

Environment Class 20

3rd April, 2024 at 1:00 PM

AGRICULTURE (CONTINUES) (01:10 PM)

- **Fertigation** (Fertilizer + Irrigation)
- It is a method of applying fertiliser, nutrients or other plant growth-promoting substances through irrigation. (i.e. mixing of fertilizer, nutrients or other plant growth-promoting substances with water and then doing irrigation)
- Drip irrigation systems are generally used for fertigation.
- **Integrated Pest Management**
- It is an environmentally sensitive approach with the goal not to eradicate but to manage pest populations at acceptable levels.
- Multiple methods are used such as:
 - Mechanical or physical traps
 - Biological methods such as the use of natural predators or parasites of the pest
 - Even Chemical pesticides as a last resort in a judicious manner.
- **Permaculture**
- Permaculture is not one strategy but a holistic approach to agriculture that integrates ecological principles, economic considerations, and landscape management with agricultural strategy.
- The goal is to create sustainable and resilient farming systems that promote biodiversity, enhance soil health, and animal health, and support the well-being of local communities.
- **Conservation Tillage**
- Minimising or eliminating tillage to reduce soil erosion, improve water filtration, preserve soil organic matter, and Carbon sequestration among others.
-> Carbon sequestration in soil lead to enhancement of organic capability of soil.

ORGANIC FARMING (01:27 PM)

- It is a method of agriculture that avoids synthetic fertilizer, pesticides, GMOs (Genetically modified organisms) and other chemical inputs which focuses upon natural methods to maintain soil health which promotes biodiversity and sustainably produces crops.
- It relies on techniques such as crop rotation, composting, green manure, and integrated pest management among other strategies.
- There are multiple benefits- environmental sustainability, improved soil health, and enhanced nutritional value.
- However, there are **concerns**-
 - → Lower yields
 - → Dependence on weather and biological control
 - → Certification and compliance. E.g. in India, there are two certification mechanisms- **NPOP** (National Program for Organic Production) under **APEDA** (Agricultural and Processed Food Products Export Development Authority)
 - a)
 - This is a globally recognised certification mechanism. However, it is expensive for farmers.
- **b) Participatory Guarantee Scheme** under the Ministry of Agriculture and Farmers Welfare
- This includes a small group of farmers being trained in organic production as well as in certification, farmer groups can provide certification to products. However, this is not accepted in some countries such as the USA and European nations.

SYSTEM OF RICE INTENSIFICATION (01:43 PM)

- It is a set of innovative practices aimed at increasing the productivity and sustainability of rice farming.
- It includes the following strategies-
 - a) Planting of young seedlings with wider spacing
 - b) Alternate wetting and drying (i.e. first wet that area and then let that area to dry up and then again wetting)
 - c) Regular weeding -> But this technique requires lots of manual labor.
 - d) Organic matter incorporation
 - e) Crop diversification

SUSTAINABLE DEVELOPMENT (SD) (01:52 PM)

- It is an approach that seeks to balance economic growth, social well-being and environmental protection, realising that these 3 pillars are interconnected and interdependent.
- Thus it includes access to education, healthcare, clean water, gender equality, protecting the rights of marginalised groups, and conserving biodiversity, protecting ecosystems and natural resources among others. reducing GHG emissions

- The concept of sustainable development has evolved over time.
- a) Brundtland Report, 1987 :-
 - The World Commission on Environment and Development released this report which defines sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- b) Rio Earth Summit 1992 (UN conference on environment and development)
 - This led to Agenda 21, a non-binding agenda for the 21st century.
 - Rio+10, officially known as the World Summit on Sustainable Development included the adoption of Johhansberg's plan of implementation.
 - Rio +20, officially known as UN Conference on Sustainable Development which happened in Ri, adopted a document 'The Future We Want'
 - It also led to the UN Environment Assembly, the world's highest-level decision-making body on the environment.

MDG GOALS AND SUSTAINABLE DEVELOPMENT GOALS (02:08 PM)

- In 2000, the UN adopted a set of 8 goals aimed at social and economic development along with environmental sustainability for the next 15 years.
- SDGs:- In 2015, the UN adopted 17 goals and 169 targets aimed at achieving sustainable development by 2030.
- Note- Remember the below goals with their corresponding number



Poti Hug ke Well s pani
nikal ke Padh su Ge

CCD Industry m
Inequalities Coni

Responsibility koi Coni
lev Life m toh Peace aur
Partner kaiyan milsi

- > Go to website and read about them.
- > Remember indicators of SDG-5 and SDG-10.
- > Do check how India is working on social goals.

SDG-1: No Poverty
SDG-2: Zero Hunger

ECOLOGICAL FOOTPRINT (02:30 PM)

- It is a measure of the impact of human activities on the environment.
- It quantifies the amount of biologically productive land and water area required to produce the resources a population consumes and to absorb its waste given prevailing technology and resource management practices.
- **Ecological Footprint Accounting** and
 - This includes the supply side i.e. how much earth can provide in terms of productive land ~~on the~~ demand side i.e. ecological footprint
- **Earth Overshoot Day**
 - Based on ecological footprint accounting, a think tank **Global Footprint Network** marks the date when humanity's demand exceeds what Earth can regenerate in that year.

GREEN GDP (03:12 PM)

- It is a modified version of traditional GDP that attempts to account for the environmental cost of economic activities.
- It is calculated by estimating the economic value of environmental damage by subtracting from traditional GDP
- **GEP**- It aims to quantify the total **contribution of the environment to economic contribution** and well-being.

