# Unit-4
# Development and Environment

# Population and environment

- Rapidly growing populations have led to land, water, and fuel wood shortages in rural areas and to urban health crises stemming from lack of sanitation and clean water.
- In many of the poorest regions of the globe, it is clear that increasing population density has contributed to severe and accelerating degradation of the very resources that these growing populations depend on for survival.
- To meet expanding needs in developing countries, environmental devastation must be halted and the productivity of existing resources stretched further so as to benefit more people.
- If increases in GNI and food production are slower than population growth, per capita levels of production and food self-sufficiency will fall.

# Environment as a Necessity and Luxury

- Environment is a total sum of the existing surroundings and other objects around it.
- Environment is a luxury and necessity for all the living organisms as it provided many things like mineral, food, and resources.
- Environment or our mother nature is the main supreme power of our earth.
- Because it produces the resources for both our necessary and luxury needs.
- Environment not only serves as a luxury but it is important as a basic necessity.
- Oxygen, water, food etc. are necessary for our life survival.
- Without these resources we cannot live long and all the living organisms including us will extinct soon from the earth.

# Environment as a Necessity

- The environment carries much importance to humankind as it provides many services to entire humanity.
- Without its support the life cannot exist on this earth.
- The people, plants and creatures all of them depend on the environment for their survival. The environment put several services to the humanity which follows as under:
- (1) Supply of Resources •
- The environment offers resources for production.
- It includes both renewable and non-renewable resources.
- Example: Wood for furniture, soil, land, etc.
- (2) Sustains Life • The environment includes the sun, soil, water, air which are essential for human life. • It sustains life by providing genetic and biodiversity.

(3) Assimilation of Waste •

- Production and consumption activities generate waste.
- This occurs mostly in the form of garbage.
- The environment helps in getting rid of the garbage.

(4) Enhances Quality of Life

- Environment enhances the quality of life.
- Man enjoys natural beauty like rivers, mountains, deserts, etc.
- These add to the quality of life.

- Environmental degradation harms human health
- Environmental degradation reduces economic productivity
- Environmental degradation leads to loss of amenities

- **Impact on human health**
- Human health might be at the receiving end as a result of environmental degradation.
- Areas exposed to toxic air pollutants can cause respiratory problems like pneumonia and asthma.
- Millions of people are known to have died off due to the indirect effects of air pollution (Adakole and Oladimeji, 2006).
- **Loss of biodiversity**
- Biodiversity is important for maintaining the balance of the ecosystem in the form of combating pollution, restoring nutrients, protecting water sources and stabilizing climate.
- Deforestation, global warming, overpopulation, and pollution are a few of the major causes of loss of biodiversity.

- **Ozone layer depletion**
- The ozone layer is responsible for protecting the earth from harmful ultraviolet rays. The presence of chlorofluorocarbons, hydro chlorofluorocarbons in the atmosphere is causing the ozone layer to deplete. As it will deplete, it will emit harmful radiation back to the earth (Buhaug et al., 2010).
- **Loss for the tourism industry**
- The deterioration of the environment can be a huge setback for the tourism industry that relies on tourists for their daily livelihood. Environmental damage in the form of loss of green cover, loss of biodiversity, huge landfills, increased air, and water pollution can be a big turn off for most of the tourists.

- **Economic impact**
- The huge cost that a country may have to borne due to environmental degradation can have a big economic impact in terms of restoration of green cover, cleaning up of landfills and protection of endangered species.
- The economic impact can also be in terms of the loss of the tourism industry.
- As you can see, there are a lot of things that can have an effect on the environment. live in by providing environmental education to the people which will help them pick familiarity with their surroundings that will enable to take care of environmental concerns thus making it more useful and protected for our children and other future generations.

# Environment as Luxury

- We are now faced with increased demand for environmental resources and services but their supply is limited due to overuse and misuse.
- Hence, environment has become a luxury.
- We are living in the modern era where we can produce and build modern equipment's and products from natural resources to make our life more efficient and comfortable.
- The main motto is gaining comfort, that's why these needs are known as the luxury needs.

# The Burden of Population on Environment

- **Increasing fishing and hunting**, which reduces **species populations** of the exploited species. Fishing and hunting can also indirectly increase numbers of species that are not fished or hunted if more resources become available for the species that remain in the ecosystem.
- Increasing the transport of **invasive species**, either intentionally or by accident, as people travel and import and export supplies. Urbanization also creates disturbed environments where **invasive species** often thrive and outcompete native species. For example, many invasive plant species thrive along strips of land next to roads and highways.
- The transmission of **diseases**. Humans living in densely populated areas can rapidly spread diseases within and among populations. Additionally, because transportation has become easier and more frequent, diseases can spread quickly to new regions.

