

Date: 24-07-2024

Day: Wednesday

Environmental Science

(5 mark)

Q: Write a short note of the following: Time consume: 20 minutes

Superfund:

The Superfund is United States federal program established by the Comprehensive Environmental Response, Compensation and Liability Act, (CERCLA) in 1980.

It aims to clean up sites contaminated with hazardous substances and pollutants. The Environmental Protection Agency (EPA) identifies and prioritizes sites for cleanup, often holding responsible parties accountable for the costs.

The program addresses both immediate and long-term remediation efforts to protect public health and the environment.

2. Identification and Prioritization of Sites :

The EPA identifies and prioritize Superfund sites based on their level of contamination and potential risk to public health and the environment. The National Priorities List (NPL) is used to rank and prioritize sites for cleanup. Sites with higher risks and severe contamination are addressed more urgently.

The Superfund program has provided a means to clean up some of the most contaminated sites in America, but its work is far from done" (Robert F. Kennedy)

3. Cleanup Process and Techniques:

The cleanup process under Superfund program involves assessing Contamination, selecting appropriate remediation techniques and implementing them to restore the site.

Techniques include soil excavation, groundwater treatment and bioremediation.

These methods aims to remove or neutralize hazardous substances and mitigate environmental and health risks.

"By investing in the Cleanup of hazardous waste sites Superfund helps to heal not just the land but the communities that depend on it" (Al Gore)

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4. Funding and Accountability:

Funding to Superfund cleanups primarily comes from a trust fund supported by taxes and responsibility to responsible parties who are liable for contamination. The program ensures accountability by legally requiring polluters to cover cleanup costs and by using federal funds where necessary.

"The success of Superfund lies in its ability to tackle the most challenging environmental problems, often in partnership with local communities and

responsible parties"

(Lisa Jackson)

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Q: Write a short note of the following: (5 marks)

Carbon Footprint:

A Carbon footprint measures the total amount of greenhouse gases, primarily carbon dioxide, emitted directly or indirectly by human activities.

It quantifies the impacts on the environment in terms of global warming potential.

"The fight against climate change starts with reducing our own carbon footprints and making sustainable choices."

(Ban ki-Moon)

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2. Sources of Carbon Footprint:

These are common sources of carbon footprints include transportation e.g. car travel, flights. Energy consumption (electricity; heating) industrial process and personal activities (Food consumption, waste generation)

3. Measurement of Carbon Footprints:

Carbon footprints are measured in units of carbon dioxide equivalents (CO_2) to account for various greenhouse gases impact. Tools and calculators are available to estimate individual, organizational or product footprints.

4. Strategies for Reduction of Carbon Footprint:

(i) Energy Efficiency:

To adopt energy-efficient appliances, insulations and lighting to minimize energy consumption and reduce emissions.

(ii) Renewable Energy:

Transition to renewable energy source like (Solar, wind, hydro to lower your reliance of on fossil fuels).

The sun provides more energy in one hour than the world uses in a year. It is a gift we should embrace.

(Mark Z. Jacobson)

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(iii) Sustainable Transportation :

Use public transportation, carpool, bike or walk to reduce vehicle emissions. Consider electric or hybrid vehicles for lower carbon output.

"The future of transportation is electric and shared, and we must embrace it to combat Climate Change" (Elon Musk)

(iv) Waste Reduction :

To reduce waste production, reuse and recycle to minimize waste generation and lower methane emissions from landfills. To compost organic waste when possible.

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