

Unit 4.1

GreenVETAfrica

Training Programme
Circular Economy



Co-funded by
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2023-2024 GreenVETAfrica



OBJECTIVES

Participants will understand;

- the concept of circular economy
- differentiate between linear and circular economy
- learn how to make the most of available material resources and
- how to extend the life cycle of products through effective waste/material management

CIRCULAR ECONOMY

OUTLINE

- ❖ What is Circular Economy
- ❖ Principles Of Circular Economy
- ❖ Benefits of Circular Economy
- ❖ Linear Economy
- ❖ Difference between Circular and Linear Economy
- ❖ How to Make the most of available resources
- ❖ Extending Life Cycle of Product Through Effective Waste Management

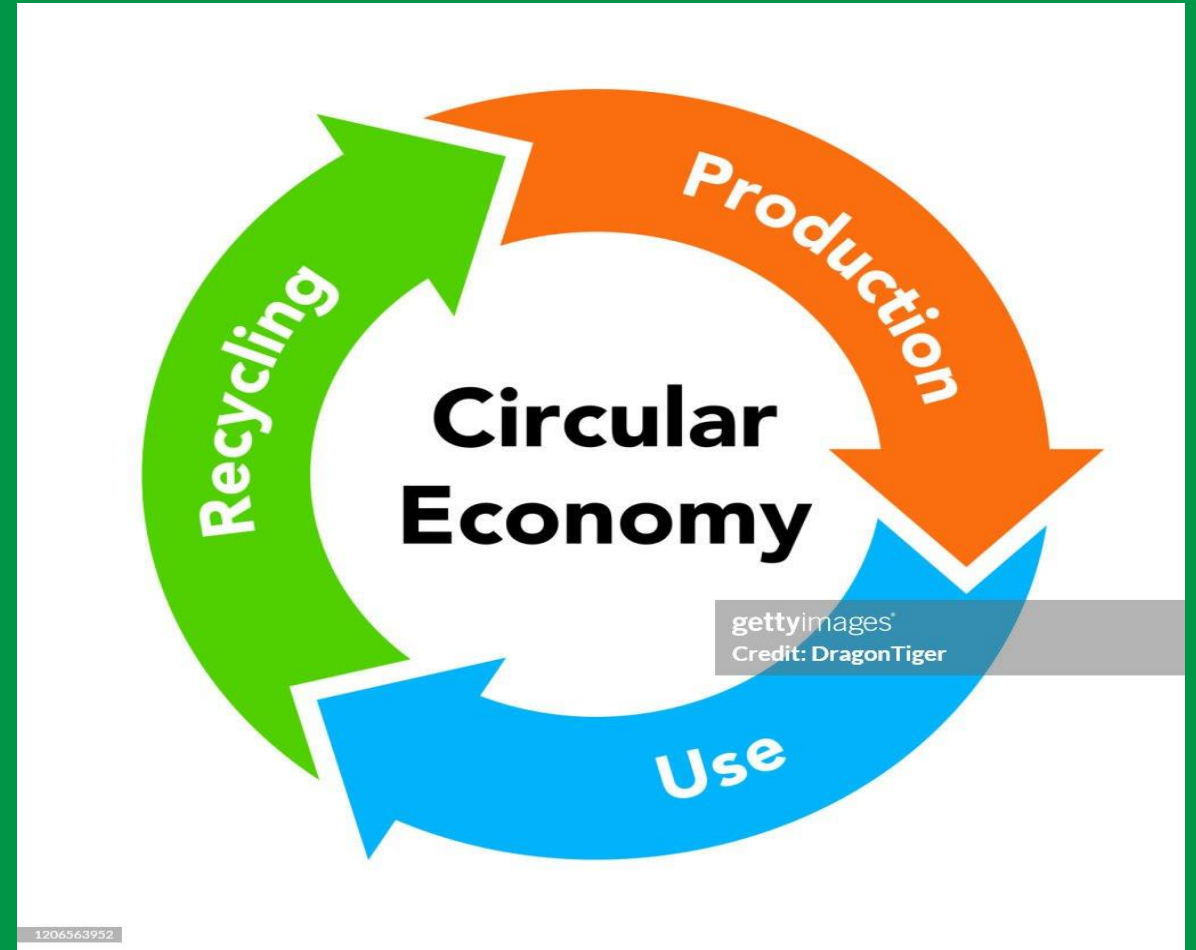


HOW TO MAKE THE MOST OF AVAILABLE RESOURCES



CIRCULAR ECONOMY

The name “circular economy” was first coined by Pierce and Turner in 1989, although the theory originates from the 1960s. A **circular economy** also called **circularity** is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible. "Circular Economy is an economic system that targets zero waste and pollution throughout materials lifecycles, from environment extraction to industrial transformation, and final consumers, applying to all involved ecosystems. Upon its lifetime end, materials return to either an industrial process or, in the case of a treated organic residual, safely back to the environment as in a natural regenerating cycle.



