

## UNIT-V HUMAN POPULATION AND ENVIRONMENT

### **Population Growth**

Recent years have witnessed a great deal of degradation in environment. As a result of development the growth of population is increasing. The increasing demand of increasing population has forced the man to over exploit the natural resources. Man has been living on the earth for the last 2 to 3 million years. The population of world was about 500 million in 1650 A.D. It has increased to 1000 million (One Billion) around 1820. It was 2 billion in 1927. The third was obtained in the next 33 years i.e. in 1960. The world population became 4 billion in the next 16 years (in 1976). The 5<sup>th</sup> billion was added in short span of only 11 years. On 11 July 1987 the world population became 5 billion and July 11 was declared World Population Day. At this rate the world population reached 6.3 billion by the end of 2000. Presently the world population has crossed 7 billions.

In the beginning of the present century advances in medicines brought a drop in death rate. The death rate dropped as a consequence of improved obstetrical services progress in sanitation and hygiene. In many countries programmes for combating epidemic and infectious diseases were implemented. Invention in life saving drugs control over many diseases, improved public health services are responsible for a sharp decline in death-rates.

### **Indian Scenario**

On the basis of population growth rate, the growth can be classified in three periods.

- 1) Upto 1921: This is called **stagnant period**. Though the first census took in 1881, India recorded a population of 252 million in 1911 and 251 million in 1921. This period recorded irregular growth. The population increased by only one million in 40 years. The reasons were famine, plague, cholera, malaria, and world war-I. More than 10 million people died on account of famines and malaria.
- 2) 1921-1951: This is a **period of moderate growth**. During this period the population increased steadily at a moderate growth rate. The population increased by 100 million in these 30 years. As there is an out break of world war-II, famines and poverty but the population reached 361 million by the end of 1951.
- 3) 1951- To date: This is called a **period of rapid increase in growth rate**. The population increased to 429 million in 1961 and slowly it has increased and attained one billion on May 11, 2000. Major reasons for this rapid growth rate are rapid development in all spheres i.e. urbanization, industrialization, agriculture, transport, medical facilities.

### **Family Welfare Programme**

The family welfare programme not only covers family planning to contain population growth but also extends welfare measures to children, women, the aged, handicapped and less privileged to provide food, shelter education, medical and developmental assistance so as to protect them from hunger, poverty, undernourishment and underdevelopment which are the consequences of population growth and overexploitation of natural resources and the environment. This is a high priority area in India.

The objective of the national Family Welfare Programme, launched in 1951 in India has been reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the national economy. In the first two Five Year Plans a 'clinical' approach was adopted to family welfare by providing facilities of services. In the subsequent plans, based on the 1961 census report, the extension and education approach of family welfare through expansion of services along with the message of a small family has been adopted.

### **Family Planning**

To save the earth and sustain its fast depleting resources for future generation's, population control is extremely important. While global environmental change cannot be stopped the pace can be slowed and we may be able to reduce environmental damage and risk markedly, by prudent policy actions. Family planning programmes provide educational and medical services which help couples choose the size of their family and the timing of starting one. The size of the family is smaller in educated and economically better-off families. Illiteracy and lack of education are associated with high rate of population growth in developing and underdeveloped countries including India.

Population can be effectively controlled with information on methods of birth control, distribution of contraceptives, information on sterilization and abortions and other family planning methods. Family planning has become very successful in China, Indonesia, Singapore, Hong Kong, Sri Lanka, Cuba, Thailand, South Korea and some other developing countries while it achieved moderate results in the countries of the Indian sub-continent and in Brazil, Nigeria and other developing and underdeveloped countries. The success of population control programmes depends on committed leadership, wide availability of contraceptives and family planning services, suitable implementation methods specific to social and cultural characteristics, the role of print and electronic media to propagate sex education, level of education and wealth in the society.

### **Human Rights**

On December 10 1948 the General Assembly of the UN adopted and proclaimed the Universal Declaration of Human Rights. Following this historic act the Assembly called upon all members countries to publicize the text of the Declaration and 'to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction based on the political status of countries or territories'. Recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world.

Disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people. It is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law. It is essential to

promote the development of friendly relation between nations. The people of the UN have in the Charter reaffirmed their faith in fundamental human rights, in the dignity and worth of the human person and in the equal rights of men and women and have determined to promote social progress and better standards of life in larger freedom.

Member States have pledged themselves to achieve, in co-operation with the UN, the promotion of universal respect for and observance of human rights and fundamental freedoms. The general assembly proclaims this universal declaration of human rights as a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and by progressive measures, national and international to secure their universal and effective recognition and observance, both among the peoples of Member States themselves and among the people of territories under their jurisdiction.

#### Article 1

All human beings are **born free and equal in dignity and rights.** They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

#### Article 2

**Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.** Furthermore, no distinction shall be made on the basis of the political jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty.

#### Article 3

Everyone has the **right to life, liberty and security of person.**

#### Article 4

**No one shall be held in slavery or servitude;** slavery and the slave trade shall be prohibited in all their forms.

#### Article 5

No one shall be subjected to **torture or to cruel, inhuman or degrading treatment or punishment.**

#### Article 6

Everyone has **the right to recognition everywhere as a person before the law.**

#### Article 7

**All are equal before the law and are entitled without any discrimination to equal protection of the law.** All are entitled to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.

#### Article 8

Everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law.

#### Article 9

No one shall be subjected to arbitrary arrest, detention or exile.

#### Article 10

Everyone is entitled in full equality to a fair and public hearing by an independent and impartial tribunal, in the determination of his rights and obligations and of any criminal charge against him.

#### Article 11

- a) Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to law in a public trial at which he has had all the guarantees necessary for his defense.
- b) No one shall be held guilty of any penal offence on account of any act or omission which did not constitute a penal offence, under national or international law, at the time when it was committed. Nor shall a heavier penalty be imposed than the one that was applicable at the time the penal offence was committed.

#### Article 12

No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, not to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

#### Article 13

- a) Everyone has the right to freedom of movement and residence within the borders of each state.
- b) Everyone has the right to leave any country, including his own, and to return to his country

#### Article 14

- a) Every one has the right to seek and to enjoy in other countries asylum for persecution.
- b) This right may not be invoked in the case of prosecutions genuinely arising from non-political crimes or from acts contrary to the purposes and principles of the UN.

#### Article 15

- a) Every one has the right to a nationality.
- b) No one shall be arbitrarily deprived of his nationality nor denied the right to change his nationality.

#### Article 16

- a) Men and women of full age, without any limitation due to race, nationality or religion, have the right to marry and to found a family. They are entitled to equal rights as to marriage, during marriage and at its dissolution.
- b) Marriage shall be entered into only with the free and full consent of the intending spouses.
- c) The family is the natural and fundamental group unit of society and is entitled to protection by society and the state.

#### Article 17

- a) Everyone has the right to own property alone as well as in association with others.
- b) No one shall be arbitrarily deprived of his property.

#### Article 18

Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, either alone or in community with others and in public or private, to manifest his religion or belief in teaching, practice, worship and observance.

#### Article 19

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

#### Article 20

- a) Everyone has the right to freedom of peaceful assembly and association.
- b) No one may be compelled to belong to an association.

#### Article 21

- a) Everyone has the right to take part in the government of his country, directly or through freely chosen representatives.
- b) Everyone has the right of equal access to public service in his country.
- c) The will of the people shall be the basis of the authority of government; this will shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret vote or by equivalent free voting procedures.

#### Article 22

Everyone as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State of the economic, social and cultural rights indispensable for its dignity and the free development of his personality.

#### Article 23

- a) Every one has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment.

- b) Everyone, without any discrimination, has the right to equal pay for equal work.
- c) Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection.
- d) Everyone has the right to form and to join trade unions for the protection of his interests.

#### Article 24

Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay.

#### Article 25

- a) Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, and housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.
- b) Motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, shall enjoy the same social protection.

#### Article 26

- a) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit
- b) Parents have a prior right to choose the kind of education that shall be given to their children.

#### Article 27

Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

#### Article 28

Everyone is entitled to a social and international order in which the rights and freedoms set forth in this declaration can be fully realized.

