

Unit 4.1

GreenVETAfrica

Training Programme
Organic Waste Management and
Waste to Energy



Co-funded by
the European Union

2023-2024 GreenVETAfrica



OBJECTIVES

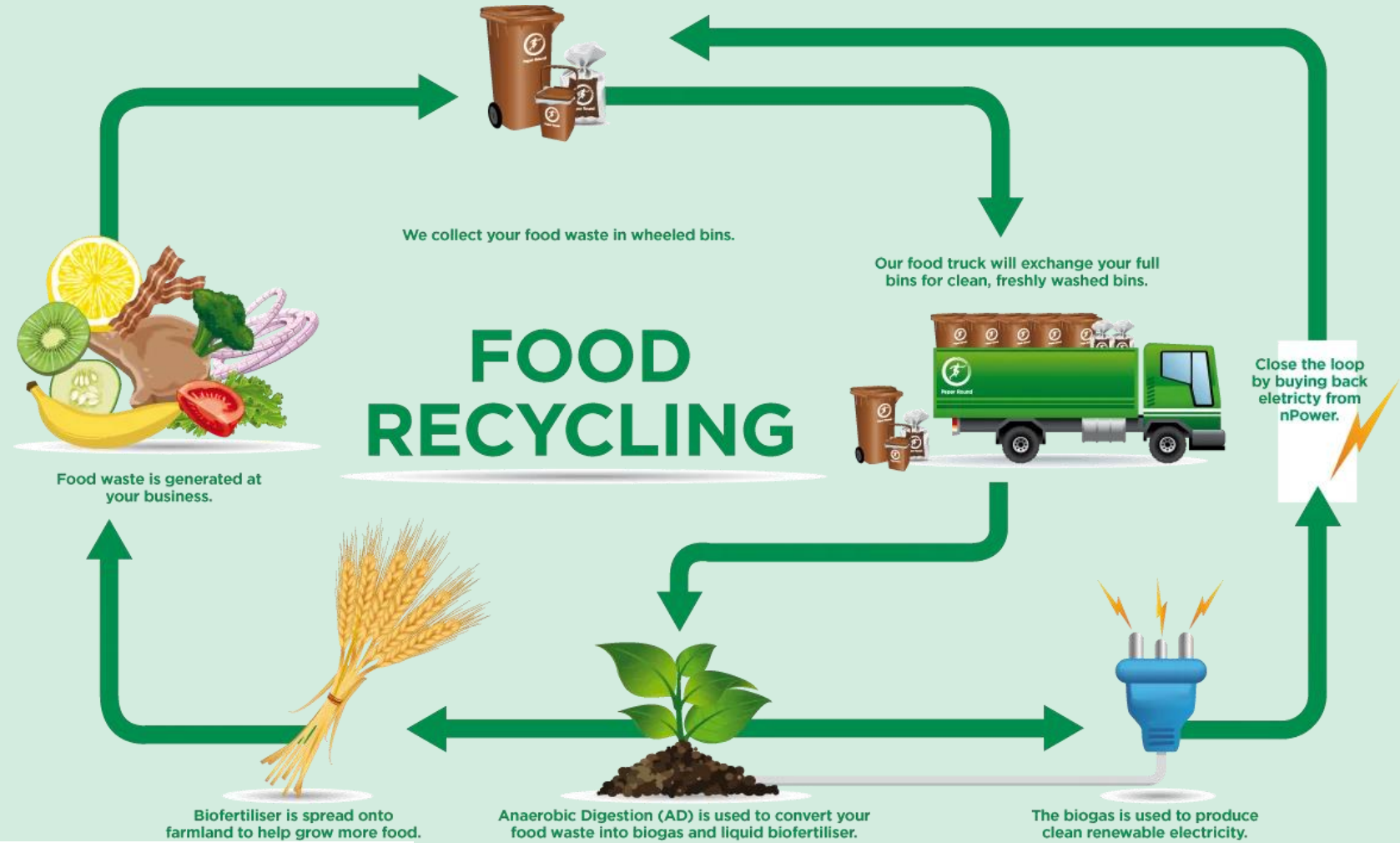
Participants will be provided with a general overview on the opportunities and possibilities of organic waste management composting and energy generation from waste

