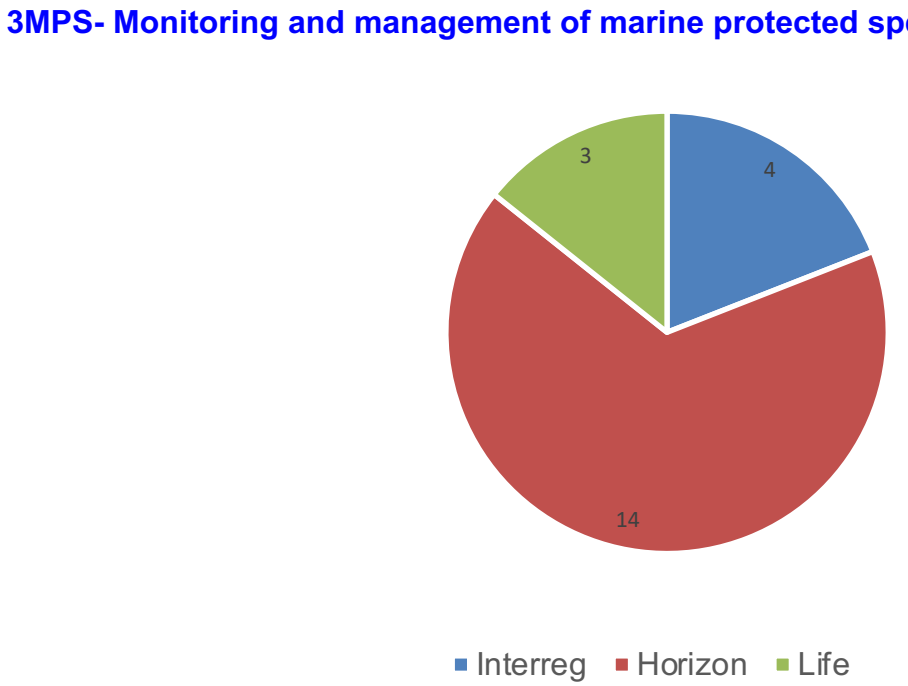


Figure 3: Number of projects regarding the operational program 3MPS

2. PET HAB ECO Sustainable development of the coastal and maritime zones

Regarding the flagship **sustainable development of the coastal and maritime zones** we have identified **27 Interreg projects**, **8 Horizon projects** and **3 Life projects**.

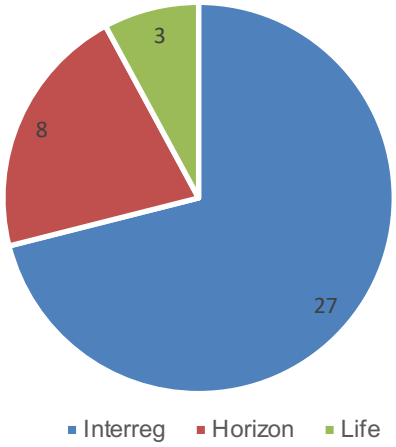


Figure 4: Number of projects regarding the operational program

3. ICZM & SME Protection and enhancement of natural habitats and terrestrial ecosystems

Regarding the flagship **protection and enhancement of natural habitats and terrestrial ecosystems** we have identified **18 Interreg projects**, **3 Horizon projects** and **9 Life projects**.

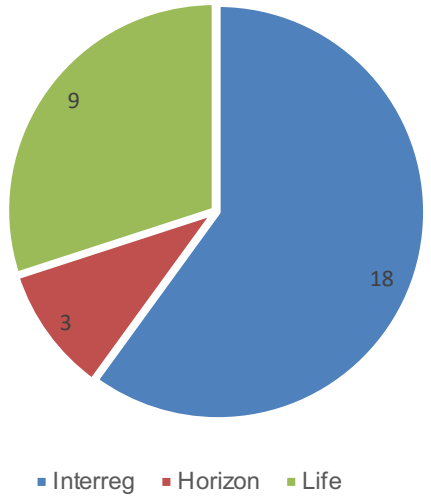


Figure 5 : Number of projects regarding the operational program ICZM & SME

4. ASOSCOP Transnational contingency plan in the event of accidents at sea

Regarding the flagship **transnational contingency plan in the event of accidents at sea** we have identified **2 Interreg projects**, **7 Horizon projects** and **zero Life projects**