PRINCIPLES OF CIRCULAR ECONOMY

Design out waste and Pollution: The first principle of the circular economy is about understanding that waste and pollution are largely a result of the way we design things and finding new and innovative ways to design out those negative impacts. Products built to reach obsolescence, can instead be constructed so the resources and materials used could be recovered and returned to the material cycle.



PRINCIPLES OF CIRCULAR ECONOMY (Cont'd)

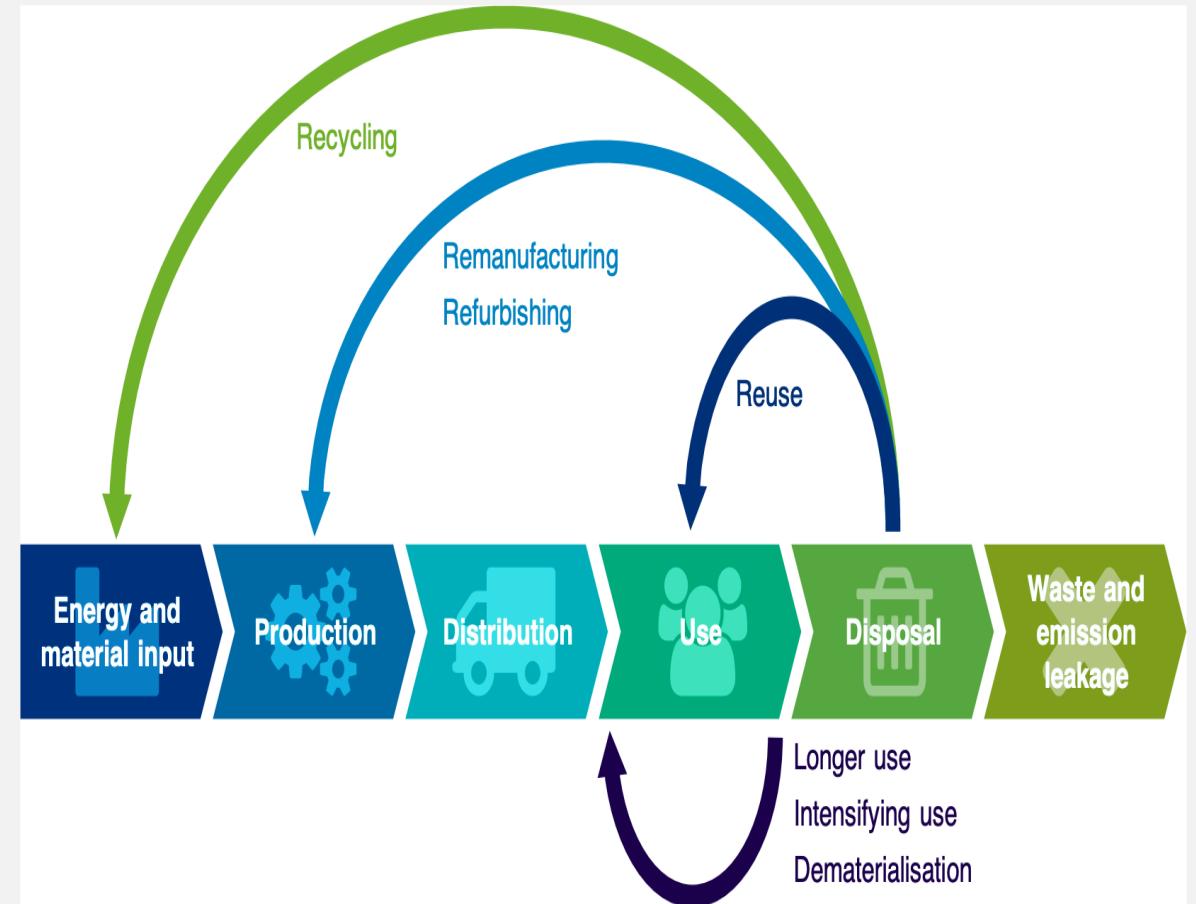
Regenerating natural systems: Perhaps the most transformative principle of a circular economy is in its emphasis on providing feedback loops that actively improve our natural environment. In nature, there is no concept of waste; everything is cyclical. All the great natural cycles – carbon, oxygen, nitrogen, water etc. – work in closed loops with little to no loss of resources through their cycle. The circular economy aims to mimic these natural cycles, creating an economic model that protects, supports and actively improves our environment.

Keeping products and materials in use: The second principle of a circular economy is based on a simple premise; resources should not be wasted. Products and components should be designed so they can be reused, repaired, and remanufactured.

