Unit IV

Syllabus

Social Issues and the Environment- Introduction, Sustainable Development, Urbanization, Water Conservation, Resettlement and Rehabilitation of People; Its Problems and Concerns, ACTs for Environmental Protection, Carbon Credits, Initiatives and Roles of Nongovernmental Organization (NGOs) in Environmental Protection, Issues Involved in Enforcement of Environmental Legislation. Environment and Human Health, Environmental Education, Role of Information Technology in Environment and Human Health.

Social Issues

From birth to death of man on earth, his activities are related to social issues. Socialissues incorporate family, associations, institutions and communities. The society is the web ofsocial, relations and men are a social animal. Man can't detach himself from social issues of life.While living in a society, he has to perform many socio-economic activities such as industry,agriculture, transport, building of roads and houses. These activities bring about environmentaldegradation of water, soil, air, etc.

The human population continues to increase, and with population growth, comes more requirements of food, shelter and clothing. Thus, natural and managed ecosystems are being exploited to provide increasing goods and services. In addition, humans extract and burn fossil fuels much faster than they could ever be replenished, bringing on change in global climate. Living beings are forced to tolerate the continued loss of biodiversity. Rich persons are unwilling to take the necessary steps to help those suffering from poverty, hunger and illnesses.

Climate Change

Weather is the reflection of atmospheric humidity, temperature and rainfall, Climate is the average weather pattern over longerduration in a place, Climate change is reflected from the following facts:

- Since the late 19th century, the earth has warmed by 0.3 to 0,6°C on an average.
- By the year 2100,
    1. Temperatures would rise by 1 to 3.5°C
    2. Global mean sea levels would rise by 15 to 95 cm

Causes of climate change on a global scale are linked with changes in the amount of heat that is either let into the earth system or let out of the earth system. Depending on proximity to oceans and altitude and amounts of sunlight received by different regions of the world, climate differs from place to place.

For example, hot climates are due to greater concentrations of greenhouse gases in the atmosphere which reduce the amount of heat that is let out of the atmosphere. Ill-effects of climate change are linked to

(i) cyclones,

(ii) floods,

(iii) dry or wet spells of rainfall, and

(iv) cold and hot spells of temperature.

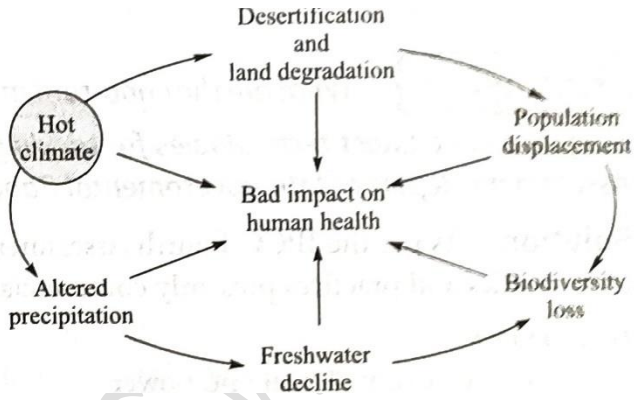


Fig. Impacts of climate change

Impacts of Climate Change

Positive Impacts: Reduced deaths from cold and higher agricultural output in northern regions (at least for a while) are few positive impacts ofglobal warming.

Negative impacts:

- Submergence of low-lying islands (especially in the Pacific), vast saline floods in countries like Bangladesh, etc., are linked to rise in sea level.
- The tourism industry will suffer in parts of southern Europe because of change of climate towards hotter than ever before.

- Damaging changes in wildlife behavior like failure of Scottish seabirds to raise young during the 2004 breeding season.
- The poorest of the poor are most likely to be hit by the impacts of climate change.

Solutions of Climate-change Problems

Some of the simple solutions are

- Reduce the emission of greenhouse gases
- Use renewable energy resources
- Use energy efficient technologies

Global Warming-The Greenhouse Effect

Greenhouse effect is a process by which infrared radiation leaving the earth's surface is trapped by some greenhouse gases; so, the temperature is higher than it would be if direct heating by solar radiation were the only warming mechanism.

Consequences of Global Warming

- Melting of polar ice caps, and increase of sea/ocean levels
- Flooding of low-lying land
- Less water vapor in the atmosphere leading to more drought
- Causes extremes of weather hurricanes, flooding and droughts, difficulties in growing crops and survival problems

More industrialized countries are responsible for causing high levels of CO2 in the atmosphere and less industrialized countries are also contributing by destruction of the rainforest.Sustainable development is the only solution.