- Increasing the **extraction of resources** from the environment. These resources include **fossil fuels** (oil, gas, and coal), minerals, **trees**, **water**, and **wildlife**, especially in the oceans. The process of removing resources, in turn, often releases **pollutants and waste** that reduce **air** and **water quality**, and harm the **health** of humans and other species.
- Increasing the **burning of fossil fuels** for energy to generate electricity, and to power transportation (for example, cars and planes) and industrial processes.
- Increase in **freshwater use** for drinking, **agriculture**, recreation, and industrial processes. Freshwater is **extracted** from lakes, rivers, the ground, and man-made reservoirs.
- Increasing ecological impacts on environments. **Forests** and other **habitats** are disturbed or destroyed to construct **urban areas** including the construction of homes, businesses, and roads to accommodate growing populations. Additionally, as populations increase, more land is used for **agricultural activities** to grow crops and support livestock. This, in turn, can decrease **species populations,** geographic **ranges, biodiversity,** and alter **interactions** among organisms.

# Rural Development and the Environment

- To meet the expanded food needs of rapidly growing populations, it is estimated that food production in developing countries will have to increase by at least 50% in the next three decades.
- Because land in many areas of the developing world is being unsustainably overexploited by existing populations, meeting this output target will require radical changes in the distribution, use, and quantity of resources available to the agricultural sector.
- The increased accessibility of agricultural inputs to small farmers and the introduction (or reintroduction) of sustainable methods of farming will help create attractive alternatives to current environmentally destructive patterns of resource use.
- Land-augmenting investments can greatly increase the yields from cultivated land and help ensure future food self-sufficiency

# Urban Development and the Environment

- Rapid population increases heavy rural-urban migration, are leading to unprecedented rates of

urban population growth, sometimes at twice the rate of national growth.

- Consequently, few governments are prepared to cope with the vastly increased strain on existing urban water supplies and sanitation facilities.
- The resulting environmental ills pose extreme health hazards for the growing numbers of people exposed to them. Such conditions threaten to precipitate the collapse of the existing urban infrastructure and create circumstances ripe for epidemics and national health crises.
- These conditions are exacerbated by the fact that under existing legislation, much urban housing is illegal.
- This makes private household investments risky and renders large portions of urban populations ineligible for government services.
- Congestion, vehicular and industrial emissions, and poorly ventilated household stoves also inflate the tremendously high environmental costs of urban crowding.

# Market Failure

- Market failure refers to the inefficient distribution of goods and services in the free market.
- In a typical free market, the prices of goods and services are determined by the forces of supply and demand, and any change in one of the forces results in a price change and a corresponding change in the other force.
- The changes lead to a price equilibrium.
- Market failure occurs when there is a state of disequilibrium in the market due to market distortion.
- It takes place when the quantity of goods or services supplied is not equal to the quantity of goods or services demanded.
- Some of the distortions that may affect the free market may include monopoly power, price limits, minimum wage requirements, and government regulations.

# Causes of Market Failures

- **1. Externality**
- An externality refers to a cost or benefit resulting from a transaction that affects a third party that did not decide to be associated with the benefit or cost.
- It can be positive or negative.
- **A positive** externality provides a positive effect on the third party.
- For example, providing good public education mainly benefits the students, but the benefits of this public good will spill over to the whole society.
- On the other hand, **a negative** externality is a negative effect resulting from the consumption of a product, and that results in a negative impact on a third party.
- For example, even though cigarette smoking is primarily harmful to a smoker, it also causes a negative health impact on people around the smoker.

- **2. Public goods**
- Public goods are goods that are consumed by a large number of the population, and their cost does not increase with the increase in the number of consumers.
- Public goods are both non-rivalrous as well as non-excludable. Non-rivalrous consumption means that the goods are allocated efficiently to the whole population if provided at zero cost, while non-excludable consumption means that the public goods cannot exclude non-payers from its consumption.
- Public goods create market failures if a section of the population that consumes the goods fails to pay but continues using the good as actual payers.
- For example, police service is a public good that every citizen is entitled to enjoy, regardless of whether or not they pay taxes to the government.

