Environmental Science
Short Note (5)

Q: Write short note on any Four (4) of the following:

(a) CDM:

The Clean Development Mechanism (CDM) is a system established under the Kyoto Protocol to combat climate change by allowing industrialized countries to invest in emission reducing projects in developing countries. These projects can earn certified emission reduction (CER) credits, which industrialized countries can use to meet their Kyoto targets.

The CDM was established under the Kyoto Protocol, which was adopted in 1997 and entered into force in 2005."

2. "Functioning of Clean Development Mechanism"

Industrialized countries invest in emission reduction projects in developing countries through the Clean Development Mechanism (CDM) These projects can earn Certified Emission Reduction (CER) credits. Countries can use these credits to meet their Kyoto Protocol emission reduction targets.

One (1) Certified Emission Reduction (CER) credit is equivalent to one metric ton of CO_2 reduced. "The CDM has not only contributed to reducing emissions but also to fostering sustainable development and transfering technology to developing countries"

(JETA)

3. Types of Clean Development Mechanism :

There are following main types of CDM are as;

i. Renewable Energy Projects :

It is a project like wind farms and solar panels generate clean energy. They reduce reliance on fossil fuels, lowering greenhouse gas emission

"As of 2020, China, India and Brazil host the majority of CDM projects, reflecting their large renewable energy sector"

ii. Energy Efficiency Improvement :

The upgrading of industrial processes and building to use less energy. It reduces energy consumption and emission, promoting sustainable practices.

"Energy efficiency is not just low-hanging fruit; It is a fruit that lying on the ground" (Barack Obama)
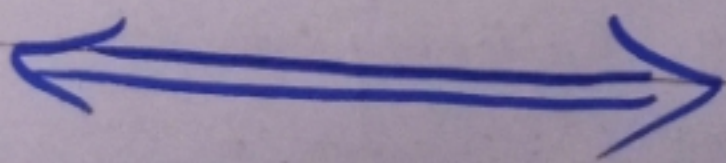
III - <u>Reforestation and Afforestation</u>:
Planting trees to restore degraded lands and create new forests. It enhances carbon sequestration, improving air quality and biodiversity.

"A nation that destroys its soils destroy itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people.
<u>(Franklin D. Roosevelt)</u>

The CDM serves as a crucial tool in the global effort to mitigate climate change, promoting sustainable development while facilitating the reduction of green house gas emission through innovative and collaborative projects.

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(b) Genetic Pollution :

Genetic pollution refers to the uncontrolled and unintended spread of genetically modified organisms (GMOs) into natural ecosystems, leading to the mixing of modified genes with wild populations.

This phenomenon occurs through mechanisms such as cross-pollination between genetically engineered crops and wild relatives, or the escape of GMOs from controlled environments into the natural world.

"Genetic Pollution can be as harmful as chemical pollution, altering the natural balance of ecosystems" (David Suzuki)

2. Functioning of Genetic Pollution :

The primary Concerns associated with genetic pollution include the potential for loss of biodiversity as genetically modified traits may spread to native species, potentially disrupting natural ecosystems.

"The problem with genetic pollution is that once the gene is out of the bottle, it is very hard to get it back in". (Mark Lynas)

Additionally, there are worries about the creation of "superweeds" or "superpests" that might develop resistance to herbicides and pesticides due to the introduction of genetically modified traits into wild population.

3. <u>Benefits of Genetic Pollution</u> :

The modification has potential benefits of genetic pollution such as;

i. <u>Improved Crop Yields</u> :

The introduction of genes that enhance crop productivity can lead to higher yields, which is essential for meeting the food demands of a growing global population.

The introduction of new genes can revitalize plant varieties and enhance their ability to withstand diseases and environmental stresses"

(Norman Borlaug)

ii. <u>Pest Resistance</u> :

Genes that give resistance to pest can spread from genetically modified crops to related wild or traditional varieties.

It reducing the need for chemical pesticides and promoting more sustainable agricultural practices.

"Genetic advancements holds the potential to unlock new levels of agricultural productivity and environmental resilience"

(Rosalind Franklin)

However, managing genetic pollution requires to strengthen regulation, monitoring and research to balance these benefits with the preservation of natural ecosystems.