Remedial Measures

- Enhance energy efficiency during use by adding insulation to your walls, and by using CFL bulbs, etc.
- Reduce transport sector emissions by less and smart driving.
- Promote renewable energy (like solar energy) usage.
- Remove subsidies on fossil fuels.
- Favor sustainable agriculture.
- Recover methane emissions through waste management.
- Promote afforestation and reforestations—a single tree will absorb approximately one ton of CO2 during its lifetime.
- Reduce energy consumption by using energy-efficient home appliances.
- Avoid methane production from biomass decay through controlled combustion.
- Enhance energy efficiency during generation, transmission and distribution.
- Reduce waste, prefer reusable products, recycle paper, plastic, metals, etc.
- Eat locally grown fruits and vegetables and not the imported ones. The latter requires the burning of fossil fuels for transport.

Acid Rain

Acid rain is rain which is unusually acidic (pH of less than the natural range of 5 to 6); caused mainly by atmospheric pollution with sulphur dioxide and nitrogen compounds.

Ozone-Layer Depletion (Ozone hole)

Ozone (O_3) is an allotropic form of oxygen (O_2). It is a pale blue gas. It helps in sustaining life on earth by filtering out the sun's harmful ultraviolet radiations.

Problems Associated with Ozone-Layer Depletion:

The ozone layer absorbs most of the harmful ultraviolet radiations coming from the sun in the region (220-330) nm.In the absence of an ozone layer, these ultraviolet radiations could cause the following problems:

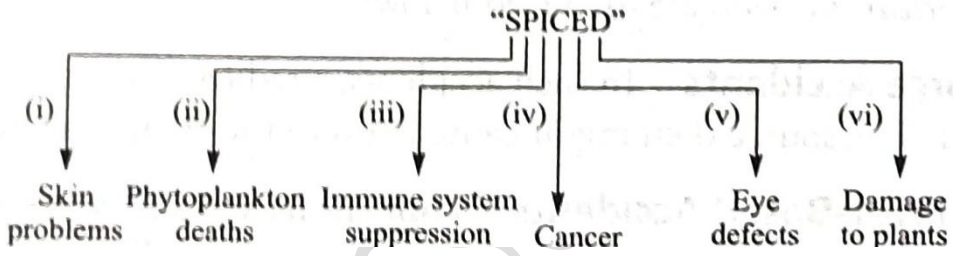


Fig. Problems associated with Ozone-layer depletion

(i) Swelling of skin and skin cancer; skin aging, burning sensation

(ii) Death of phytoplankton in marine environment (the sole producers) leading the entire ecosystem to collapse.

(iii) Reduction in the body's ability to fight off disease, as UV suppresses the immune system; premature aging.

(iv) Inhibition and alteration of DNA replication and formation of DNA adduct; leukemia, breast cancer.

(v) Visual impairment, dizziness, cataracts of eyes

(vi) Damage to plants; reduction in crop yields; faster deterioration of paints, fabrics, plastics

Remedial Measures to Control the Depletion of Ozone Layer

- Avoid any fire extinguisher that contains bromine-based halons. Preferably use water, carbon dioxide or dry chemical fire extinguishers.
- Spread awareness about the restricted use of CFCs for the healthy survival ofmankind.
- Avoid purchasing and using refrigerators, air conditioners, etc., which use CFCs, freons, etc., as coolants.
- Avoid purchasing and using pressurized aerosol cans which use CFCs, freons, etc., as propellants.
- Ban atmospheric nuclear explosions, as they emit NO' and deplete the ozone layer.
- Reduce the air traffic of supersonic aircrafts that fly at the ozonosphere altitude, as they release large amounts of NO® and deplete the ozone layer.
- Facilitate advanced research to plug the ozone holes that have already beenformed.

Scarcity (as UNDP estimates)

Due to climate change effects, an additional 600 million people will face food shortages and malnourishment in the coming years, and 1.8 billion will struggle to find water.

Many environmental problems arise from the abuse, misuse and overuse of natural resources by humans. The world is heading for an environmental disaster, and humans do not want to see, hear, or talk about it. If it continues, humanity will no longer be able to co-exist with nature.

Development activities are necessary for humans in order to enhance the quality of life and fulfill the needs of a fast-growing population. However, it should be done in such a manner that natural resources are not exploited. Developments must meet present needs without compromising the ability of future generations to meet their own needs. Thus, it is essential to learn about the causes and effects of current environmental issues of importance so that innovative solutions can be implemented.

