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# WECOOP

EU – Central Asia cooperation on  
Water – Environment – Climate Change



**CIRCULAR  
ECONOMY**

A NEW WAY OF SUSTAINABLE  
CONSUMPTION AND PRODUCTION  
IN THE EUROPEAN UNION

February 2020

# Preface

The renewed project of the European Commission “**European Union – Central Asia Water, Environment and Climate Change Cooperation**” (WECOOP) is getting at its full speed and will run until October 2022.

The project aims to enhance environment, climate change and water policies at national level in Central Asia through approximation to EU standards and to promote **green investments** in relevant sectors with the aim of contributing to **measurable reductions in man-made pollution**, including CO<sub>2</sub> emission.

This guidebook has been prepared to introduce the Circular Economy concept – one of the main policies that European Union has been promoting since 2015. Circular Economy covers sustainable production and consumption, as well as waste and plastic management.

The European Commission’s most recent communication “**The European Green Deal**”<sup>1</sup> confirms that Circular Economy remains a priority aimed to stimulate the development of lead markets for **climate neutral and circular products** in the EU and beyond. Circular Economy actions will focus in particular on resource-intensive sectors such as **textiles, construction, electronics and plastics**.

With this guidebook specially prepared for the 9th meeting of the EU–CA WGECC, we would like to give you an overview and a comprehensive summary on what stands behind the concept of the Circular Economy framework, what are the sustainable production and consumption principles and the examples from European enterprises. Hopefully, this document will inspire you in finding useful ideas when setting up environmental policies in your country or when consulting your stakeholders and business representatives. It is not always investment intensive projects, sometimes those are simple small actions that can make an impact and some positive change for our planet.



*“I want Europe to strive for more by being the first climate-neutral continent. The message from Europe’s voters – and those too young to vote – is loud and clear: they want real action on climate change and they want Europe to lead the way.”*

In March 2020, the EU will adopt an industrial strategy that will support the green transformation. A ‘sustainable products’ policy will prioritise reducing and reusing materials before recycling them. Minimum requirements will be set to prevent environmentally harmful products from being placed on the EU market.

False green claims will be tackled.

# How do we consume and produce?

## RE USE DUCE CYCLE

Every item that humans consume and dispose of originates from a natural resource. In theory, current levels of human consumption use the equivalent of 1.6 planets to provide the resources necessary to produce goods and absorb waste. Our demand for resources is causing climate change, depletion of the soil and water scarcity problems amongst others.<sup>2</sup> It takes the Earth one year and six months to regenerate what is used in a year.

Never before we had so many products and services available. The statistics testify to this desire to consume – construction materials, ores, fossils, biomass is currently 10 times greater than in 1900.

In order to prevent the Earth from the irreversible damages caused by using up resources at a rate that exceeds the Earth's capacity, in 2015 The Circular Economy Action Plan<sup>3</sup> was released. The following sectors of interest were defined: **plastics, food waste, critical raw materials with the recycling of electronic waste, biomass and bio-based products**, and the recovery of valuable resources in the **construction and demolition** sector. Four years after adoption, the Circular Economy Action Plan is fully completed. Its 54 actions have been delivered, even if the work on some of them continues beyond 2020.

**The European Green Deal's roadmap of actions<sup>4</sup> foresees a new Circular Economy Action Plan. It is expected in March 2020, including a sustainable products initiative and particular focus on resource intense sectors such as textiles, construction, electronics and plastics.**

From 1970 to 2017, the annual global extraction of materials tripled and it continues to grow. In the expected Industrial Strategy of the EU, the European Commission will make a proposal to support zero carbon steel-making by 2030.<sup>5</sup>



Since 2003, China has poured more cement every two years than the US managed in the entire 20th century. Even after a dip in recent years, China uses almost half the world's concrete.<sup>6</sup>

<sup>2</sup> Global Footprint Network, <https://www.overshootday.org/>  
<sup>3</sup> Closing the loop - An EU action plan for the Circular Economy, COM/2015/0614 final, 2015  
<sup>4</sup> The European Green Deal (Annex - Roadmap and key actions), COM/2019/640 final, 2019  
<sup>5</sup> The International Resource Panel, Global Resources Outlook, 2019  
<sup>6</sup> The Guardian, The grey wall of China: inside the world's concrete superpower, 2019



# Circular Economy – what is it exactly?

**Circular Economy** is a part of **Green Economy policy** perspective that is promoted by the European Union.

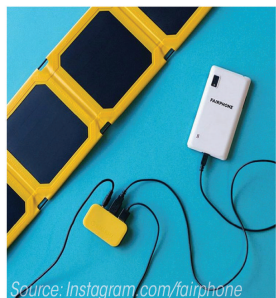
The aim of the Circular Economy: to promote and cover aspects like **climate neutrality**, **social impacts** and other elements like **toxicity or resource efficiency**. Green economy is a broader concept that includes many other elements of the environmental policies.