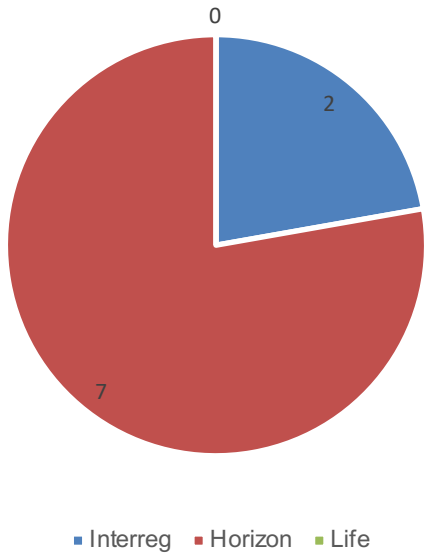


Figure 6: Number of projects regarding the operational program

Proposals to stimulate eco-innovation and circular economy

Identified EU policy instruments already in use in that aim to address the environmental impact along the whole life cycle and directly or indirectly focus on circular economy and are relevant also for TSG3 include:

- the EU Ecolabel,
- Green Public Procurement,
- the Environmental Management and Audit Scheme (EMAS),
- Extended Producer Responsibility (EPR),
- Eco-design for material efficiency and
- the pilot Product Environmental Footprint.

Also, **involvement of consumers is the key for stimulation of eco-innovation and circular economy business practices**

Next concrete proposal would be setting up regional **"ECO-INNOVATION-LIVING-LABs**", that would be best positioned within academic institutions and would operate on different levels.

Summary of main proposals:

- **Start with awareness rising and promotion activities to change user mindset and values,**
- **Setting up regional "ECO-INNOVATION-LIVING-LABs", that could operate on different levels.**
- **Showcase how selected eco-innovations really work in practice**
- **Propose educational seminars, workshops and academies about eco-innovation**
- **Organize local, regional and potentially international challenges as competitions for the best ideas/practices eco-innovation and circular economy**

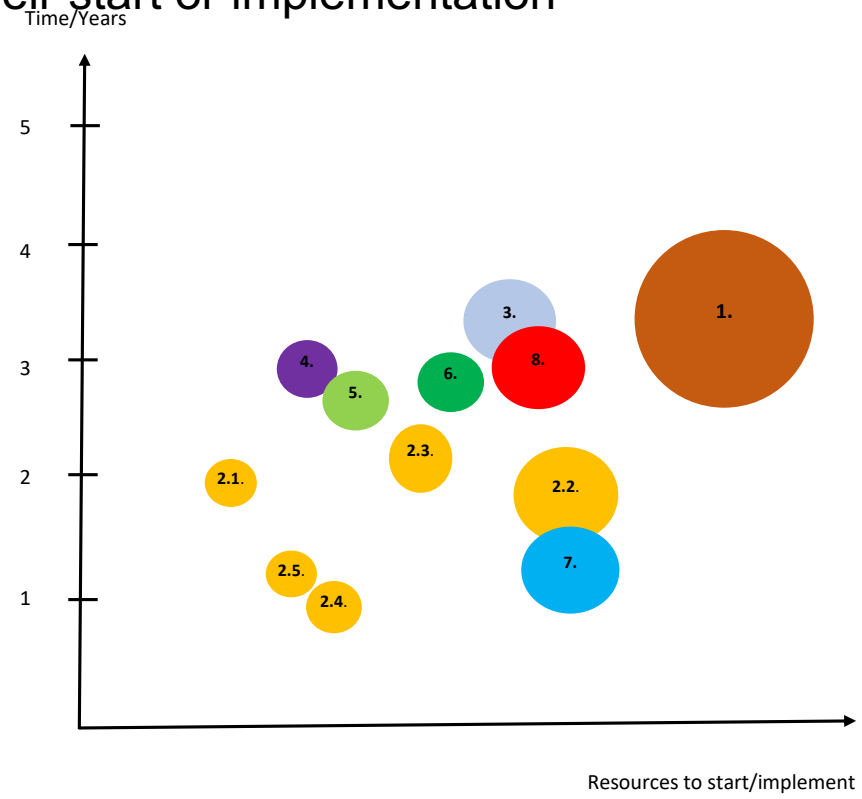
Summary of main proposals:

