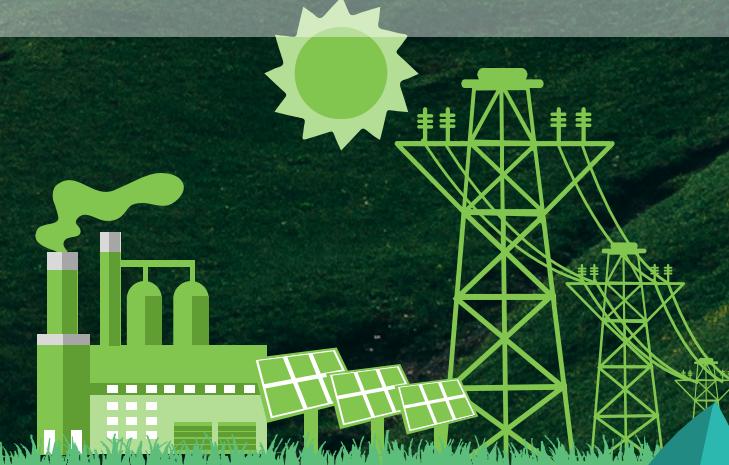


TOPIC 1

SOLID WASTE

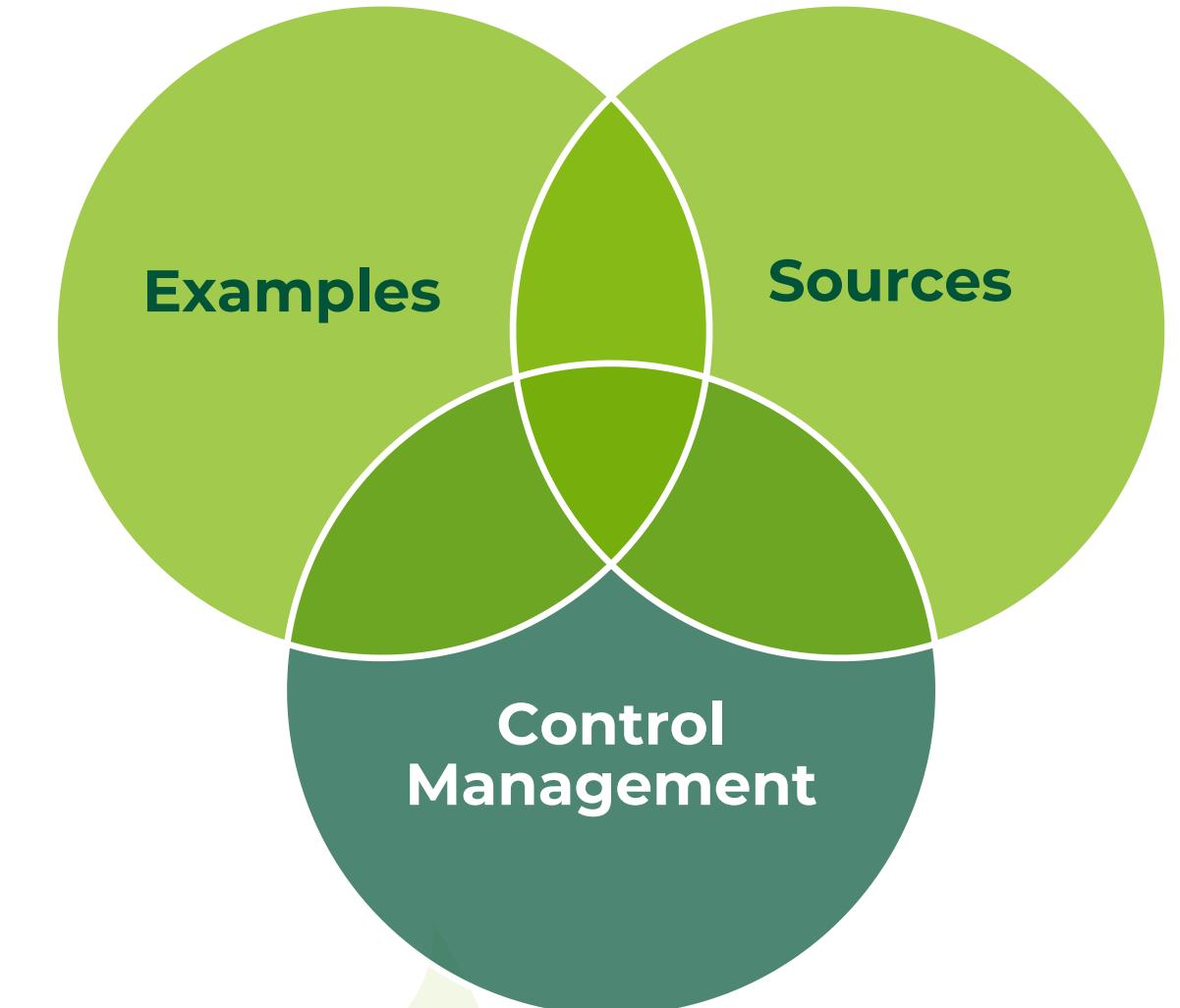




Lesson Learning Outcomes:

In the end of lesson, you will learn:

- State examples of solid wastes from oil and fat industry.
- Describe the sources of the solid waste.
- Explain control measures to manage each type of solid waste



INTRODUCTION

Solid waste refer to any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.



Main contributors to solid waste:



Plantation and
deforestation



Milling industry:
Oilseed Extraction



Refinery Industry :
Bleaching process



Refinery Industry :
Hydrogenation



SOURCES, EXAMPLES AND CONTROL

MEASURES OF SOLID WASTE FROM OIL AND FAT INDUSTRY

Sources	Examples	Control Measure
Plantation and deforestation	Biomasses such as woods, leaves and trunks	Used in mulching and soil conditioning in plantation
Milling industry: Oilseed Extraction	<ul style="list-style-type: none"> • Biomasses such as palm fiber, empty fruit brunch (EFB) and palm kernel shell (PKS) • Oilseed meal/ cake 	<ul style="list-style-type: none"> • Biomasses (Fiber & Shell) : Combustion materials for boilers in mill for electricity generation. • Biomasses (Empty Fruit Brunch) : Organic fertilizer • Oilseed meal/ cake : Used animal feed or supplement due to its high protein content

SOURCES, EXAMPLES AND CONTROL

MEASURES OF SOLID WASTE FROM OIL AND FAT INDUSTRY

Sources	Examples	Control Measure
Refinery Industry : Bleaching process	Refinery Bleaching Clay	<ul style="list-style-type: none"> Added to poultry feed that act as pallet binder in poultry diet. Disposed in sanitary landfill with addition of antioxidants, water sprays and lime to the waste earth to prevent spontaneous combustion. De-oiled Spent Bleaching Earth (SBE): <ol style="list-style-type: none"> Reused as an adsorbent in wastewater treatment. Reused as a clay substitute in the bricks, blocks or tile manufacturing process. Reused for biomaterial for water treatment and biofertilizer

SOURCES, EXAMPLES AND CONTROL MEASURES OF SOLID WASTE FROM OIL AND FAT INDUSTRY

Sources	Examples	Control Measure
Refinery Industry : Hydrogenation	Spent Nickel Catalyst	<ul style="list-style-type: none">• Recycled many times until it can no longer be used or not efficient.• Mix spent nickel catalyst from industry to natural nickel in the production of stainless steel.

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Thank You