The principle: to achieve environmentally and economically sustainable growth by **maintaining the value of products, materials and resources in the economy for as long as possible**. As a result, circular economy will create energy savings, help preserving biodiversity, improve air quality, soil and decrease water pollution.

Here we are talking about products and services produced and offered in the market, whether it is a pack of milk or a pair of shoes or the car you are driving. The way how products and services are designed, produced and consumed is the core of the Circular Economy model (see Picture 1).

It is crucial to take into consideration the whole life cycle of the product, starting at the very beginning of the value chain. For example, imagine your car or mobile phone. Could you imagine from how many parts of the globe precious metals and rare earths are coming, how they were extracted and put together? Isn't it sad to realize that at the end of life we throw it away? Instead, we could recycle and recover all the parts of it in order to manufacture a new piece of electronics.



**Dutch company Fairphone is a European trailblazer in producing mobile phones from fair and recycled materials. Currently for every recycled phone sent to the factory, Fairphone offers a cash refund on a new order, to incentivize recycling and ensure valuable materials can be used in a continuous loop.**

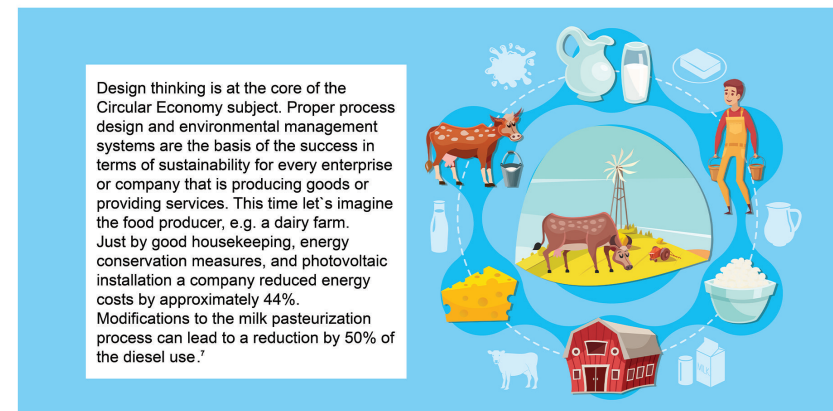
It is important to know how one or another product is manufactured, how much energy it took to produce it, was it energy from fossil fuels or renewable sources, and how we can reuse or recycle it. The linear economic mode is not feasible anymore due to the planetary boundaries. It is too expensive to practice 'take-make-consume-throw away' pattern in our businesses and lifestyles.

*In practice, the Circular Economy model aims to reduce waste to a minimum as well as to promote re-using, repairing, refurbishing and recycling of existing materials and products. Like the example of the mobile phone given before. What used to be considered as 'waste' can be turned into a valuable resource.*



Picture 1 Circular Economy model (European Parliament, 2015)

Managing resources more efficiently throughout their **life cycle** would not only reduce pressure on the environment and enhance the security of supply of raw materials, it could also bring significant economic gains. There are economic gains to be made from using raw materials and resources more efficiently and being less dependent on imports. Like it is happening now with the precious metals and ores. A progress will be made in preserving the biodiversity, by avoiding overtake of new territories for mining activities.



For producers of consumer goods, e.g. food products, **Life cycle assessment (LCA)** is a useful tool. This tool analyses all the material and energy inputs and consequently evaluates and calculates the environmental impact, namely, emissions and wastes to the environment for a given step in producing a product. LCA calculates emissions when raw materials are sourced, manufactured and transported. This is a great tool that shows the **environmental footprint of a particular product**. By knowing the main hotspots, a producer can improve performance by introducing new technologies or innovations in the course of **the supply chain** or manufacturing process in the factory.