But making things last longer is only part of the solution, we also need to be able to get the resources used to create them back in the system so they don't end up in landfill. This is particularly pertinent for materials and resources with short lifespans such as food and packaging, which can cause huge amounts of waste without appropriate resource recovery processes.

BENEFITS OF CIRCULAR ECONOMY

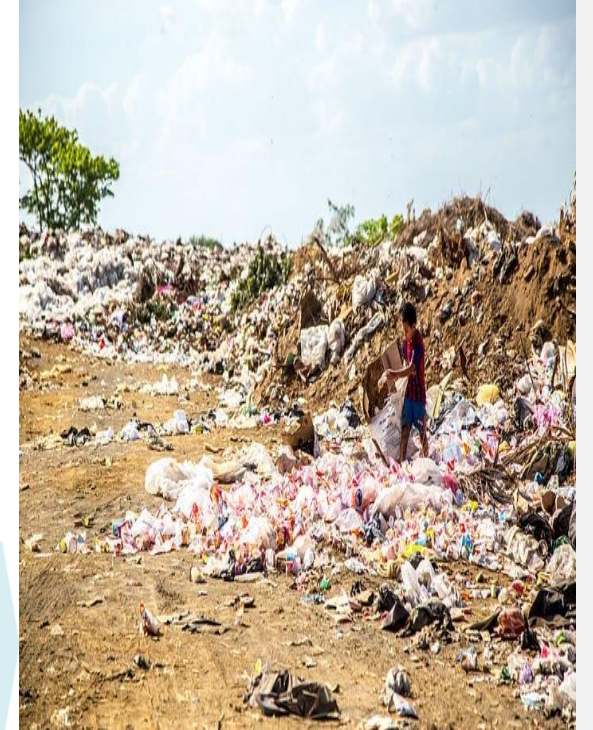
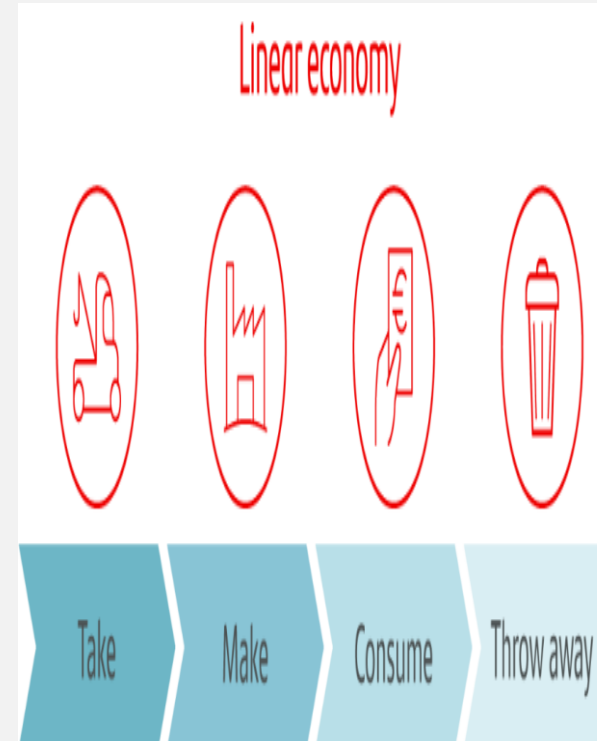
1. Circular economy reduces the use of non-renewable resources.
2. Aims for zero wastes.
3. Lowers carbon emissions.
4. Provides benefits for the consumers.
5. Opens new opportunities for companies. By reducing raw material dependence
6. Protect the environment by slowing down the rate of natural resources depletion.



LINEAR ECONOMY



Linear Economy is a traditional model where raw materials are collected and transformed into products that consumers use until discarding them as waste, with no concern for their ecological footprints and consequences. Resources are taken from their source and transformed into products manufactured for consumption. The residuals of this consumption later accumulate in a landfill or are incinerated.



LINEAR VERSUS CIRCULAR ECONOMY

- ❖ The linear economy focuses on products, the circular economy focuses on services.
- ❖ Linear Economy model is eco-efficient since it supplies the market.
- ❖ focuses on profitability, irrespective of the product life cycle
- ❖ Linear economic model focuses on products, which are produced, used, and then thrown away as waste.
- ❖ circular economy focuses on services.
- ❖ Vision of how value is created or maintained: The circular model of manufacturing is eco-effective
- ❖ Perspective on sustainability: Products must not have a limited shelf life and be built so they can be repaired or recycled.
- ❖ The circular model focuses on service instead, offering a single service that can be used by many instead of the same product replicated for multiple individuals.