OUTLINE

- Introduction
- Organic Waste
- Composting
- Waste to Energy
- Process
- Benefits
- Conclusion

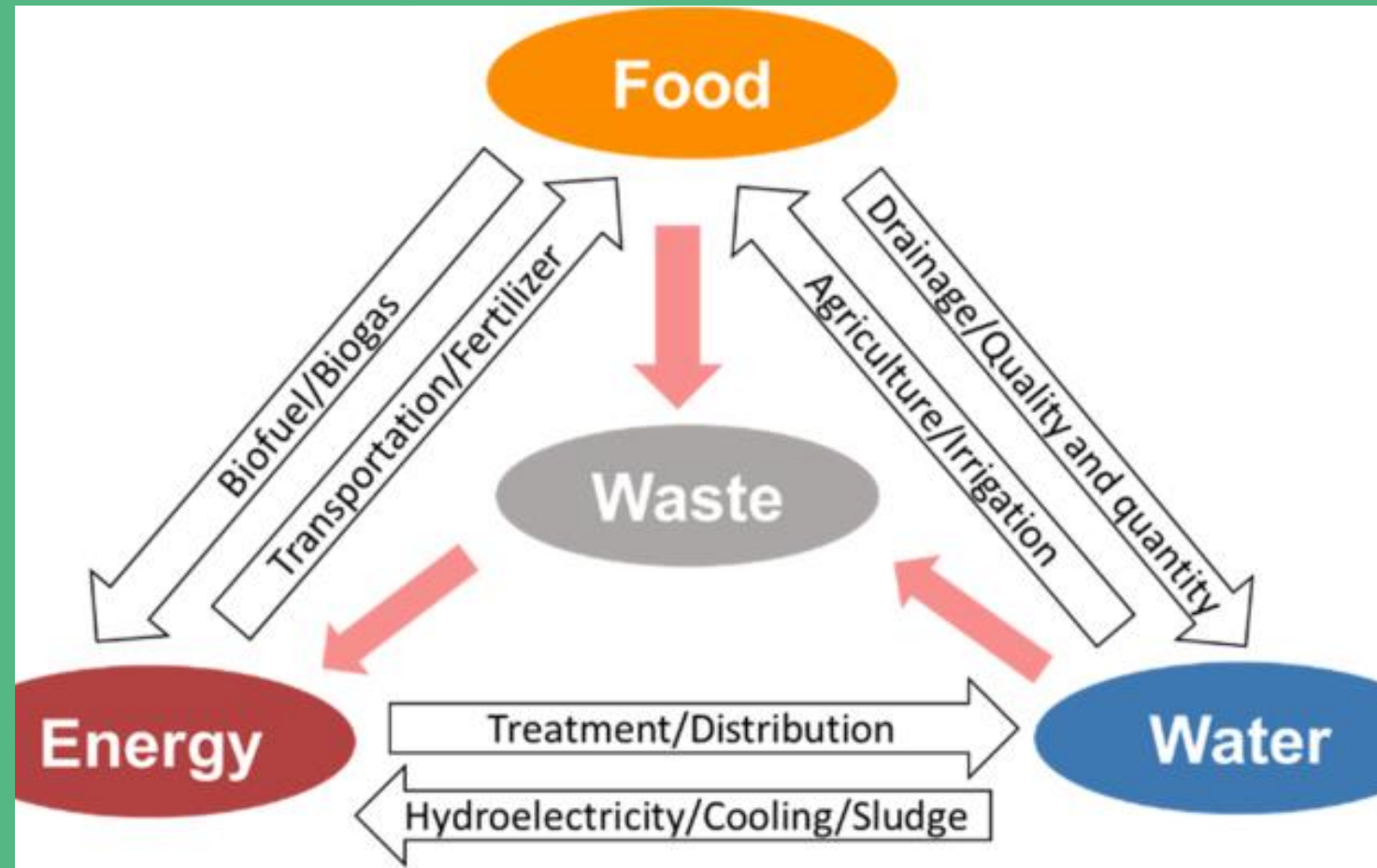


INTRODUCTION



INTRODUCTION

- All around the world, there is increase need to better utilize waste materials to preserve and sustain the Earth and ensure future generations enjoy her wonderful resources