There are social and employment gains by improving local waste management, from recycling, repair and re-use services. In 2016, circular activities such as repair, reuse or recycling generated almost €147 billion in value added while accounting for around €17.5 billion worth of investments.<sup>8</sup>



# Diversity of the Circular Economy amongst industries and sectors

In the EU, new business models based on renting goods and services will help to shift consumption patterns away from single or limited use products.



The truth is that Circular Economy model can be applied in almost all sectors and fields as it is “an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models”.<sup>9</sup>

In 2020, a new set of rules will be adopted by the European Union that will stimulate and facilitate **water reuse in agriculture**. The treated, non-potable wastewater from urban waste water treatment plants will be used for irrigation, therefore, contributing to the Circular Economy efforts in the EU.

According to the study of McKinsey, Circular Economy would decouple economic growth from resource use. Sharing economy as well as disruptive technologies and innovations go hand in hand and are the main drivers for the success of the Circular Economy. The examples with the highest potential are electric, shared, and autonomous vehicles, food-waste reduction, regenerative and healthy food chains, passive houses, urban planning, and renewable energy.



For example, in agricultural sector Circular Economy would mean using a minimal amount of external inputs in producing one or another agricultural commodity, while at the same time closing nutrient loops and reducing negative discharges to the environment and valorising agro-food waste.<sup>10</sup>



Picture: Olympics.org

The EU Green Deal confirms that a sustainable building concept is a major priority of the European Union, to make buildings resource efficient and circular. Already in 2012 for the London 2012 Olympic and Paralympic Games some attempts were made in constructing movable and flexible buildings that can be built, moved and rented multiple times.

<sup>9</sup>Ellen McArthur Foundation, Towards the Circular Economy: Economic and business rationale for an accelerated transition, 2012.  
<sup>10</sup>Shane Ward, University of Dublin, The Circular Economy applied to the agri-food sector, Presented at The European Commission DG Research & Innovation hosted conference on: 'Harnessing Research and Innovation for FOOD 2030: A Science Policy Dialogue', 2017

# Sustainable production and consumption

*In order to boost the above mentioned sustainable practices and lifestyles the following tools have been developed:*

According to a Consumer Market study on environmental claims for non-food products, almost 60% of consumers prefer to buy a product with an environmental label.<sup>11</sup> The interest of consumers is growing and therefore they need to be protected and guided.

The European Commission has developed several tools to promote sustainable production and consumption in order to identify green products and reward sustainable producers.

A sustainable product policy also has the potential to reduce waste significantly. The new Circular economy action plan, that is expected in 2020, will also include a **'sustainable products' policy** to support the circular design of all products based on a common methodology and principles.

Retailers are in an exceptional position to promote more sustainable production and consumption via their daily contact with millions of consumers, as well as through their own actions and partnerships with suppliers. What is more, removing unsustainable products from their shelves and recognizing sustainability is a great opportunity for retail businesses to grow, compete and innovate.



**Green Public Procurement (GPP)** is a set of guidelines that are set up by authorities for the public purchases. Europe's public authorities are major consumers. Making full use of GPP instrument environmentally friendly goods, services and works are prioritized. For example, Swiss government is currently asking building companies to build from recycled concrete, Italian government is contracting cleaning companies that do only sustainable eco-cleanings in their governmental buildings etc.

**The Eco-Management and Audit Scheme (EMAS)** helps organizations evaluate, report, and improve their environmental performance. The ISO 14001 standard has been an integral part of EMAS since 2001 and worldwide ISO standard is more widespread than EMAS.



**EU Ecolabel** has been a pioneering tool for promoting a Circular Economy in Europe and even beyond. The voluntary EU Ecolabel is Europe's official environmental logo for non-food products that commit to working according to the widely recognized ISO standard for environmental labelling. Among the jungle of labels, the EU Ecolabel stands out as a reliable and objective certification of environmentally-friendly products, which are also healthier for consumers. Thanks to transparent criteria, consumers can be confident that they are not only making conscious choices, but also buying a product that performs just as well as conventional ones.

<sup>11</sup>European Commission, Consumer market study on environmental claims for non-food products, 2014



# Circular Economy and SDG

The freshly released **European Green Deal** is at the heart of the Commission's strategy to implement the **2030 Agenda on Sustainable Development and related policy priorities**. Making the Circular Economy a reality will however require long-term involvement at all levels, from country to country, regions and cities, to businesses and citizens.

The Circular Economy is currently also developing globally. Increased policy coherence in internal and external EU action in this field will be mutually reinforcing and essential for the implementation of global commitments taken by the EU, notably the U.N. 2030 Agenda for Sustainable Development and the G7 Alliance on Resource Efficiency, building more sustainable supply chains and global markets for secondary raw materials.

## SUSTAINABLE DEVELOPMENT GOALS



The EU Circular Economy agenda is a key contribution towards SDG by creating jobs and boosting GDP (SDG 8 & 9), improving environmental quality for citizens and animals alike (SDG 14 & 15), combatting plastic marine litter (SDG 15), protecting freshwater resources (SDG 6), decreasing greenhouse gas emissions (SDG 13) and generally making our economic model and daily lives more sustainable (SDG 11 and 12).



# Implementation of the Circular Economy in the EU

The EU Monitoring Framework for the Circular Economy<sup>12</sup> shows that the transition has helped put the EU back on a path of job creation. In 2016, sectors relevant to the circular economy employed more than four million workers<sup>13</sup>, a 6% increase compared to 2012. Additional jobs are bound to be created in the coming years in order to meet the expected demand generated by fully functioning markets for secondary raw materials.<sup>14</sup>

Since 2015 European Union has been actively working on development of the **EU Strategy for Plastics in a Circular Economy**<sup>15</sup> as the first EU-wide policy framework adopting a material-specific lifecycle approach to integrate circular design, use, reuse and recycling activities into plastics value chains.

The rules on **Single-Use Plastics items and fishing gear**, addressing the 10 most found items on EU beaches place the EU at the forefront of the global fight against marine litter. The measures include a ban of certain single-use products made of plastic and of **oxo-degradable plastic**, and propose actions for others such as consumption reduction targets, product design requirements and **Extended Producers Responsibility schemes**.

To accelerate the transition to a circular economy, it is essential **to invest in innovation**. Over the period 2016-2020, the Commission has stepped up efforts in both directions totalling more than €10 billion in public funding to the transition. To stimulate further investments, the **Circular Economy Finance Support Platform** has produced recommendations to improve the bankability of circular economy projects, coordinate funding activities and share good practices.

Sound and efficient **waste management systems** are an essential building block of a circular economy. To modernise waste management systems in the Union a **revised waste legislative framework entered into force in July 2018** with new ambitious recycling rates, clarified legal status of recycled materials, strengthened waste prevention and waste management measures, including for marine litter, food waste, and products containing critical raw materials.

The EU Strategy for Plastics sets out a clear vision with quantified objectives at EU level, so that inter alia by 2030 all plastic packaging placed on the EU market is reusable or recyclable.



EU has put a ban on six of our most common single use plastic products that we already have more sustainable alternatives to. The ban tackles cotton buds, cutlery, plates, straws, drink stirrers and sticks for balloons. It will kick in from 2021.

As announced in the Green Deal communication, in March 2020 the EU will adopt an industrial strategy that will support the green transformation of the industry. A key aim will be to stimulate the development of new markets for **climate neutral and circular products**.<sup>15</sup>



# Best practice examples of Circular Economy in the sectors:

## Textiles

Austrian based producer, the Lenzing Group, produces wood-based fibers. It was the first fiber company to be awarded the EU Ecolabel. Lenzing's circular operating models with closed loop production processes set the standard in the industry. Lenzing has a lot of trust among customers and mitigates their supply chain risks. Lenzing's fiber production and raw material sourcing (wood and pulp) meet defined sustainability criteria. At the same time LENZING™ Lyocell fibers are produced in a closed-loop production process, which transforms wood pulp into cellulosic fibers with high resource efficiency and low ecological impact. This solvent-spinning process recycles process water and reuses the solvent at a recovery rate of more than 99%. In order to further extend the environmental leadership, a major part of Lenzing's investment focus on closed loop production technologies for the expansion of the sulphur recovery systems and improving the effluent treatment units. In addition, Lenzing will upgrade its energy usage to more sustainable solutions reducing its greenhouse gas emissions due to the construction of a gas boiler at its site in China. This investment strengthens Lenzing's sustainability leadership at its Viscose facility in Nanjing.



**Stefan Doboczky, Chief Executive Officer:** "The raw material wood and the manufacturing processes applied in Lenzing are the basis for the low water consumption of our fibers. In addition, Lenzing™ fibers consume less energy, and, as a result, emit significantly less CO<sub>2</sub> than comparable products in the market. Expanding the sales of our most ecological fibers is a core driver for our business and a benefit for the planet."

## Chemicals



Katerina Chatzinikola Dima CEO of Vechro: "We have a 70 year-long history of caring for the quality of our paints. Our commitment to sustainability enables us to expand our tradition of care whilst improving our offer to consumers."

In 2002, the company marketed its first EU Ecolabel paint and has since, grown into Greece's third largest paints and varnishes company, with 96 EU Ecolabel paints currently in its product portfolio.

Vechro has built its success on the principle that quality and environmental sustainability should go hand in hand. The EU Ecolabel sets high standards for the water and corrosion resistance of its paints as well as their spreading rate and adhesion, which increases their durability. This means consumers can use paints more efficiently and minimize waste and their impact on the environment. These high standards have encouraged Vechro to continuously improve all aspects of its operations and integrate sustainability as a central part of its company culture. By working with more sustainable suppliers, carefully controlling what goes into its paints and providing consumers with information on how to use its products in an environmentally sensible way. The European identity and recognition of the EU Ecolabel have also helped Vechro successfully export its products to other EU and non-EU countries.

## Agriculture



Photo: ecobean.com

"In Poland, only people spend EUR 5.4 billion on coffee generating 120 k tons of coffee waste. Those numbers are growing steadily by 5-7% each year", said Marcin Koziorowski, CEO of EcoBean.

Globally, people drink more than 2 billion cups of coffee per day and this generates a huge amount of coffee waste. The coffee waste after preparing a cup of coffee goes to landfills, even though it is a valuable resource. Polish enterprise EcoBean, together with Warsaw University of Technology, has developed a new method for the production of coffee logs from leftover coffee grounds.

Coffee logs are a carbon-neutral biofuel. They burn for longer, produce more energy than wood, are made in a cost-effective way. Basically, the waste is turned into coffee briquettes and coffee biopolymer (the coffee briquette technology is market ready and will soon be sold, the coffee biopolymer technology is in the development phase, whereas it has a high potential as the R&D team has discovered a possibility of extracting lactic acid from spent coffee grounds, which allows to produce 100% coffee-waste-made biopolymer). The production of coffee biopolymer products will be a substitute of plastics and will allow for the reduction of plastic contamination of environment.

## Construction



Photo: <https://www.algemenebestuursdienst.nl/>

**Pex Langenberg**  
Deputy mayor for the City of Rotterdam

"It's a wonderful circular process that results in asphalt that can be used for a large number of roads in the city and the port".

Asphalt that is no longer used or that is up for replacement is sorted in Rotterdam and used on new municipal projects. This type of recycled asphalt was used to construct the subbase, base course and surface layer of the paving. This was the first time that completely recycled asphalt was utilized on its own.

By adding a biobased 'rejuvenator' produced by Arizona Chemical, the properties of recovered asphalt can be restored to their original specs, with a cut of 27% in carbon emissions compared to using virgin asphalt. The raw material for this product is obtained from by-products of pine trees used in the paper industry. In addition, asphalt that is due to be replaced or that has become redundant is sorted locally and re-used somewhere else in the city.

## Petrochemicals

Persistent commitment to make things differently from Werner & Mertz is showing how a medium-sized company can implement a successful circular economy and act as a role model in solving the global problem of plastic marine litter.

With 215 million PET packaging units of 100 percent used plastic, the Recyclate Initiative of Werner & Mertz has impressively proven that it is possible to bring to the market high-quality packaging of recycled plastic which is produced with 79% lower CO<sub>2</sub> emissions than packaging made from virgin material. From the beginning of the Recyclate Initiative up to October 2018, 11,971 tons of CO<sub>2</sub> have been saved.

One hundred percent recycled plastic packaging for more than 80 percent of its products qualifies Werner & Mertz as the world's leading pioneer in the New Plastics Economy. The company promises a complete recycled packaging portfolio – 100% from 100% recycled plastic – by 2025!



Picture: werner-mertz.de

"We are following a genuine closed-loop principle with the goal of eliminating petroleum in the production of plastic packaging and processing instead materials from the "Yellow Bag" in such a way that they can be used for food-grade packaging. Right now we are the world's leading brand manufacturer of 100 percent recycled plastic packaging", says Reinhard Schneider, owner of Werner & Mertz.



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