NATURAL CAPITAL AND VALUATION OF ECOSYSTEM SERVICES PROJECT (03:22 PM)

- This project is **funded by the European Union** and jointly implemented by the **UN statistics division, UNEP** and **CBD** in 5 countries Brazil, China, India, Mexico and South Africa.
- It is part of the System of Environmental-Economic Accounting adopted by the United Nations.
- Under this project, countries are expected to maintain 5 accounts-
 - i) Ecosystem extent account- This includes information about forests, wetlands, agricultural area
 - ii) Ecosystem conditions account- This includes the quality of ecosystem assets
 - iii) Ecosystem Services Account- This includes the supply of ecosystem services and their beneficiaries
 - iv) Monetary Asset Accounts- This records the monetary value of ecosystem assets
 - v) Thematic Accounts- This includes special themes such as biodiversity, carbon, and Water among others.
- In India, it is implemented by the **Ministry of Environment, Forest and Climate Change, Ministry of Statistics, National Remote Center, Department of Space**

sensing

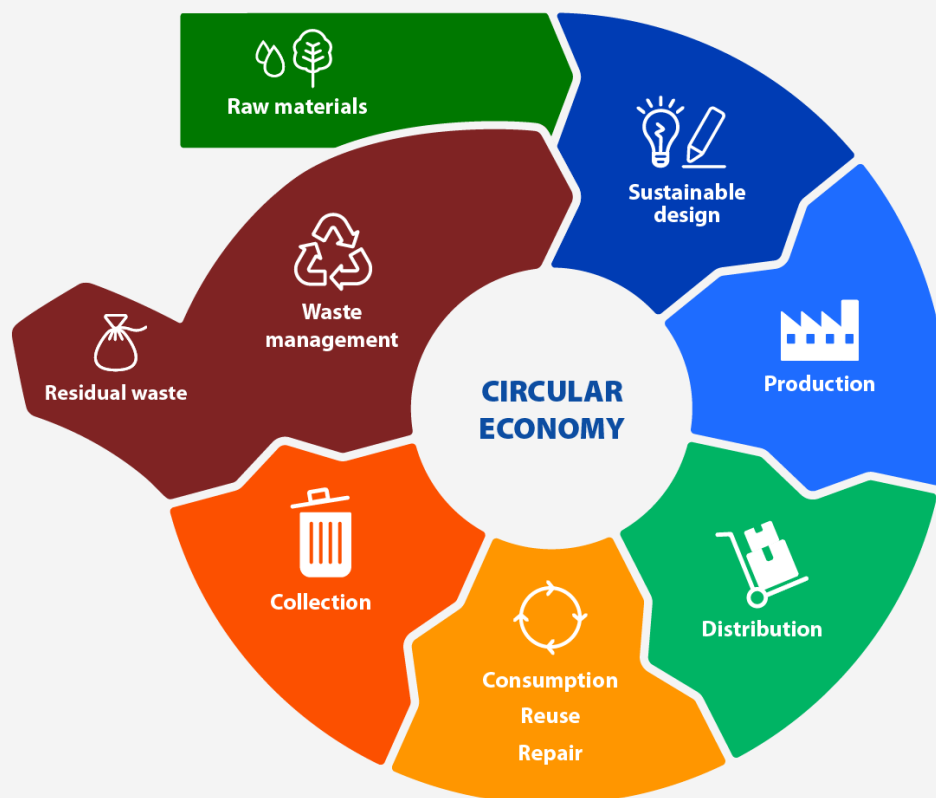
-> Go through NCAVES report.

CIRCULAR ECONOMY (03:34 PM)

- It is an economic model designed to **minimise waste and make the most of resources**.
- It stands in contrast to the traditional linear economy which follows the **take-make-dispose model**.
- The circular economy **seeks to redefine growth**.
- It aims to redesign products in a way that their recovery, reuse, recycle becomes easier.
- It includes **refurbishment**, remanufacturing, and use of biodegradable materials for resource security and sustainability.

For ex: After some updates smart phone ceases to function so companies are trying to give this option that we can change that particular software which ceases to function rather than replacing whole phone.

The circular economy model: less raw material, less waste, fewer emissions



Source: European Parliament Research Service



ENVIRONMENTAL IMPACT ASSESSMENT (03:44 PM) (EIA)

- EIA started in India in river valley development projects in the 1960s and 1970s however, as of now it has legislative backing under the Environment Protection Act, of 1986
- The current EIA process includes the following:
 - **Screening-** This includes whether the project requires EIA or not
 - Projects are divided into two groups- A and B
 - Category A projects require clearance at the Union level under MoeFCC
 - B1 projects require EIA at the state level, and B2 projects do not require an EIA report. They still need environmental clearance but follow a simpler process
 - **Scoping-** This step identifies key issues and impacts that should be considered
 - **Preparation of EIA report-** This involves the collection of baseline data, assessment of potential impact, and proposing mitigation measures among others.
 - This is prepared by an accredited environmental consultant
 - **Public involvement-** This includes sharing information with local people, receiving feedback,
 - **Appraisal-** The EIA report along with outcomes of public consultation is appraised at the union or state level
 - **Decision making-** Based on the appraisal regulatory authority, either grant, reject or propose modifications, ~~monitoring and compliance~~
 - Post environmental clearance, the project proponent must ensure compliance with environmental conditions and safeguards
- **Challenges in EIA process**
- Many concerns have been raised in past regarding the quality and reliability of the report often due to poor data quality and sometimes allegations of data manipulation etc
- Project proponents commission the EIA report which raises conflict of interest issues.
- Often Public consultation is a mere formality, lacking meaningful engagement.
- The follow-up and the compliance do not occur effectively.

IMPORTANT ACTS (04:12 PM)

- Refer to the handout for details.
- Environment Protection Act, 1986
- NGT Act

THE SYLLABUS IS COMPLETED.

Monitoring
Compliance: