

Unit 2

Man, Environment and Society

There has been life on earth for over one thousand million years. Mammals, the most evolved of all animals, which carry and nourish their young inside their bodies and give birth to them when they are fully developed, have been on earth for perhaps seventy million years. Man-ape appeared less than ten million years ago. But human beings who were no longer apes emerged only about less than one million years ago.

Man or Homo sapiens is a mammal with a fully modern brain capable of thinking and reasoning. Man evolved on the earth about a hundred thousand years ago. Considering the time scale of history of life on earth, his era has just begun. Yet in this short time on the earth, he has learnt to control, to a great extent, his own surroundings and the lives of other living things.

Bodies of other animals are rigidly set to one special set of circumstances. In the long process of evolution, they have adapted many times to circumstances. But their changes were slow, taking hundreds of generations to complete. However, man by means of his brain and hands, can adapt quickly to changing conditions, not by altering slowly the shape and size of his body, but by making use of the things which surround him.

Man's ancestor was the ape. Though they are similar in some ways, they differ greatly too, in many important respects. When man descended to the ground from trees, he had to depend on his brain to escape from enemies. For living, hunting and working together, speech developed first and then the language. Language gave man the ability to share thoughts and feelings. This resulted in the formation of society and civilization.

Society may be defined as a group of people occupying a specific locality who are dependent on each other for survival, and who share a common culture. The economic systems and the family relationships of people show how they depend on each other. Members of a society are

the wild plants and animals must be protected and that the water bodies must be kept clean.

How far he is putting these ideas, ideals and principles into positive action is what needs to be seen in the coming days. If man thinks that he is the lord of the creation and all things living and non-living have been created for his benefit, there is no escape for him from sure extinction. However, if he realizes that they are part of the same nature of which he is a part himself, that will be evolution of the human mind.

INDIVIDUAL'S RIGHTS AND RESPONSIBILITIES TOWARDS A CLEAN ENVIRONMENT

Rights go hand in hand with duties or responsibilities. Duty without rights is slavery; at the same time rights without duties is dogmatism. This principle is applicable, as in all other spheres, to environment also.

The problem is that the word 'right' is not always connected to courts, though it does look like a legal word. In law, 'rights' are always rights held by one person against another or others. They can also be held only by beings that are able to stand up and argue their case in a court of law. As this is not possible in case of animals, some people argue that animals cannot have rights. Similarly, how can a polluted river or an overgrazed pasture or a rainforest stand up and argue in court? Therefore, in the cases cited and the like, instead of talking about the rights of animals or ecosystems, we have to think of what our duties or responsibilities towards them are. Thus there are no separating duties from rights. They co-exist.

Some moral theorists insist that rights and responsibilities are correlative. In other words, if someone has a right, someone else has a responsibility to meet it. Put more strongly, no one can have a responsibility to anyone who does not have a return responsibility.

Individuals have duties or responsibilities, no doubt, towards other individuals and also towards their environment. They may fulfill it, they may not. They may think it is their own choice or wish. Moreover, in many cases, it is not clear to whom the responsibility belongs.

In such cases, it is better to term them moral responsibilities that are not legal. These had been clearly specified in ancient Indian scriptures. For example, while referring to the environment of life, *the Vedas consider the earth, the space, the sun and the solar system collectively*. All these are parts of nature and they all depend on each other. All natural resources and life forms (plants and animals) together are supporting man and so they must not be disturbed. Some examples:

individual is convinced that it is his responsibility to take care of all parts of the environment.

Many philosophers think that sense of duty has an emotional and sentimental basis. The 18th century German philosopher Immanuel Kant thought otherwise. According to him, duty is the result of a purely rational understanding of what must be and should be done. One understands what is right through reason. Understanding that something is right is also an understanding that it must be done. It is this that gives rise to a sense of duty.

We can see clearly how both these viewpoints have been beautifully combined in the Indian scriptures. The people used their reasoning power and understood that protection of the environment would be in their and everybody else's benefit; at the same time, the sense of duty they had was based on emotion and sentiment also because they had great respect and love for their seers.