ORGANIC WASTES

One of such waste is organic waste. Organic wastes are wastes that can break down (decay, decompose or degrade) into different elements, compounds and water that are easily absorbed in the soil or water. They are also called biodegradable wastes. Examples are food, fruits and vegetables waste, garden wastes, animal droppings etc.



ORGANIC WASTES

- Some characteristics of organic waste include
- Ability to breakdown quickly under the actions of microorganisms
- High moisture content
- This breakdown produces carbon dioxide, methane, water and energy



COMPOSTING

- Composting is a process that changes organic materials (biodegradable wastes) into a nutrient-rich soil amendment or manure through natural decomposition.
- The end product is compost, a dark soil-like material
- Composting is a controlled process and takes place in the presence of oxygen (aerobic process)



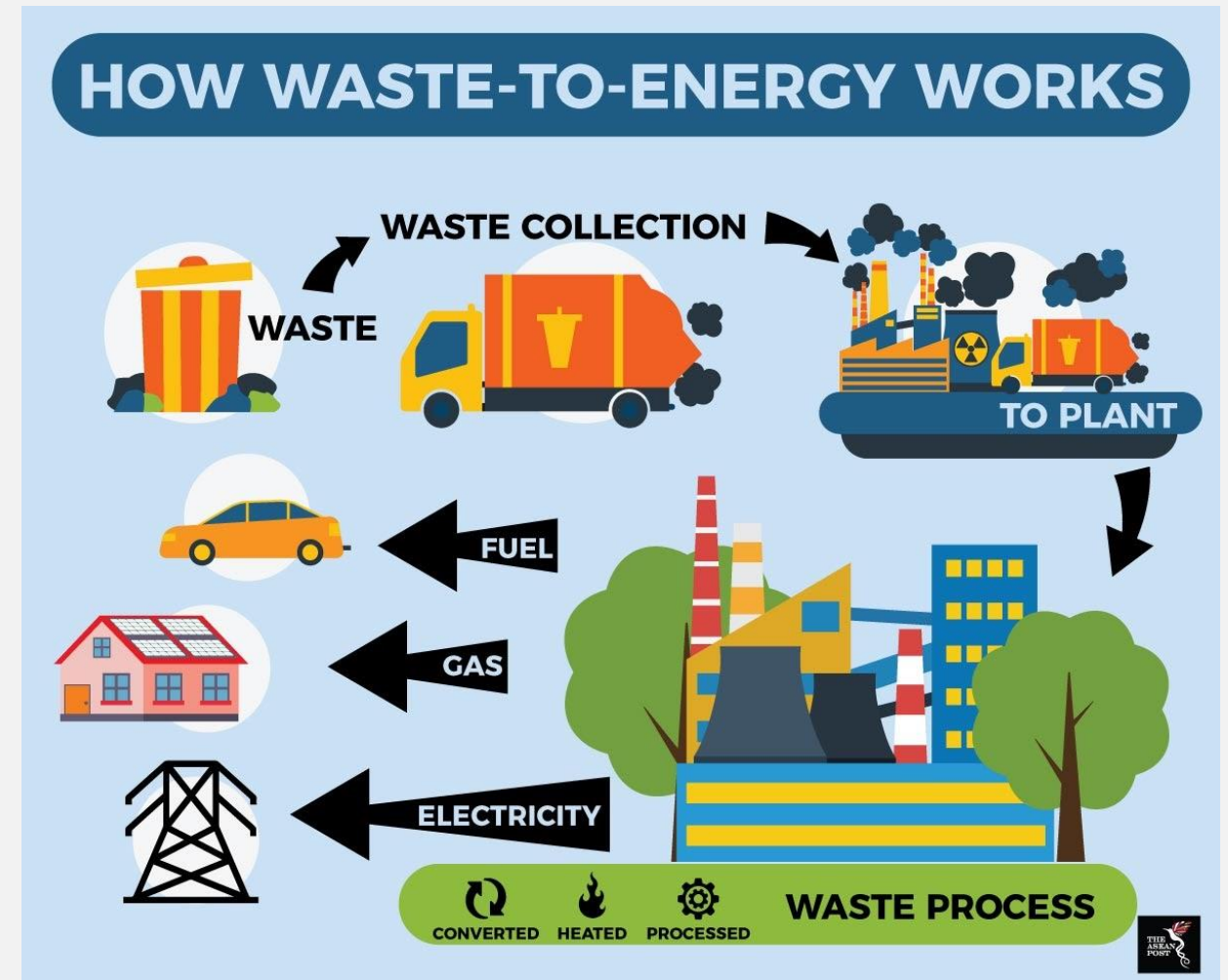
WASTE TO ENERGY

- Waste to energy refers to processes and technologies used to convert waste materials into useful and usable forms of energy like heat, fuels and electricity.
- It is important to note that all forms of waste can be converted to energy but for the purpose of this class, we will only be focusing on organic waste to energy



WASTE TO ENERGY

- One important way to produce energy from organic waste (Bioenergy) is the production of Biogas. Biogas is produced from the anaerobic decomposition of organic waste which can be used for various functions.
- The gas produced can be used as a fuel source for both cooking and electricity and the sludge left (called bio-digestate) can be used as fertilizers, soil amendments and livestock bedding



IMPACT OF BIOENERGY

- Organic waste is the highest percentage of waste generated all over the world with food waste accounting for almost 50% of global MSW generation. There is therefore need to properly harness the potentials in biodegradable waste.
- The breakdown of organic waste produces methane. Methane is a greenhouse gas that traps heat in the atmosphere more efficiently than Carbon dioxide. According to the Environmental and Energy Study Institute EESI, given equal amounts of methane and carbon dioxide, methane will absorb 86 times more heat in 20 years than carbon dioxide.