- **Marketing and PR activities**
- **Create local networks of stakeholders and partners to introduce eco-innovation and circular economy practices**
- **Develop and propose more public tenders for adoption of eco-innovation and circular economy**
- **Develop and propose more public tenders for adoption of eco-innovation and circular economy**
- **Further study of key obstacles of implementation of eco-innovation ….**
- **Continue monitoring, research, data collection, analyses, identification of trends and best practices of circular economy and eco innovation**

1. Table 5: Summary of main measures to stimulate eco-innovations and circular economy business practices

Color/Number	Measure/proposal	Stakeholders involved
1.	**Program calls** directed toward **marketing innovation in circular economy** – awareness rising and promotion activities	Managing authorities, ministries
2.1.	Eco-innovation-living-lab: **consultation body**	Experts, faculties, municipalities
2.2.	Eco-innovation-living-lab: **digital repository of business practices about circular economy and eco-innovations**	Marketing agency, IT company, faculties, enterprises
2.3.	Eco-innovation-living-lab: **demonstration of operation & effects of eco-innovations and circular economy business practices to wider public and businesses**	Businesses, students, wider public, influencers
2.4.	Eco-innovation-living-lab: **seminars, academies, workshops**	Faculties, experts
2.5.	Eco-innovation-living-lab: **challenges as competitions for the best ideas/practices eco-innovation and circular economy**	Faculties, schools, kindergartens
3.	**Local networks** of stakeholders and partners to introduce eco-innovation and circular economy practices	Ministries, experts, governments, NGOs, businesses, others
4.	**Thematic clusters** with focus on specific innovation elements related to eco-innovation & circular economy	Ministries, experts, governments, NGOs, businesses, finished project consortiums
5.	**Benchmark of regions eco-innovation performance**	Regions, ministries, experts
6.	**Study of key local obstacles for implementation** of eco-innovation and circular economy business practices	Experts
7.	Continuation of **monitoring, research, data collection, analyses, identification of trends and best practices** of eco-innovation and circular economy	Experts
8.	**Formal educational programs (masters), summer schools, guest lectures**	Faculties, experts

Figure 2: Classification of proposals based on resources needed and time frame for their start or implementation



Instead of conclusions:

Key challenges for the non EU countries need to be addressed during the transition to a circular economy. That are:

1. **High level of air, water and soil pollution;**
2. **Low production efficiency and thus low raw material productivity;**
3. **High energy intensity production;**
4. **High degree of dependence on imported raw materials and (fossil) energy sources;**
5. **Low level of connection of research and innovation with the economy and economic needs;**
6. **Low level of investment of state bodies in environmental protection;**
7. **Low level of investment of state institutions in encouraging economic innovations;**
8. **Poorly developed system of returning raw materials, production parts and the products themselves to the economy (starting with waste management with a focus on recycling).**

Recommended initiatives from the EU guidelines for the implementation of the Green Agenda for the Western Balkans in the field of transition towards a circular economy:

- **Support in improving the sustainability of production of raw materials and feedstock;**
- **Support in the development of industrial supply chains, in particular for industrial ecosystems;**
- **Development of circular economy strategies looking at the entire lifecycle of products, waste prevention, modern waste management and recycling, re-use, repair and remanufacturing;**
- **Implementation of consumer targeted initiatives for raising awareness of citizens on waste, separate collection and sustainable consumption**
- **Preparation and implementation of waste prevention programmes, waste management and recycling strategies, and programmes for re-use, repair and manufacturing;**
- **Continue supporting the construction and maintenance of waste management infrastructure;**
- **Develop a regional (Western Balkan) agreement on the prevention of pollution from plastic; …**

Thank you for your attention!

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the consortium led by DAI Global Austria GmbH & Co KG, and do not necessarily reflect the views of the European Union.