Sustainable Development

Sustainable development means meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable development is a continuous process. To be sustainable is a constant challenge for humanity. The pillars of sustainable development are the following:

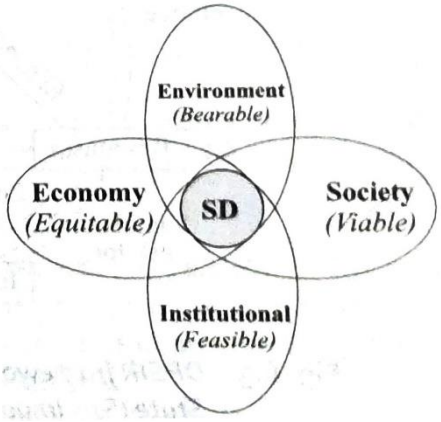


Fig. Pillars of Sustainable development

- Human and social capital, their culture and knowledge constitute social pillar.
- Nature, biodiversity or natural capital constitute environment pillar.
- Money, goods or man-made capital constitute economic pillar.
- The actions of governments to implement sustainable development in their policies are considered the institutional pillar.

Social development, economic development and environmental protection are equivalent objectives of sustainable development. These are illustrated in fig. Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity,

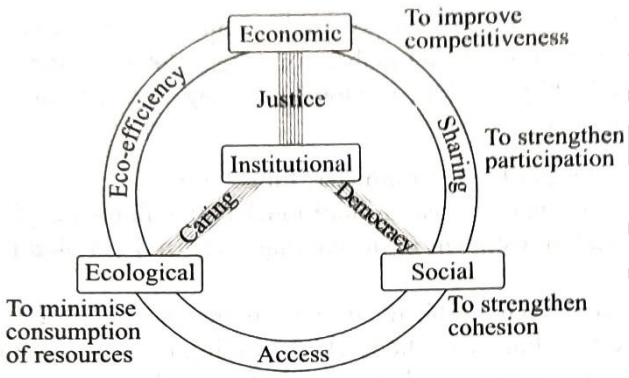


Fig. Objectives of Sustainable Development

Urbanization

From country to country, the definition of urban varies widely. Some countries distinguish between urban and rural based on

- Size or density of localities
- Percentage of persons who are not dependent on agriculture
- Administrative considerations (only major cities are classed as urban)

An urban area means a town or a city plus its adjacent suburbs with a population of more than 2500 people. In contrast, a rural area means an area with less than 2500 people and less building.

Urban areas grow in two ways:

- Natural increase of its population by births
- Immigration, mostly from rural areas (this is the biggest cause of urban growth]

Urbanization is defined as movement of people from rural to urban areas with population growth equating to urban migration or it can also be defined as the physical growth of urban areas as a result of global change.

Cities with populations greater than 10 million people are known as megacities. For the first time in history, more than half of the world's population is living in towns and cities in 2008. This number will swell to almost 5 billion by 2030, with urban growth concentrated in Asia and Africa.

Causes of Urbanization

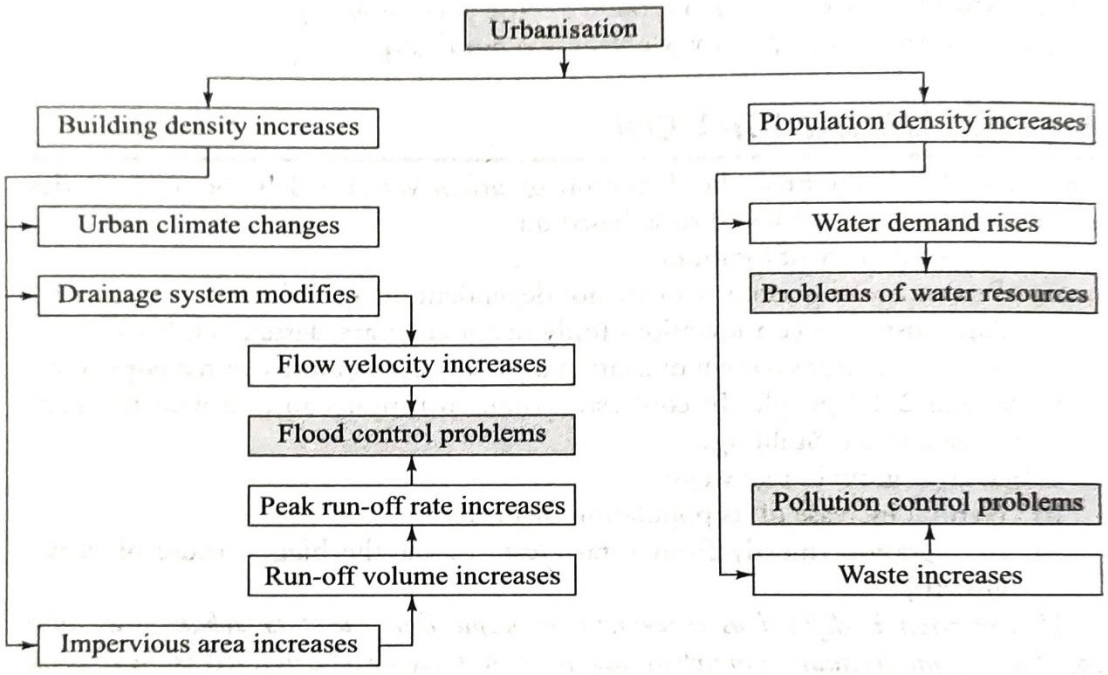
People move from rural areas to urban areas because cities offer more favorable conditions for the resolution of environmental and social problems than rural areas. A few specific reasons for urbanization are summarized below:

- People move into cities to seek jobs and income.
- With good governance, cities can deliver education, health care and other services more efficiently than rural areas.
- Cities provide opportunities for women's empowerment and social mobilization.
- Density of urban life relieves pressure on areas of biodiversity and natural habitats.

- It is through cities that foreign money flows into a country (whether the source is tourism or trade).
- Restaurants, movie theaters, theme parks and other varieties of entertainment are available in cities.

Drawbacks of Urbanization

Often people who leave rural areas to find better jobs in the city have no choice but to settle in slums, where they lack access to decent housing, drinking water, sanitation, health care and education.



Drawbacks of urbanization

1. Crimes - Chances of robbery, murder, assault, etc., increases with unplanned urbanization. Poverty Urban heat island
2. Poverty - Poverty is growing faster in urban than in rural areas. One billion people live in urban slums, which are typically overcrowded, polluted and

dangerous. Urban areas are not self-sustaining. They survive only by importing food, water, energy, etc. However, they also produce large quantities of waste.

3. Urban Heat Island As urban and industrial areas are developed, the majority of the sun's energy is absorbed by urban structures and asphalt. Thus, during warm daylight hours, less evaporative cooling in cities allows surface temperatures to rise higher than in rural areas. Additional city heat is given off by vehicles and factories as well as by domestic and industrial cooling and heating units. This effect causes the city to become 1 to 6°C warmer than surrounding landscapes. The urban heat island has become a growing concern and is increasing over the years. Urbanization is also responsible for pollution (air, water, noise, etc.) and traffic congestion.

Positive Environmental Effects of Urbanization

Some positive effects of urbanization are the following:

- Prevention of overpopulation in future is possible because the birth rate of new urban dwellers falls immediately to the replacement rate, and keeps falling.
- Spending per person on environmental protection is higher in urban areas.
- Urbanization puts a stop to slash and burn agriculture and other destructive subsistence farming techniques.
- Recycling is more feasible economically because of large concentration of materials.
- It minimizes land use by humans, leaving more for nature.

Water Conservation

Water conservation is the practice of using water efficiently to reduce unnecessary water usage. According to Fresh Water Watch, water conservation is important because fresh clean water is a limited resource, as well as a costly one. As a homeowner, you're probably already well aware of the financial costs of inefficient water use. Conservation of this natural resource is critical for the environment.

Rainwater harvesting means collecting rainwater and storing/conserving it for a later use. There are two main methods of rainwater harvesting:

- Storage of Rainwater on the Surface for Future - Use In traditional water-harvesting structures like artificial lakes, ponds, etc., is used as such or after proper revival.
- Recharge of Ground Water -The structures used for recharge of ground water are as follows:
- Hand Pumps - The water should pass through a filter bed before percolation in existing hand pumps. They are used for recharging aquifers.
- Pits - They are 1-2 m wide and 3 m deep. They are also back filled with gravel and coarse sand to aid filtration before percolation to the ground. They are used for recharging a shallow aquifer.
- Dug Wells - The rain water, after filtration, is put into existing dug wells for storage.
- Roof-Top and Road-Rop Collection of Rainwater In urban areas, these methods are very useful to recharge aquifers.

Resettlement And Rehabilitation Of People

Resettlement refer to the process of settling again in a new area. Rehabilitation means restoration to the former state.