# Government Mechanism of Adjusting For Externalities in Market

- **(i) Definition and Enforcement of Property Rights:**
- An externalities do not result in inefficiency if property rights are defined and CCA are sufficiently low.
- Thus government way, in some cases, prevent inefficiency by clearly defining and enforcing property rights.
- For example, suppose a small lake has been used for fishing, swimming, and waste disposal by persons and businesses located on the surrounding land.
- When the area is slatternly populated, its use was not competitive.
- But population and economic activity have increased to the extent that the waste disposal would soon make the lake unsatisfactory for other uses (fishing and swimming).
- If the lake belongs to one, then action to limit waste disposal is unlikely, since no person has a right to demand such limits.
- However, if the lake belongs to those persons who own the surrounding land, then landowners and lake owners can each act to prevent use of the lake in ways that are incompatible with their own interests.
- If the number of owners is small, they may be able to reach some agreement about use that preserves water quality.

- **(ii) Tax on Output:**
- Since the production and consumption of commodities generate pollution, a straightforward means of limiting pollution would be to reduce such production-consumption activities by taxing them.
- In example, thus, a tax on automobiles would mean to reduce their numbers and thereby reduce air pollution from that source.
- The costs of reducing pollution would be borne by those who generate the pollution the consumers and producers of iron and automobiles in the form of higher consumer prices and lower producer incomes.
- The revenues from such a tax could be used to compensate those damaged by the pollution that remains or for general purposes of government.
- The main disadvantage of taxing output is that it provides no incentive for reducing pollution damage by changing production processes—i.e., by placing filters on smokestacks or by designing autos that produce less pollution.
- There is also the problem of determining the appropriate tax rate, which may change over time as the damages from pollution change and as the costs of and demands for products change.

- **(iii) Tax on Emissions and Effluents:**
- The government could directly tax the pollution output.
- Such a tax would encourage the producers to reduce pollution by reducing output or changing the process of production so that less pollution is generated.
- But emissions tax would raise the iron producers costs and therefore result in lower output and a higher price for the product.
- Similarly, an emission tax on auto would encourage production of low-emission cars, even though such cars might be more expensive.
- The price of cars would tend to rise on the average and their number would tend to fall.
- However, to achieve a given degree of control, an emissions tax would raise price and reduce output less than would a tax on output.
- With an emissions tax, some control would likely be obtained by changing the production process so that less pollution is generated per unit of output (per ton of iron produced or per mile driven).
- Like the output tax, emissions tax places the burden of control on those who generate the pollution.
- Again there would be problem of determination of rate of tax.

- **(iv) Standard and Regulations:**
- Another solution lies that government can set and enforce pollution standards and attempt thereby to directly control the level of pollution.
- Standards can be apply to the emissions by the producer or to the quality of complying with the standards would be borne by the producers or their customers or by both, just as was the case with taxation.
- The major difficulties with standards determination of the standard and then enforcing it.
- Therefore enforcement requires government monitoring of emissions or air quality or both.

- **(v) Pollution Permits:**
- Government can create and sell “permits” to pollute, while prohibiting pollution unless a permit is purchased.
- For example, a pollution permit might entitle its owner, say an iron producer, to allow one ton of a particular gas or dust to escape into the atmosphere each month.
- The number of permits issued would be determined by the air (or water) quality that is sought.
- If the desired air quality standard can be met even though 1,000 tons of particulate are dumped into the air of a city each month, then permits that allow dumping of a total of 1,000 tons per month could be sold to producers in that city.
- Only owners of the permits would be allowed to dump wastes into the air.
- Owning such a permit would be advantageous because the producer would be allowed to operate with less expenditure on pollution control (less elaborate and expensive filtering and cleaning of the smoke by products of production would be necessary).
- Producers would bid for permits, with the amount of their bids depending on the amount of pollution control costs that would be saved by owning a permit.

- **(vi) Subsidies and Public Production of Pollution:**
- Public subsidies can go a long way to encourage pollution control and public production of pollution control (as occurs when cities treat waste water from homes and industries to reduce water pollution).
- Tax-payers are unlikely to generate pollution in proportion to their payment of taxes, and the subsidy and public production mechanisms of control tend to be more advantageous for those who pollute.
- Public subsidies and production of pollution control, assign the rights to use air (water) to those who pollute. That is, they imply that pollution is legal.
- Subsidies may take the form of direct grants or tax breaks for producers that install specified pollution control equipment.
- Or they may take the form of publicly financed research aimed at discovering production processes that produce less pollution.
- Subsidies maybe used in conjunction with standards, in which case standards are imposed but government pays part of the costs of meeting those standards.
- For example, the federal government imposes standards on sewage treatment by cities and provides federal grants for construction of sewage treatment facilities.