HOW TO MAKE THE MOST OF AVAILABLE RESOURCES



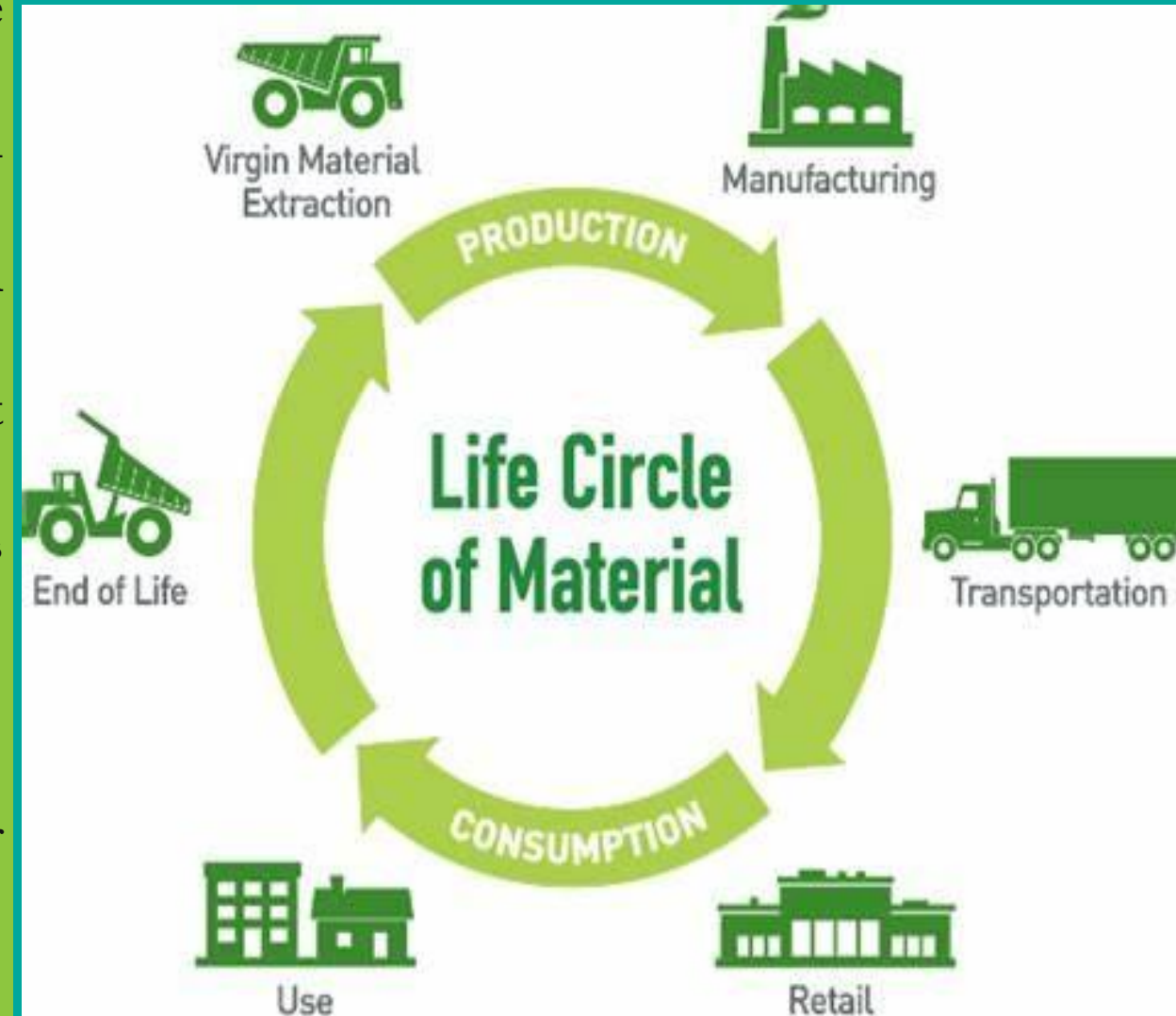
Available material resources can be efficiently used in the following ways:

1. Reduction: the highest priority can be assigned to the direct reduction of the quantity of materials used for products and services.
2. Reuse: this category aims at prolonging the use of products, or parts of products, preventing the need for new products and ultimately saving material resources and avoiding waste production.
3. Recycling/recovery: as a last option, the residual value of products and materials can be recovered at the end of life through recycling and recovery processes. Recycling is beneficial since it can reduce the consumption of virgin materials.

EXTENDING LIFE CYCLE OF PRODUCT THROUGH EFFECTIVE WASTE MANAGEMENT

• To extend the life cycle of product through waste management, you have to:

- Use materials in the most productive way with an emphasis on using less.
- Reduce toxic chemicals and environmental impacts throughout the material lifecycle.
- Assure we have sufficient resources to meet today's needs and those of the future.
- Know and reduce the life cycle impacts across the supply chain.
- Use less material inputs (reduce, reuse, recycle).
- Use less toxic and more renewable materials.
- Consider whether services can be substituted for products



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