The displacement or the involuntary and forced relocation of people is the most significant negative impact of many development projects such as power plants, oil refineries, fertilizer and chemical industries, river-valley projects, dams, reservoirs and mining. This involuntary movement of people from one place to another, for resettlement, gives rise to the following problems:

(A) Economical Problems

- Compensation is awarded only to real owners of property taken for developmental projects. Tenants, wage laborers, artisans and encroachers are not considered eligible for compensation but ironically they are the most vulnerable and in need of support.
- Families are forced to face long-term hardships.
- Under the acquisition process, community assets and common resources like grazing grounds and forests are not compensated. But these areas were critical for the livelihood of the poorest.
- Sources of income are lost or ruined or jeopardized,
- The resettlement cost is generally underestimated and under-financed. Whenever the development project runs into financial problems, mostly the resettlement and rehabilitation budget is reduced.
- Most programmes have failed to facilitate self-employment in critical areas of employment, skills and capacity building.

(B) Social Problems

- Social networks are disturbed.
- Large families and communities are broken up and resettled over a wide area.
- Poor people are transplanted from a social ecology in which they were primary actors to one in which they are aliens. Such people are very vulnerable and forced to become underclass members of a new socio-cultural milieu. Traditions are weakened. Cultural identity is lost.
- Generally, participation of the victims has been superficial or treated as unimportant by those responsible for the development project.

(C) Educational, Psychological and Environmental Problems

- Effective resettlement is never ensured nor implemented because of institutional weaknesses, confusions between various departments, absence of policy, absence of legal instruments and absence of an effective mechanism to monitor compliance. All these result in
    - Interruption of education of children
    - Separation of joint families resulting in psychological tensions among members of the family
    - Unemployment, debt bondage, hunger
- Resettlement sites are not selected with respect to availability of livelihood opportunities.

- Planning time for most of the projects is long.

(D) Rehabilitation and Resettlement Concerns

Rehabilitation should be visualized as a process that would reverse the risks of resettlement. The objective of the Ministry of Rehabilitation and Resettlement (Government of India) is to transfer the benefits, in lieu of the losses occurred to displaced people due to involuntarily displacement. This objective may be ensured by implementing the following policies:

- To keep them intact in a family or community in which they were settled prior to being displaced.
- To provide them essential infrastructure such as health, schooling and credit in resettlement sites
- To govern the displacement process by laws for avoiding possible problems, to create new rights for them that will enable them to directly share the benefits of the development project and to provide adequate compensation
- To relocate them to a locality of their preference
- To provide them increasing incomes through opportunities of employment and livelihood, to provide them opportunities for the enhancement of capabilities and to improve their standard of living
- To give them proper participation and choice for their resettlement and rehabilitation.
- To provide them social infrastructure and community services

Acts for Environmental Protection

Paul Bigelow Scars once said, “How far must suffering and misery go before we see that even in the day of vast cities and powerful machines, the Earth is our mother and that if we destroy her, we destroy ourselves,"

So, we should act today for a better tomorrow. Adopt a strategy (like outlined below) for environmental protection, Government, industry, public and law must have only one goal, víz, environment protection.

- Industry Replace nonrenewable inputs in energy with renewable ones.
- Government Educate and involve all in environmental protection drive. They must act together to fight corruption in government and ruthless exploitation by the industry.
- Public Consume less, share more, control population and reduce pressure on natural resources.
- Law Take help from law, if needed, for protection of our environment.

Role of Government and Legal Aspects in Environmental Protection

A) Government Increased government intervention is a must for solving environmental problems because of the following reasons:

1) The world is facing very serious environmental problems like loss of biodiversity, global warming, water pollution, air pollution, etc,

2) The world is facing increased probabilities of natural disasters due to global

Warming.

3) The health of millions of people is at risk if companies are left free to sell their products, vehicles, etc., just for profits. This is because we are exposed to thousands of chemicals a year, many of which interact in ways that are not yet fully understood.

(B) Legal Aspects The Ministry of Environment and Forests (MoEF) in India is the apex administrative body for

1) undertaking conservation and survey of fauna, flora, forests and wild life;

2) formulating the environmental policy framework in the country:

3) planning, promotion, co-ordination and overseeing the implementation of environmental and forestry programmes; and

4) regulating and ensuring environmental protection.

The responsibility for prevention and control of industrial pollution is primarily executed by the Central Pollution Control Board (CPCB) at the central level which is a statutory authority, attached to the MoEF.

Environment (Protection) Act, 1986

It is the umbrella legislation which authorizes the Central Government to

i) protect and improve environmental quality,
ii) control and reduce pollution from all sources, and
iii) restrict or prohibit the selling and/or operation of any industrial facility on environmental grounds.

According to the Act, the term "environment" includes water, air and land and the inter-relationship which exist among and between water, air, land, human beings, other living creatures, microorganisms, plans and property. The main provisions of the Act are given below:

(i) The Central Government shall have the power to take all such measures as it deems necessary or useful for the purpose of protecting and improving the quality of the environment and preventing, controlling and decreasing environmental pollution.

