MODULE 2 ENVIRONMENTAL MANAGEMENT

Environment

An Environment is everything that is around us, which includes both living and nonliving things such as soil, water, animals and plants, which adapt themselves to their surroundings. It is nature's gift that helps in nourishing life on Earth.

Environmental Management

Environmental management is a systematic approach to finding practical ways for saving water, energy, and materials, and reducing negative environmental impacts.
Common examples of environmental management might be to have systems in place to control and prevent pollution, such as effluents getting into a river course, or the implementation of a biodiversity programme to ensure that the flora and fauna of an area is enhanced once a project has been completed.
Environmental management helps us to identify the factors that may lead to environmental degradation and helps in future predictions that might affect the present and future generations' lives. The main aim is to maintain and improve environmental resources like air, soil, forests, water, fossil fuels, etc

Significance of environmental management for contemporary managers

1. Contemporary management is **a** modern approach to overseeing a business and involves activities like planning, decision-making and monitoring. This practice attempts to establish goals that align with the interests of stakeholders ranging from traditional investors to employees and customers
2. Environmental management helps you identify degradation factors and implement strategies to mitigate them. It also helps you predict future impacts of environmental degradation and initiate processes to minimize the effects.

3. Environmental management can be considered all of the practices, policies, and procedures that your facility undertakes in order to comply with local, state and/or federal environmental legislation. Generally speaking, this means monitoring your releases of chemicals and other by-products to the local air, water, or waste streams.

4. Role of contemporary managers is to implement programs and practices for sustainable material, energy and environmental resources to reduce the environmental burden resulting from the organizations' activities, products and services.

5. The role of environmental management for businesses is two-fold: to protect the environment from the effects of manufacturing by-products and to protect your business from noncompliance fines and penalties.

6. Environmental managers have a wide range of responsibilities, which can include: Establishing and enforcing environmental policies and procedures to ensure compliance with federal, state, and local laws.
7. Advise organizations Environmental managers usually advise organizations on how to reduce their environmental impact, comply with regulations and avoid excessive operation costs.
8. Develop strategies and Create policies.
9. Coordinate waste management.
10. Identify renewable energy sources
11. Manage sewage treatment plant direct discharge monitoring, operation, reporting and recordkeeping requirements.
12. Act as contact point to environmental regulators (EPA, DEQ, DEC) and conduct quarterly audits for each facility.
13. Educate employees on environmental issues and responsibility.
14. The other important skills for contemporary manager are Strategic thinking strategic thinking skills can help you plan your strategies and policies that a business can reasonably achieve,
15. Communication The ability to communicate with others and absorb information is usually crucial in an advisory and consultancy role
16. Problem Solving This skill can help you identify issues and plan effective solutions.

Career in EVS
(also refer class notes)

Energy Scenario

Energy can be classified into several types based on the following criteria:

- Primary and Secondary energy
- Commercial and Noncommercial energy
- Renewable and Non-Renewable energy

Primary energy sources are those that are either found or stored in nature. Common primary energy sources are coal, oil, natural gas, and biomass (such as wood). Other primary energy sources available include nuclear energy from radioactive substances, thermal energy stored in earth's interior, and potential energy due to earth's gravity.

Primary energy sources are mostly converted in industrial utilities into **secondary energy sources**; for example coal, oil or gas converted into steam. Primary energy can also be used directly.

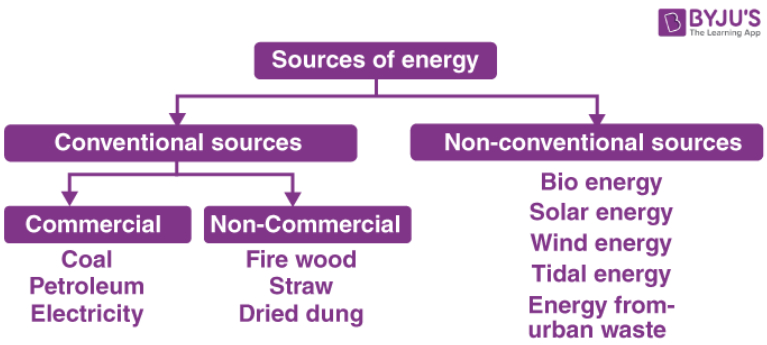
Commercial Energy -The energy sources that are available in the market for a definite price are known as commercial energy. By far the most important forms of commercial energy are electricity, coal and refined petroleum products. Commercial energy forms the basis of industrial, agricultural, transport and commercial development in the modern world. In the industrialized countries, commercialized fuels are predominant source not only for economic production, but also for many household tasks of general population. Examples: Electricity, lignite, coal, oil, natural gas etc.

Non-Commercial Energy The energy sources that are not available in the commercial market for a price are classified as non-commercial energy. Non-commercial energy sources include fuels such as firewood, cattle dung and agricultural wastes, which are traditionally gathered, and not bought at a price used especially in rural households. These are also called traditional fuels.

Non-commercial energy is often ignored in energy accounting. Example: Firewood, agro waste in rural areas; solar energy for water heating, electricity generation, for drying grain, fish and fruits; animal power for transport, threshing, lifting water for irrigation, crushing sugarcane; wind energy for lifting water and electricity generation.

