

Assignment

- ① Write a note on economic effects by pollution?

- Ans:
- Economics is all about the trade-off b/w costs and benefits.
 - It's no exception when it comes to the topic of pollution with one important caveat (a warning to consider something).
 - There is the problem of externalities. In fact, pollution is a classic example of an external cost.
 - When a factory emits pollution into the air or a river, it doesn't have to bear the cost of that pollution.
 - so if pollution is left unchecked, as in the case of a completely free market, there will be too much of it.
 - costs of pollution: It looks at the negative impacts of pollution on society and the economy.
These costs can include health problems, damage to ecosystems, reduced agricultural productivity, and lower quality of life for people living in polluted areas.
 - Pollution can lead to increased healthcare expenses and decreased productivity, which can hurt the overall economy.
 - Pollution control and regulations: To address pollution, governments can set up regulations and standards to limit the amount of pollution that companies can emit.
 - This can lead to costs for businesses as they need to invest

in cleaner technologies or pay fines for exceeding pollution limits.

- Environmental economists also explore market-based solutions to pollution like "cap and trade" systems.

- In a cap and trade system a government sets a limit (cap) on the total amount of pollution allowed and then issues permits equal to this cap.

- Companies can buy and sell those permits. This way, companies with lower pollution levels, can sell their extra permits to those who need more, creating incentives to reduce pollution efficiently.

- Externalities: Pollution is an example of an "externality" in economics.

- An externality is a side effect of an "externality" in economics: economic activity that affects other parties who did not choose to be involved in that activity.

- In the case of pollution, the factory benefits from producing goods, but the costs of pollution are borne by society.

- Environmental economists explore ways to internalize these external costs by making polluters responsible for their pollution, either through regulations or market-based approaches.

- The economics of pollution studies the costs and consequences of pollution on the economy, evaluates the effectiveness of

pollution control measures and regulations, and explores market-based solutions to strike a balance b/w economic growth and environmental protection.

The goal is to find efficient and sustainable ways to reduce pollution while ensuring economic prosperity and societal well-being.

② Explain the terms taxes, subsidies in managing the pollution through market intervention.

Ans: Tax - Example carbon tax, which makes people pay the social cost of pollution.

Subsidy - Ex: subsidy of alternative energy sources.

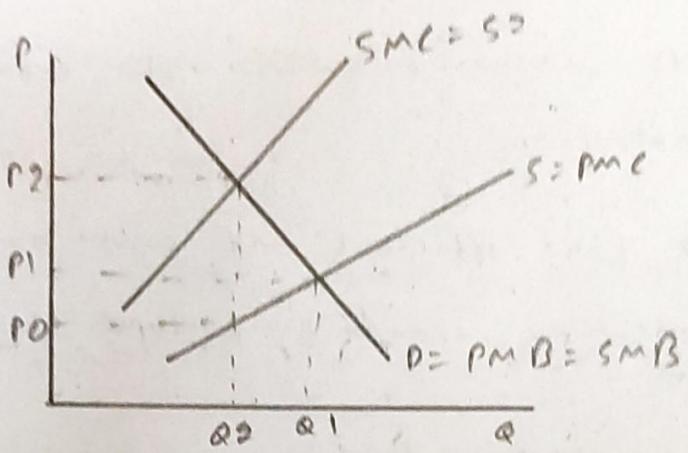
Pollution permits - eg: carbon trading schemes where firms are given the right to pollute a certain amount; these permits can be traded with other firms.

Regulation - limits on a number of pollutants that can be discarded into the atmosphere.

changing consumer behaviour - eg: through advertising, nudges etc.

Tax

The idea of tax is to make consumers and producers pay the full social cost of producing pollution. ex:- petrol tax or carbon tax.



→ In this case, the social marginal cost of producing the good is greater than the private marginal cost the diff is the external cost of pollution.

→ The tax shifts the supply curve to S_2 and consumers are forced to pay the full social marginal cost.

→ This reduces the quantity consumed to Q_2 , which is the socially efficient outcome.