(ii) No person carrying on any industry, operation or process shall discharge or emit any environmental pollutants or permit to do so in excess of such standards as may be prescribed.

(iii) No person shall handle or cause to be handled any hazardous substance except in accordance with such procedure and after complying with such safeguards as may be prescribed.

(iv) The Central Government or any officer empowered by it in this behalf, shall have power to take, for the purpose of analysis, samples of air, water, soil or other substance from any premises, factory, etc., as may be prescribed.

(v) The Central Government may, by notification in the Official Gazette, establish one or more environmental laboratories; and recognize one or more laboratories or institutes as environmental laboratories to carry out the functions assigned to an environmental laboratory under this Act.

(vi) Whoever fails to comply with or violate any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each

such failure or violation, be punishable with imprisonment or with fine or with both.

Air (Prevention and Control of Pollution) Act, 1981

This is an act to provide for the prevention, control and reduction of air pollution in the country so as to preserve the quality of air.

The salient features of the Air (Prevention and Control of Pollution) Act, 1981 are given below:

i) Act is applicable to the whole of India

ii) Under Section 19 of the Act, the State Government in consultation with the State Pollution Control Board (SPCR) has the power to declare Air Pollution Control Area, in which provisions of the Act shall be applicable

iii) As per provisions in Section 21(1) and (2), no person can establish or operate any industrial plant without the previous consent of the State Pollution Control Board.

iv) Under Section 22, 22(A) operating any industrial plant so as to cause emission of any air pollutant in excess of standard laid down by the State Board is liable for legal action by the Board.

(vi) Under Section 2(a), the term air pollutant is defined as any solid, liquid or gaseous substance present in the atmosphere in such concentrations as may be or tend to be injurious to human beings or other living creature's or plants or property or environment.

Wildlife Protection Act, 1972

(A) Objectives. The objectives of the Wildlife Protection Act are :

i) To maintain essential ecological processes and life-supporting systems;

ii) To preserve biodiversity; and

iii) to ensure protection and conservation of wildlife.

(B) Salient Features

i) Under Section 3, the appointment of Director, Chief Wildlife Warden and other officers is done by the Central Government.

ii) Under Section 6, Wildlife Advisory Board is constituted by the State Government or the Union Territory Administration. Under Section 7, the Wildlife Advisory Board shall meet at least twice a year.

iii) The duties of the Wildlife Advisory Board, under Section 8, are to advise the State Government about

a) The selection of areas to be declared as.

- National parks under Section 35,
- Sanctuaries under Section 18, etc.

b) The formulation of the policy for protection and conservation of wildlife and specified plants

(c) The measures to be taken for harmonising the protection and conservation of wildlife with the needs of the tribal's and other forest dwellers

(iv) Under Section 44, the Act prohibits dealing in animal articles without licence.

(v) Under Section 38 A, the Central Government shall constitute the Central Zoo Authority which has various roles or functions as described in Section 38 C.

Forest (Conservation) Act, 1980

In 1980, the Forest (Conservation) Act was enacted for providing protection to forests and to regulate diversion of forestlands for nonforestry purposes.

Carbon Credits

i) An industrial house needs to meet its pollutant emission limit.

ii) The industrial house invests in carbon offsets (either directly or usually through an offset provider). It means, the industrial house invests in an emission reduction project outside of its sector. Carbon-offsets programs can include

- Renewable energy-sustainable development projects,
- Reforestation projects
- Methane capture combustion projects

iii) The Industrial house receives carbon credits for its investment in the form of a carbon-offset certificate.

One carbon credit = one tonne of greenhouse gas emission reduction

Benefits of Carbon-Credits Concept

i) Global warming reduction

ii) Desertification reduction

iii) Environmental awareness

iv) Biodiversity protection

v) Reforestation

Initiatives and Roles of Nongovernmental Organisations (NGOs) In Environmental Protection

Privately owned organizations involved in providing financial and technical costume to less developed countries are known as Non Governmental Organizations (NGO).

They have no participation or representation of any government. An NGO is any nonprofit, voluntary citizen's group which performs a variety of services and humanitarian functions.

Functions and Advantages of NGOs

i) They are good at reaching and mobilising the poor and remote communities;

ii) They work with and strengthen local institutions

iii) They help empower poor people to gain control of their lives by counseling, support service, training, micro-credit, etc.

iv) They carry out projects at lower costs and more efficiently than government agencies.

v) They promote sustainable development, through economical development, social development and environmental protection,

vi) They do funding of projects.

vii) They help in critical analysis of social environments.

