MCN-201:
SUSTAINABLE ENGINEERING

MODULE 2

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MODULE 2

- Environmental Pollution: Air Pollution and its effects
- Water pollution and its sources,
- Zero waste concept and 3 R concepts in solid waste management
- Greenhouse effect
- Global warming
- Climate change
- Ozone layer depletion
- Carbon credits
- carbon trading and carbon footprint
- legal provisions for environmental protection.

3. ZERO WASTE CONCEPT AND 3 R CONCEPTS IN SOLID WASTE MANAGEMENT

- **Zero waste** is a set of principles focused on waste prevention that encourages redesigning resource life cycles so that all products are reused.
- The goal of this movement is to avoid sending trash to landfills, incinerators or the ocean.
- In a zero waste system, the material will be reused until the optimum level of consumption is reached

- The definition of zero waste according to the Zero Waste International Alliance (ZWIA) is as follows:

“Zero waste: The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.”

IMPORTANCE OF ZERO WASTE

- It is important to promote zero waste in order to ensure that our planet will be able to sustain itself in the future.
- It is no secret we are running out of resources and pollution are at its peak.

"The importance of zero-waste living is becoming more and more obvious. It creates awareness and conversations surrounding environmental degradation, climate change, social justice, and stems wider than simply throwing fewer things away."

BENEFITS OF ZERO WASTE

- Living organism consume resources and produce waste ,which is food for other organism.As a result all the waste are continuously recycled and thereby making the environment clean and more sustainable
- Reducing, reusing and recycling can be a key part of a climate change strategy to reduce our greenhouse gas emissions.
- A zero waste approach can build community capacity, support marginalized communities and protect community health.

“Zero waste can have huge positive impact on society,community,climate and business”

THE “3 R’s” IN SOLID WASTE MANAGEMENT

- The 3 R’s of waste management
  - Reduce
  - Reuse
  - Recycle.

REDUCE

- The first goal of source reduction is simply to reduce the overall amount of waste that is produced.
- The second goal is to conserve resources by not using raw, virgin materials.
- In other words, by following source reduction, fewer raw materials will have to be used to produce products.

REUSE

- There are two main ways that the concept of reusing can be applied to reduce waste.
  - First, when purchasing a new item, you can look for a product that can be used repeatedly instead of a version that is only used once and thrown away.
  - The second way to reuse is to buy an item secondhand, borrow, or rent an item, instead of buying the product new.

RECYCLE

- Recycling is the last and most commonly used of the 3 Rs. Recycling is changing discarded materials into new products in order to avoid using more virgin resources.
- You can opt to recycle as much as you can for various items such as papers, plastic, stained fabrics, waste electronics, metals, etc.
- It decreases pollutants while saving money, energy, raw materials, and land space.
- Recycling means treating the materials as valuable resources rather than as waste.