Subsidies

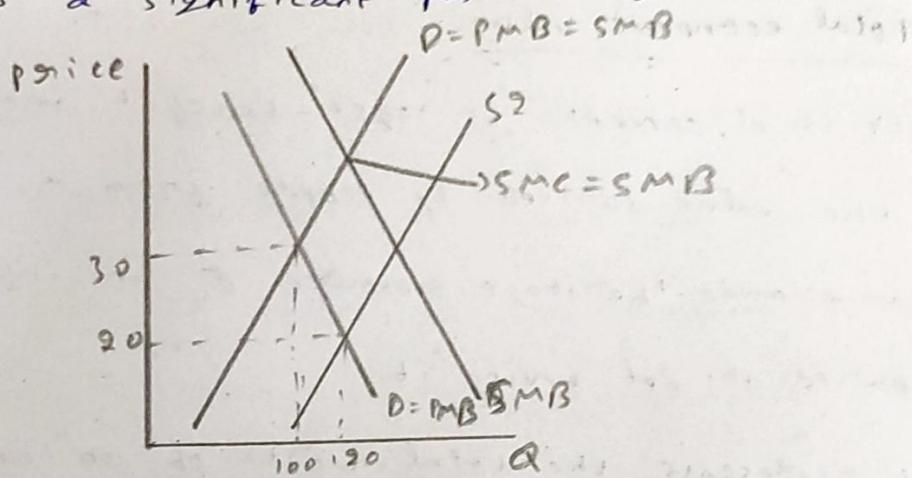
→ A tax may be ineffective if there are no practical alternatives.

→ However, if the gov subsidies alternatives, then firms and consumers will be more willing to switch.

→ For ex: solar power is an alternative to burning coal. A gov. subsidy can make solar power competitive and encourage

its development.

→ The subsidy is justified because the development of solar power has a significant positive externality.



→ The problem of subsidies is that there is always a danger government subsidies could be misused.

→ Firms may take the subsidy but keep the money for extra profit rather than for developing the alternative energy source.

→ The government may lack the proper info on what types of energy or firms to subsidise. This may lead to public money being wasted, with little reduction in pollution.

→ A government could provide subsidies to businesses that invest in renewable energy sources or upgrade their factories to be more energy-efficient.

→ Subsidies make it cheaper and more attractive for companies to implement environmentally friendly measures, leading to a reduction in pollution.

③ Explain in brief: Total economic value and alternative approaches to valuation.

Ans:-

Total economic value

→ TEV is a concept in cost-benefit analysis that refers to the value derived by people from a natural resource, a man-made heritage resource or an infrastructure system compared to not having it.

→ It represents the total worth of an environmental asset, considering both the direct and indirect benefits it provides to people.

→ The TEV economic value of environmental assets can be broken down into a set of component parts. It comprises use and non-use value.

i) use value:- Use value refers to those values associated with current or future use of an environmental resource by an individual.

- use values involve some human "interaction" with a particular resource.
- use values can be further categorized as direct use value and indirect use value.

Direct use value:- Direct use values are fairly straight forward and relatively easy to measure.

• They usually include the most obvious and important market based uses such as potable water, fisheries, tourism etc.

Indirect use value:- Indirect use values are derived from those services such as those of the tropical forests in protecting watershed, serving the habitat function, or the mangroves forming a part of river's ecosystems.

• All these examples provide benefits to humans though ~~indirectly~~.

ii) Non-use value:- On the other hand, non-use values arise from the continued existence of the resource and are unrelated to use, eg: the existence of an owl in the forest.

• Individuals don't make use of these environmental resources but nevertheless desire to see them preserved in their own right.

Alternative approaches to valuation

→ Environmental values are estimated by observing the values of market goods related to the non-market environmental goods such as the purchase of a home or visits to a recreational site.

→ some alternative approaches to valuation in environmental economics are

1) Stated Preference Methods: - Stated preference methods involve surveying individuals and asking them directly about their preferences and willingness to pay for environmental improvements or preservation.

2) Revealed Preference Method: - Revealed preference methods are based on observing people's actual behavior in situations related to the environment.

3) Travel cost method: - The travel cost method estimates the value of recreational sites or natural areas by analyzing the costs individuals incur, such as transportation and entrance fees, to visit these places.