Roles of NGOs in Environmental Protection

i) NGO's help in increasing local economic diversity.

ii) They help in development of local markets, local production, local processing of previously imported goods, and greater cooperation among local economic entities. Thus, they help on attaining self-reliance.

iii) They educate people on reduction in the use of energy and careful management with recycling of waste products.

iv) They educate and motivate local people to protect and enhance biological diversity. They make them understand careful stewardship of natural resources.

v) They give commitment of the sustainable communities to social justice.

NGOs, through some programmes and functions such as microfinance, capacity building and self-reliance, help communities to be empowered and finally contribute towards environmental protection.

Issues Involved In Enforcement of Environmental Legislation

Regulatory measures in the form of legislation check environmental degradation. They also lead to the enacting of laws at the national or international levels to prevent pollution. To protect the environment, the role of the judiciary lies in formulation and enforcement of effective laws. The judiciary alone cannot improve the environment unless the states and citizens do their duties and obligations. Some important issues in the enforcement of environmental legislations are given here.

i) Public Apathy In contrast with conventional crimes such as rape, murder, etc., pollution is treated as a white-collared crime. While conventional crimes are always taken seriously, the crime of pollution is generally taken for granted.

ii) Limitations of Regulating Agencies

Poaching It is a big national problem despite the existence of the Wildlife Act. The Wildlife Department has no provision to punish poachers and unauthorized

hunters unless they are caught red handed. In case they are caught, the standard excuse given by armed poachers is that they carried guns for self-defence from dangerous wild animals.

Water Pollution The chairman of the state pollution control board is the key person for the enforcement of the Water Act, 1974. He/she should be professionally qualified and appointed on a full-time basis. However, several State Pollution Control Boards are headed by part-time chairpersons without requisite qualifications and experience.

iii) Legal Loopholes

a) The legal provision for penal action against the polluters requires that the State Pollution Control Board has to file a case before the lower court for action against a polluting unit. However, the lower courts are too busy to devote enough time for environment-related litigations.

b) For prevention of pollution, a provision is available for a citizen to approach a court. For this, the citizen is required to give a notice of not less than 60 days to the government, of his/her intention to make a complaint. If the government does not act on the notice, then only the citizen can go to the court. Thus, this exercise would give the culprit a period of at least 60 days to clean up all traces of its offence and prepare itself for sample collection.

c) The Factories Act, 1948, is an important legislation which provides for certain measures with respect to the industrial safety, health of the workers and welfare measures. However, safety standards and maintenance procedures at various industries are not maintained.

iv) Lack of Knowledge While urban citizens cry for stopping pollution and consumerism from one side, they watch television, see advertisements, purchase new vehicles, gadgets, luxury items and cosmetics whose ecological footprints are large. These urban citizens unknowingly became creators of pollution.

v) Lacuna in Implementation Pollution Control Boards cannot take action against municipal corporations or other civic bodies because they are not empowered to do so. These Pollution Control Boards are empowered to stop industrial water pollution but they cannot fight with rich industrialists. Thus, the public is forced to suffer from use of polluted water.

vi) Intellectual Indifference in the Environment Protection Act, all power and authority is reserved in the hands of the Central Government. For the efficient execution of the provisions of the Act, this excessive centralization is a major burden.

viii) Poverty Affordable food, shelter, clothing, medicine and minimum education for their children are the high priority necessities of the poor. They do not have enough money to practice environmental conservation strategies used by the rich, they exploit the environment to generate income. For growing crops, they encroach watershed areas. They live in slums as they cannot afford proper sanitation and waste treatment. They can only purchase cheaper products made in factoring where proper pollution control devices are lacking. Thus, survival activities of the poor indirectly contribute to environmental degradation.

Environment and Human Health

Resource depletion, waste generation, disturbance of ecosystems, consumerism, discharge of air or water pollutants, etc., are some of the human activities which have continuously been changing our environment. As a result of this, human health has been adversely affected. The following facts are indicators which support that *health is an outcome of the interactions of humans with their environment:*

i) Due to exposure to the air pollutants released by industries, motor vehicles, smoking, etc., humans suffer from serious respiratory diseases such as tuberculosis and lung cancer.

ii) Due to consumption of impure water, cholera, typhoid, diarrhea, dysentery, etc., are caused.

iii) Due to contamination of water through harmful pesticides, cancer, infertility and neurological diseases are caused.