- Bioenergy produces a cheaper alternative to conventional forms of energy. It can also be setup as a small unit and if properly harnessed, can provide solution to energy challenges, especially in developing countries.

Some Bioenergy Installation



BENEFITS OF WTE/COMPOSTING

1. Reduces greenhouse gas emissions: Waste-to-energy facilities can help reduce greenhouse gas emissions by diverting waste from landfills, which are a significant source of methane emissions.
2. Produces renewable energy: Waste-to-energy facilities can produce renewable energy in the form of electricity, heat, and other fuels.
3. Improves soil fertility: Composting, which is a form of waste-to-energy, can help improve soil fertility by adding nutrients to the soil.
4. Reduces food waste: Waste-to-energy facilities can help reduce food waste by converting organic waste into usable forms of energy.
5. Saves space: Waste-to-energy facilities can help save space in landfills by diverting waste from landfills.
6. Cost-effective: Waste-to-energy facilities can be cost-effective in the long run as they reduce the need for landfill space and produce renewable energy.

CONCLUSION

In conclusion, organic waste management is a critical component of sustainable environmental practices and responsible resource management. Throughout this presentation, we have explored the various facets of organic waste, its environmental impact, and the strategies and technologies used to manage it effectively.

responsible organic waste management is not just an environmental imperative; it is an economic and social opportunity. By adopting sustainable practices and embracing technology and innovation, we can significantly reduce the environmental impact of organic waste and create a more sustainable and resilient future for our planet. Together, we can turn organic waste into a valuable resource and make a positive contribution to environmental conservation and climate change mitigation.



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