4) Hedonic Pricing Method: - The hedonic pricing method is commonly used to value environmental attributes in the housing market.

5) Contingent Valuation Method: - Contingent valuation involves presenting individuals with hypothetical scenarios and asking them how much they would be willing to pay or accept as compensation for potential environmental changes or improvements.

④ Write a note on economical values of environmental damage?

Ans → Environmental damage occurs when human activities negatively impact the environment, leading to the depletion of natural resources, pollution and ecosystem degradation.

→ This damage can have significant economic sequences, including:

1) Health costs: - Pollution and exposure to harmful substances can lead to health issues in humans, animals, resulting in increased medical expenses and reduced productivity.

2) Resource Depletion: - overexploitation of natural resources, such as overfishing or deforestation, can lead to decreased resource availability and potential economic losses in related industries.

3) Loss of Ecosystem services: - Ecosystems provide crucial services like pollination, water purification and climate regulation.

• Environmental damage can disrupt these services, affecting agriculture, water supply and infrastructure.

4) Cost of Remediation: - Cleaning up pollution and restoring damaged ecosystems can be expensive, and these costs often fall on governments, businesses or communities.

5) Opportunity costs: - Environmental damage can lead to missed opportunities for sustainable development and economic

growth, as resources must be diverted to address the consequences of the damage.

Environmental damage can have several economic consequences.

1) Direct costs:- These are the immediate financial expenses incurred due to environmental accidents or damage, such as cleanup costs after an oil spill.

2) Indirect costs:- Environmental damage can result in indirect costs, such as reduced agricultural productivity due to soil degradation or increased healthcare expenses due to pollution-related health issues.

3) Opportunity costs:- When environmental damage occurs, it may prevent society from enjoying the full benefits of certain environmental resources, leading to opportunity costs.

- For ex: pollution in a river may prevent fishing or recreation activities, resulting in economic losses.

4) Externalities:- Environmental damage often leads to negative externalities, which are the costs imposed on third parties who are not involved in the original activity.

- For instance, air pollution from a factory may harm the health of nearby residents, resulting in additional healthcare costs.

⑤ Explain the economics of climate change as per stern report

- Ans: → The stern Report on the Economics of climate change is a 700-page report released for the gov of UK on 30 Oct 2006 by economist Nicholas Stern.
- Nicholas Stern was chair of the Grantham Research Institute on climate change and the environment at LSE and also chair of CCCP at Leeds University and LSE.
- The report discusses the effect of global warming on the world economy though not the first economic report on climate change, it is significant as the largest and most widely known and discussed report of its kind.
- The review states that climate change is the greatest and widest ranging market failure ever seen, presenting a unique challenge for economics.
- The review provides prescriptions including environmental taxes to minimise the economic and social disruptions.
- The stern's review's main conclusion is that the benefits of strong early action on climate change far outweigh the costs of not acting.
- Acc. to review, without action, the overall costs of climate

change will be equivalent to losing out at least 5% of global GDP each year, now and forever.

→ Including a wider range of risks and impacts could increase this to 20% of GDP or more. Stern believes that 5-6 degrees of temperature increase is "a real possibility".

→ The review proposes that 1% of global GDP per annum is required to be invested to avoid the worst effects of climate change.

→ In June 2008, Stern increased this estimate for the annual cost of achieving stabilisation b/w 500 and 550 ppm CO₂ to 2% of GDP to account for faster than expected climate change.

→ The benefits of strong, early action on climate change outweigh the costs.

→ The scientific evidence points to increasing risks of serious, irreversible impacts from climate change associated with business-as-usual (BAU) paths for emissions.

→ Climate change threatens the basic elements of life for people around the world - access to water, food production, health and use of land and environment.

→ Integrated assessment modeling provides a tool for estimating

the total impact on economy, our estimates suggest that this is likely to be higher than previously suggested.

→ Emissions have been and continue to be, driven by economic growth yet stabilization of green house gas concentration in the atmosphere is feasible and consistent with continued growth.

→ An effective response to climate change will depend on creating the conditions for international collective action.

→ There is still time to avoid the worst impacts of climate change if strong collective action starts now.