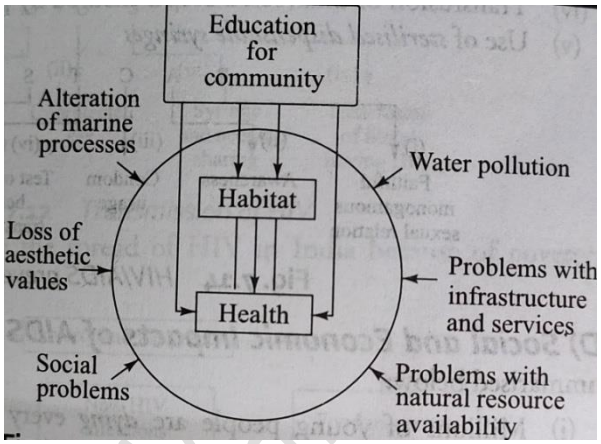
iv) Due to scarcity of water and consequent unhygienic conditions, tuberculosis, tetanus and leprosy are caused.

v) Due to stagnant water, mosquitoes breed and spread malaria.

vi) Due to high-rise buildings, visual pollution and mental strain is caused.

vii) Due to untreated human excreta, several kinds of virus and bacteria grow which give rise to diseases like cholera, typhoid, jaundice, diarrhea, etc.

Environmental Education



Community-based environmental education helps in building knowledge and skills. Alteration It also helps in building an infrastructure for change that processes is sustainable, equitable and empowering. The simplified Loss of framework is illustrated in Fig. It shows that community based environmental education is capable of protecting health and habitat from the various problems existing in the world.

Challenges

In India, the development and environmental protection challenges are enormous due to the following reasons:

i) Poverty It is a big challenge in reaching out to large population cost-effective because financial sources are very limited.

ii) Increasing Population India's annual population increase is equal to population of Australia.

iii) Less Land With about 16% of the world population and a little over 2 its land, there is already enormous pressure on our resources.

iv) Low Literacy Levels The environmental educators face many challenge to, spread awareness regarding conservation and environmental management

v) Low Awareness Poor Indian citizens have low or no awareness where importance of environment.

vi) Less Resources and Corruption Putting environmental education on the agenda of educational decision makers and policy makers is also a big challenge primarily because of less resources and more corruption.

vii) No Applicability of Global Solutions The environmental educators face difficulties in meeting the objectives of effective and local specific environmental education because environmental conditions and environmental concern vary from one region of the state to another.

Environmental Education and Its Focuses

Environmental education refers to organized efforts to teach how natural environments function and how people can manage their behavior and ecosystems in order to live sustainably. Environmental education focuses on efforts to make the world a heaven like Kashmir is in India:

i) Increasing people's awareness and knowledge about the environment and environmental challenges

ii) Developing necessary skills and expertise to address the challenges

iii) Fostering attitudes, motivations, and commitments to make informed decisions and take responsible action for solving environment-related problems

Role of Environmental Education for Environment Protection

Environmental education is a process of recognizing values and clarifying concepts in order to develop skills and added tools necessary to understand and appreciate

the inter-relationship among humans, their culture and their biophysical surrounding. It is through this process of education that people can be sensitized about environmental issues. Awareness and understanding of environmental issues help in practicing right actions needed for development that meets the needs of the present.

Role of Information Technology In Environment And Human Health

Applications of IT in the Environment

Some of the important applications of IT in the field of environment and ecology are listed below:

i) Weather forecasting through Geographical Information System (GIS) agricultural production, water resource management, etc.

ii) Exploring the possible availability of crude oils, gold mines, metal ores, geothermal power sources, etc., using Remote Sensing Information system (RSIS). Optimum selection of sites for railways or industry, biodiversity conservation by mapping and monitoring various natural resources - flora and fauna

iii) Disaster management in calamity-hit areas by extracting information monitoring of environmental pollution through remote sensing.

iv) Simulation of environmental scenarios for analysis, prediction, decision making and development activities. Collaboration, communication and coordination among environmental scientists for decision-making.

Applications of IT in Human Health

Some of the applications in which IT is playing an important role for better human health are listed below:

i) Information on health, epidemics and their prevention is maintained on web sites of the World Health Organization.

ii) Through electronic media; dengue fever, bird flu and other epidemics are brought to the attention of people.

iii) Dates of immunization and sanitation programmes are transmitted to public using television, computers, satellite communication, etc. Bioinformatics is used in the Human Genome Project (HGP) to create a map of the entire set of genes (genome) in the human cell by decoding the three billion units of human DNA.

iv) Help and expert opinion can be obtained from expert doctor of any part of the world through telemedicine.

v) Health training is imparted using satellite communication system