#### Article 29

Everyone has duties to the community in which alone the free and full development of his personality is possible.

#### Article 30

Nothing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein.

### **Value Education**

Values are not only with beliefs but also with our understanding, feelings and behaviour. Value education may be understood in a broad sense to mean all aspects of the process by which teachers transmit values to the students.

Ancient Indian education had always given importance to value components. The education up to eighteenth century involved study of scriptures and Upanishads which are essentially the discourses on morality, ethics and virtuosity. The value education was the pivotal concern around which other knowledge areas were developed. Later the influences of cultures from across the boundaries and British colonization brought about changes in the structure of society. The urban living replaced village symbiotic existence, joint family gave way to micro family and consequent changes sneaked into the educational system also. Apart from these developments, simultaneously growing influence of science and technology and consequent industrialization led to efforts aimed at strengthening of the education system by increasing inputs on science and technology. The efforts were successful. Green revolution, white revolution, self-sufficiency in steel production, etc and now spearheading the information technology are the supporting evidence. However in this process of modernization of education the emphasis shifted to economic and secular values. The education system lost its role as guardian of ethical and moral values. The efforts are continuing to reconstruct education to fulfill its role in preservation of the moral character of the society and to keep pace with the economic and technological developments.

Concerns felt in all echelons of the education system, about its role in promoting universal human values have resulted in affirmative action in this regard. The report of Parliamentary standing committee, on Human Resource Development, submitted to the Rajya Sabha and also laid on the table of Lok Sabha has emphasized Value Education. NCERT, being the apex organization in the area of school education has been identified as the National Resource centre for Value Education with a view to promoting value orientation of school education at all levels, elementary, secondary, senior secondary. A core group on value education has been formed for the centre. Value-based education has come to center-stage in recent efforts of the Government of India to reorient the education system. The National Resource Centre on Value Education (NRCVE) was set up at NCERT as an outcome of strategic planning to realize the objectives of value-based education at school stage in the country. The action towards setting up the centre began in September 1999. The goals and functions of the centre are to:

- Develop plans, programmes, and activities for value-orientation of school education;
- Design strategies for implementing the plans and programmers;
- Develop educational materials and other teaching aids;
- Document and disseminate information;
- Provide extension and consultancy services;



- Serve as a treasure house cum reference library of educational materials.

Realization of these goal and functions is the joint venture of different constituents of the NCERT including the Regional Institutes of education, Ventral Institute of Educational Technology and Pandit Sunder Lal Sharma Central Institute of Vocational Education.

The values that can make human life valuable, elevated, successful and beneficial are the life values. These values were born with humanity itself and are eternal, immortal and ever-lasting. The major objective of value education is to include good values as an individual to lead a life as a responsible future citizen of India having a feeling of universal brotherhood. The role of the teacher is very crucial in the process of value education. If the teacher performs these roles with his heart and soul in it, he will automatically be responsible for the effective implementation of value education. Considering the above mentioned need, the training of teachers in this direction becomes very essential.

### **Women and Child Welfare**

Women and children have an important role in the family of every society. Both are pivotal for every family and occupy a special position. Women have always been treated badly such as proper nutrition and education and have been forced to be dependent on men for every small requirement. Children are the future of any country and they need to be given proper facilities so that they can develop properly and completely. To ensure better development of women and children the following needs have to be met:

1. Nutritious food
2. Proper education
3. Healthy environment

### **Strategies for women welfare**

In order to strength the role of women in the society only social welfare measures is not required but they must be accompanied with creation of helpful conditions at workplace, family and society as a whole, under which women can function efficiently and contribute more to the development of the society.

To achieve an atmosphere in which women can acquire equal status, it is necessary to evolve a strategy to create awareness in the society regarding women's role responsibilities and rights. With this view in mind, the Government of India established the Development of Women and Child development in 1985 as a part of Ministry of Human Resource Development. This department has four autonomous organizations:

- National Commission of Women
- Rashtriya Mahila Kosh
- Central social welfare board.

The development encourages the pursuit of economic independence of women and supports women and girls facing situations of abuse by providing them with the basic necessities of shelter and rehabilitation, it also provides financial assistance to voluntary organizations, local bodies and cooperative institutions, state governments etc., to construct hostels for working women, crèches for children below the age of five years, short-stay homes for women and girls for the convenience of women.



It organizes innovative programmes for women such as welfare and support services, training for employment and income generation, awareness generation and gender sensitization. The following is the list of important laws and rules in India to safeguard the interests of women.

- The protection women against sexual harassment at workplace bill, 2007
- Protection of women from domestic violence act, 2006
- Dowry prohibition act, 1961

### Strategies for Child welfare

Children are considered to be the assets of a society. Around 20 million children in our country are estimated to be working as child labours in some of the hazardous like the match industry, firework industry, and brassware and pottery industry. Poverty is the main reason to drive these children into long hours of working in miserable, unhealthy conditions, and yet they do not get proper or minimum nutrition food.

The UN general assembly in 1959 adopted the declaration of the Rights of a child. It became International law in the year 1990.

The law defines-right of the child to survival, protection, development and participation.

- Right to survival emphasizes on adequately good standards of living, good nutrition and health.
- The right to protection means freedom from exploitation, abuse, inhuman treatment and neglect.
- The right to development ensure access to education early childhood care and support, social security.
- Right to leisure and recreation.
- The right to participation means freedom of thought conscience and religion and appropriate information to the child.

Universalisation of effective access to at least primary level schooling, special emphasis on girl child's education including health and nutrition, up gradation of home-based skills, mid-day meals scheme expansion of early childhood development activities including low-cost family based involvements are some of the important actions envisaged.

### HIV/AIDS

The symptoms of AIDS result from the development of infections that normally do not occur in people with healthy immune systems. Many of these infections are caused by bacteria fungi, virus, etc. In normal people, these infections are controlled by the immune system, but in HIV-infected persons, the immune systems is rendered ineffective and is damaged by HIV, which also affects almost all organs and may also cause various cancers such as Kaposi's sarcoma, cervical cancer, and lymphomas. Infected people also develop certain opportunistic infections, which depend on the affected organs and also the geographical location of the infected person. The virus destroys the cells that are the primary infection fighters, called CD4+ or T4 cells. It also kills the B cells that are responsible for producing antibodies against an infection. Once the immune system weakens, a person infected with HIV can develop the following health disorders:

- Lack of energy
- Weight loss

- Frequent fevers and sweats
- Persistent or frequent fungal infections
- Persistent skin rashes or flaky skin
- Short-term memory loss

However, merely the presence of these symptoms does not indicate that the person is HIV positive. AIDS is the most advanced stage of HIV infection. SIDS refers to all HIV-infected people who have fewer than 200 CD4+ cells per micro liter of blood. People who develop AIDS suffer from the following disorders, although a person cannot be said to be suffering from AIDS merely because of the presence of these disorders:

- Cough, shortness of breath and pneumonia
- Seizures and lack of coordination, diseases such as toxoplasmosis, and AIDS dementia complex
- Difficult or painful swallowing
- Mental symptoms such as confusion and forgetfulness, severe meningitis with symptoms such as nausea, vomiting, fever and fatigue
- Severe and persistent diarrhea, abdominal cramps, and esophagitis
- Several malignant cancers such as Kaposi's sarcoma, lymphomas, etc.
- Other opportunistic infections that may present with symptoms such as weight loss, fevers, and fatigue, and may cause blindness and colitis.

### **Protection of oneself from HIV/AIDS**

Since there is no effective vaccine and no cure for HIV, the only way to protect one is prevention. Following are some of the measures that could prevent HIV infection:

- By having sexual intercourse with an HIV-infected person;
- By sharing needles or injection equipment with an injection drug user who is infected with HIV
- From HIV-infected women to babies before or during birth, or through breast-feeding after birth.
- HIV can also be transmitted through transfusions of infected blood or blood clotting factors.

### **HIV and AIDS in India**

India had a sharp increase in the estimated number of HIV infections, from a few thousand in the early 1990s to a working estimate of between 3.8 million and 4.6 million children and adults living with HIV/AIDS in 2002. With a population of over one billion, the HIV epidemics in India will have a major impact on the overall spread of HIV in Asia and the Pacific and indeed world wide.

The spread of HIV within the country is as diverse as the societal patterns between its different regions, states and metropolitan areas. In fact, India's epidemic is made up of a number of epidemics and in some places they occur within the same state. The epidemics vary from states with mainly heterosexual transmission of HIV, to some states where injecting drug use is the main route of HIV transmission. Both tracking the epidemic and implementing effective programs poses a serious challenge to the authorities and communities in India.

It would be easy to underestimate the challenge of HIV/AIDS in India. India has a large population and population density, low literacy levels and consequently low levels of awareness, and HIV/AIDS is one of the most challenging public health problems ever faced by the country.

### **Role of Information Technology in Environmental and Human health**

The understanding of environmental concerns and issues related to human health has exploded during the last few years due to the sudden growth of IT. It can do several tasks extremely fast, accurately and spreads the information through the world's networks of million of computer systems. A few examples of computer technology that aid environmental studies include software such as geographical information systems (GIS).

**GIS:** It is a tool to map land use patterns and document change by studying digitized toposheets and or satellite imagery. The internet with its thousands of websites not only assists scientists but is a powerful tool to help increase public awareness about environmental issues.

For the dissemination of environmental information to an increasing number of individuals and stimulate improved environmental management, efficient networking and the use of the latest technological developments will be major success factors.

**EIS:** Environmental information systems are a indispensable part of the environment department at any level of government. As the environmental situation is always changing as a result of human activities and some natural causes, it is very important to obtain accurately and timely the information on various environmental changes and take our action accordingly on a scientific basis. To do this, a support of modern information technology is needed. Environmental managers primarily need local or national data on specific sectors. For any national or local manager the amount of data available on the Internet that is directly relevant to his job is limited.

The most optimistic view on the internet claims that it may improve the interaction between people and institutions, permit better access to government by those governed, and greatly ease the general access to information. Particularly the educational process may benefit. Linking information spaces on the internet, opportunities exist to create local regional and national information highways, spanning across communities interacting within themselves, or with other regions. Linking together citizens, schools, libraries, newspapers and other information sources, local authorities and institutions, with outside connections, will create powerful infrastructures. Information technology has also been supporting policy making in natural resources management. Institutions in the African country of Uganda have been able to share experiences with their counterparts in other African countries in the development of plans of action in a variety of sectors. Where the prohibitive costs of physical travel to countries with experiences to borrow from would have meant proceeding in a vacuum, the technology has enabled organizations such as the Network for Environmental Programme (UNEP) the World

Meteorological Organization (WMO). The result has been the elaboration of natural resource management policies enriched by lessons learned from other countries.

Improving information technology is a way to improve the decision-making process to be more reliable and less risky in its results, because it would accelerate the way of making reliable information from ground measurements, and allow more transparency in the decision-making processes. Higher the communication capacity, higher the potential of humanity's sustainable development. Information technology gives powerful tools for sustainable development. The following is a representative list of applications of information technology in environment and human health.

- Environmental pollution (e.g. ground water pollution, marine pollution, forest destruction, etc.) monitoring using remote sensing and geographical information systems.
- Enabling environmental scientists and decision makers around the world to communicate, collaborate, and coordinate.
- Tracking study of wildlife with remote monitoring using technologies such as radio collars.
- Computer based modeling and simulation of environmental scenarios for analysis and prediction.
- Tele medicine and advanced diagnostic equipments to care for human health.

### **Wildlife Protection Act 1972**

This Act may be called the Wildlife (Protection) Act, 1972.

It extends to the whole of India, except the State of Jammu and Kashmir.

It shall come into force in a State or Union Territory to which it extends, on such date as the Central Government may, by notification, appoint, and different dates may be appointed for different provision of this Act or for different States or Union Territories.

This Act, unless the context otherwise requires, - “animal” includes amphibians, birds, mammals, and reptiles, and their young, and also includes, in the cases of birds and reptiles, their eggs, “animal article” means an article made from any captive animal or wild animal, other than vermin, and includes an article or object in which the whole or any part of such animal [has been used and ivory imported into India and an article made there from].

- “Board means the Wildlife Advisory Board constituted under subsection (1) of Sec.6;
- “captive animal” means any animal, specified in Schedule 1, Schedule II, Schedule III or Schedule IV, which is captured or kept or bred in captivity.
- “Chief Wildlife Warden” means the person appointed as such under C1. (a) of sub-section (1) of Sec.4;
- “Circus” means an establishment, whether stationary or mobile where animals are kept or used wholly or mainly for the purpose of performing tricks or maneuvers.
- “closed area” means the area which is declared to be closed to hunting.
- “Collector” means the Chief Officer in charge of the revenue administration of a district; “dealer” means any person who carries on the business of buying and selling any captive animal, animal article, trophy, uncurled trophy,

- “Director” means the person appointed as Director of Wildlife Preservation
- “licence” means a licence granted under this Act;
- “Live-stock” includes buffaloes, bulls, bullocks, camels, cows, donkeys, goats, horses, mules, pigs, sheep, yak and also includes their young.
- “National Park” means an area declared, whether under sec.35. or sec.38 or deemed, under sub-section (3) of sec.66. to be declared, as a National Park

### **The Forest (Conservation) Act 1980**

The Forest (conservation) Act, 1980 came into force with effect from October 25, 1980. Under the provisions of this Act, prior approval of the Central Government is essential for diversion of forest lands for the non-forestry purposes. In the national interest and in the interest of future generations, this Act, therefore, regulates the diversion of forest lands to non-forestry purposes. The basic objective of the Act is, to regulate the indiscriminate diversion of forest lands for non forestry uses and to maintain a logical balance between the developmental needs of the country and the conservation of natural heritage. The, guidelines have been issued under the Act from time to time, to simplify the procedures, to cut down delays and to make the /act more user friendly. To ensure this, recently, new rules under this Act have been framed and notified on 10/1/2003 by the Ministry of Environment and Forests.

The Act has succeeded in controlling the indiscriminate release of forest land for non forestry purposes. Prior to 1980, the rate of diversion of forest lands for non forestry purposes was about 1.43 lakh hectare per annum. But, with the advent of the Forest (conservation) Act, 1980, the rate of diversion of forest lands has come down to around 15000 ha. per annum and mostly diversions of forest land is allowed to meet the developmental needs for Drinking water projects, Irrigation projects, Transmission lines, Railway lines, Roads, Power projects. Defense related projects, Mining etc. For such diversions of forest lands for non forestry purposes, compensatory Afforestation is stipulated and catchment area treatment plan, wildlife habitat improvement plan, rehabilitation plan etc, are being implemented, to mitigate the ill effects of diversion of such vast area of green forests. To monitor the effective implementation of the compensatory Afforestation in the country, an authority named as “Compensatory Afforestation Management and Planning Authority (CAMPA) is being constituted at the national level. A monitoring cell is also being set up in the Ministry of Environment and Forests to monitor the movement of proposals at various stages and the compliance of the conditions stipulated in the forestry clearances by the user agencies.

### **The Water (Prevention and Control of Pollution) Act 1974**

The water act was enacted by Parliament Act, 1974 purpose to provide for the prevention of control of water pollution and the maintaining or restoring of wholesomeness of water. As on date, it is applicable in all the states of India.

Function of Central Board at the National Level

- Advice the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air.
- Plan and execute a nation wide programme for the prevention, control or abatement of water and air pollution.

- Co-ordinate the activities of the State Boards and resolve dispute among them.
- Provide technical assistance and guidance to the State Boards, carry out and sponsor investigation and research relating to problems of water and air pollution, and for their prevention, control or abatement.
- Plan and organize training of persons engaged in programme on the prevention, control or abatement of water and air pollution.
- Organize through mass media, a comprehensive mass awareness programme on the prevention; control or abatement of water and air pollution.
- Collect, compile and publish technical statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement.
- Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts.
- Disseminate information in respect of matters relating to water and air pollution and their prevention and control.
- Lay down, modify or annul, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air.
- Perform such other function as may be prescribed by the Government of India.

Some salient features of this Act are as follows:

- The assessing authority under the Act levies and collects cess based on the amount of water consumed by the industries; the rate is also determined by the purpose for which the water is used.
- The concerned industries are required to install standard water meters at such places as may be required by the concerned authority for measuring and recording the quantity of water consumed by the industry.
- Based on the cess returns to be furnished by the industry every month, the amount of cess is assessed by the assessing authorities.
- Aggrieved persons may appeal against the assessment to the Appellate Authority.
- The act also provides for an 25% rebate on the cess payable to those industries which consume water within the quantity prescribed for that category of industries and also comply with the effluents standards prescribed under the Water Act.

### **The Air (Prevention and Control of Pollution) Act 1981**

The Air (Prevention and Control of Pollution) Bill passed by both the house of Parliament received the approval of the President on 29 March 1981. It came into force on 16 May 1981 as Air (Prevention and Control of Pollution) Act 1981. It contains 7 chapters and 54 sections. The main features of this Act are as follows.

- Provision for constitution of Central Board for prevention and control of air pollution
- Provision for constitution of State Boards

- Persons carrying on industrial activities are not allowed to emission of air pollutants in excess of the standards laid down by the State Board
- Power to declare air pollution control areas and prohibition on use of fuel, appliances, and burning material other than those approved in such areas.
- Person empowered by the State Board shall have right to enter and inspect any place and take samples of air or emission and procedure to be followed in connection therewith
- Whoever fails to comply with the provisions of (restriction on use of certain industrial plants) or (persons carrying on any industry are not allowed to emission of air pollutants in excess of the standards laid down by the state board) or (power to give direction) shall be punishable with imprisonment for a term of one year and six months which may extend to six years and with a fine of RS. 5,000/-. If the failure continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which shall not be less than two years but which may extend to seven years and with fine.
- Provision of punishment for offences by the companies and offences by the government department
- Power of the State Government to supersede State Board in the public interest or other special circumstances
- Power of the State and Central Governments to make rules

### **The Environment (Protection) Act 1986**

After the Bhopal gas tragedy in 1984, a series of new environmental laws were enacted. Through the Environmental (Protection) Act 1986, the Central Government has acquired the following powers:

- Laying down standards for emission or discharge of pollutants from various sources and for environmental quality.
- Restricting area in which industries operation may or may not be carried out subject to certain safeguards.
- Laying down safeguards for the prevention of accidents and remedial measures in case of accidents.
- Procedures and protection for hazardous substance handling.
- Issuing directions to any person, officer or authorities for closure, prohibition or regulation in electricity or water supply or any other services.

This act also empowers a person to complain to the court regarding violation of the provisions of the Act after having given a notice of 60 days to the prescribed authorities. A violation of the Environmental Protection Act can face imprisonment up to five years and a fine of up to one lakh rupees.

### **Issues involved in Enforcement of Environmental Legislation**

Regulatory measures in the form of legislation check the degradation of the environment and lead to the enacting of laws at the national or international levels to prevent pollution. The role in protecting the environment lies in formulation and enforcement of effective laws to protect the environment.



The supreme court of India's judgment sanctioning US\$ 470 million towards compensation by the Union Carbide to the victims of the Bhopal gas tragedy is an example of what the judiciary can do to protect the environment.

The constitution of India has provisions to make environmental legislation. Much legislation has already been enacted to protect the environment. Judiciaries with their limited resources, try to enforce such laws. But the judiciary alone cannot improve the environment unless the states and citizens do their duties and obligations to protect and improve the environment.

For successful implementation of an environmental legislation, collection of relevant data, its processing and final submission to the enforcement agency has to be done honestly and effectively. Violation of any law or rule by an individual or institution has to be punished legally. Information must reach the law enforcement officials from the concerned person or people. If no cognizance is taken, the affected or interested person must file a Public Interest Litigation (PIL) for the protection of the environment. Thus, the general public must be careful of any irregular practice that is likely to have an adverse effect on our national environment.