Renewable is energy obtained from sources that are essentially inexhaustible. Examples of renewable resources include wind power, solar power, geothermal energy, tidal power and hydroelectric power. The most important feature of renewable energy is that it can be harnessed without the release of harmful pollutants.

Non-renewable energy is the conventional fossil fuels such as coal, oil and gas, which are likely to deplete with time.



Energy scenario (Classification of sources of energy is also expected)

1. Energy is one of the major inputs for the economic development of any country. In the case of the developing countries, the energy sector assumes a critical importance in view of the ever increasing energy needs requiring huge investments to meet them.

2. The reference energy scenario describes the energy source serving the equal function in the absence of bioenergy. Coal has a higher GHG intensity than natural gas, so displacing coal achieves greater GHG savings than displacing the same energy content of natural gas.

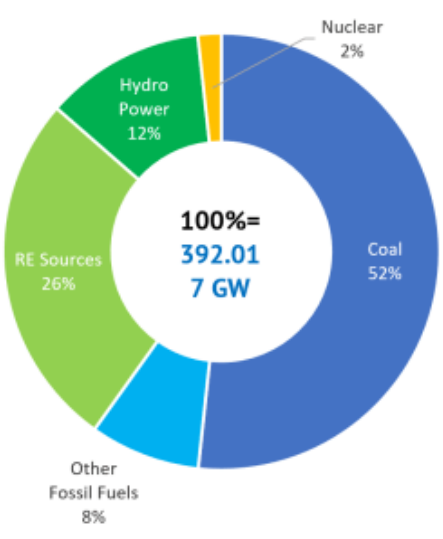
3. Rapid growth of population, urbanization and industrialization triggered energy consumption phenomenally in the country

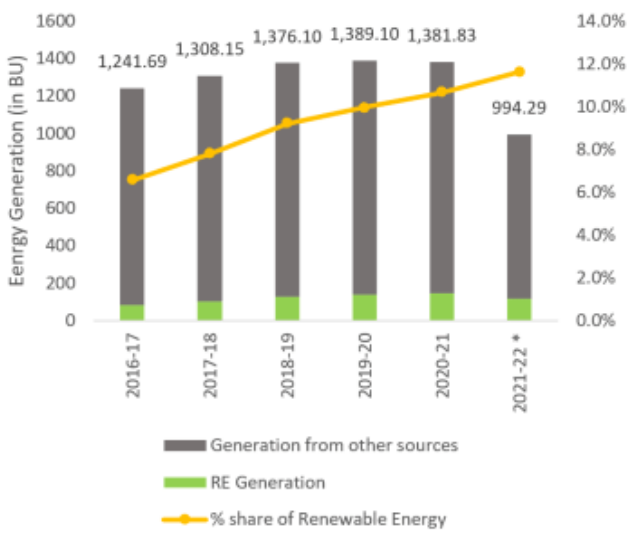
4. India has the 5th largest electricity generating capacity and is the 6th largest energy consumer amounting for around 3.4 % of global energy consumption. India's energy demand has grown at 3.6 % pa over the past 30 years.

5. Over 80%of India's energy needs are met by three fuels: coal, oil and solid biomass. Coal has underpinned the expansion of electricity generation and industry, and remains the largest single fuel in the energy mix.

6. India has a huge scope for further growth in energy demand and infrastructure:
    a. India’s energy consumption is the third-largest in the world.
    b. As per the report, 80 percent of India’s energy demands are met by coal, oil, and solid biomass
7. The primary consumption of energy in India to double as the Gross Domestic Product (GDP) is expected to expand to 8.6 trillion US by 2040.
8. The global energy demand growth is the largest for India between 2019-2040 as it accounts for nearly one-quarter of it.
9. It has the second-largest growth in renewable energy. China stands at the top.
10. India is going to overtake the EU in terms of its energy system by 2030.

11. By 2040, India will lead the oil demand growth in the world given its five-fold increase in its per capita car ownerships.
12. The demand for natural gas is going to triple by 2040 making it the fastest-growing market for natural gas.





Environmental issues in India (Describe any 5 in details, Refer classroom notes)

1. Population (Malthus law)
2. Sanitation
3. Water Crisis
4. Land crisis
5. Pollution
6. Depletion of Resources

Sustainable Development

Definition

"Sustainable development **is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs**.".

Sustainable development is an organizing principle that aims to meet human development goals while also enabling natural systems to provide necessary natural resources and ecosystem services to humans.

Sustainable development can be defined as an approach to the economic development of a country without compromising with the quality of the environment for future generations. In the name of economic development, the price of environmental damage is paid in the form of land degradation, soil erosion, air and water pollution, deforestation, etc. This damage may surpass the advantages of having more quality output of goods and services.

The two examples of sustainable development are:

1.Solar energy: Harnessing the solar energy to reduce pollution in the environment.

2.Crop Rotation : Planting different types of crops on the same land on a rotational basis for improving soil fertility.

(draw both the diagrams- refer class notes)

Sustainable development is to achieve a better and more sustainable future for everyone. It is a collection of 17 SDG's or Sustainable development goals. (Explain 17 goals of Sustainable development.)

(write in points)

The three types of sustainable development are

1. Economic viability
2. Environmental protection
3. Social equity

(Refer class notes for details, diagram is expected)