Accountability is an important factor for determining responsibility. To say that someone is accountable for something gone wrong, first of all, that person's responsibility should have been specified. In such a situation, the violation of those duties makes the person answerable. In the case of environment, as stated earlier, the defendant (the polluted river or the overgrazed forest) cannot speak out; what punishment the accused should get is therefore decided by the community as a whole, as per the punishments prescribed by the law makers. This aspect has also been dealt with most admirably in the scriptures.

Kant has spoken at length on goodwill also. A person with goodwill is one who feels within that he has a certain set of obligations to others. He is different from another who will act according to his sense of duty, but only because the rewards and benefits it will bring to him. The former are at a higher level of thinking though the latter cannot be found guilty too. Both categories of people finally end up doing the same things. In ancient India, this was exactly what was happening. The environment was taken care of by all.

In contrast to this, *many people in the modern times believe that protecting the environment is the sole responsibility of the Government.* In many parts of India, we see the local people facing acute water scarcity; but they would not adopt any water conservation method themselves. They are waiting for the municipality to do it for them. The common open courtyards may be full of garbage; but the house owners do not think of a community compost pit or a biogas plant. They are waiting for the

municipality to take the garbage away. It is because people think of their rights only. No one is bothered even to think about his duties.

There is the other side of the coin too. It is the duty of the government to provide its people with clean drinking water, with proper solid waste management systems. Is the Government fulfilling its duty?

In short, *everybody is after rights; nobody is for duties.*

Otherwise, how is it that we have National Human Rights Commissions in different countries and an International Human Rights Commissions too? Why don't we have National and International Human Duties Commissions?

If everyone does his duty, no one needs to worry about his rights. Everything will fall in place, and the world will be a better place to live in.

ENVIRONMENTAL ETHICS

Ethics is concerned with:

- What is morally good behaviour
- What makes a person good, and
- What principles we must use in decision making.

As one Greek philosopher said, the goal of studying ethics is not to know what is good, but to become good; otherwise there is no meaning in studying it.

Ethics involves a lot of reasoning; therefore it is based on logic. Yet, emotions influence the human mind more than reasoning. Therefore an easier way of motivating people to do anything is to create, encourage and enhance moral emotions in them. This point of view has influenced ethics also because ethical thinkers often argue that if we follow the right principles, that will lead to peace of mind, happiness and a more fulfilling life.

An ethical community comprises three elements — the family, the society and the country. These three factors together make an individual what he/she is. Finally, there are the universal ethical communities also. In the field of environment, there is definitely an increasing international consensus that there is an urgent need to protect the environment. The number of international treaties and agreements regarding various environmental issues is proof of this. All over the world, a general feeling has been expressed that we must respect the rights of the future generations. It is the duty of the present generation to protect the environment with all its biodiversity and its indigenous cultures for the generations to come.

The view that nature matters only where human welfare is concerned

is wrong. This is a purely western thinking. Some westerners even believe that condemning cruelty to animals is good because it elevates the human race by stimulating compassion! According to this viewpoint, cruel practices towards animals are not wrong in themselves. They become wrong only if humans become less compassionate to other humans. However, as mentioned earlier, ancient scriptures of India show very clearly how the environment as a whole was treated as one entity in the country. We have always believed that man is part of nature, not that man is master of nature. Our principle has been ‘Vasudhaiva kudumbakam’ meaning the whole world is one family.

Yet there is need to inculcate feeling of love towards nature in each and everyone on this earth. The earlier this is done the better, because despite of the vast information we have on the dire consequences of human interference in the biosphere, many of our activities continue to harm the environment. We destroy forest covers, drain wetlands and pollute air, water and soil in various ways. The danger that human activities may lead to rising of sea levels and global climatic changes remains true. It is high time therefore that environmental education becomes part of the education process at all levels.

The different ethical issues related to environment are as follows:

S. No.	Name of the country	GNP per person, 1998
1	Japan	32,350
2	United States	29,240
3	Germany	26,570
4	Brazil	4,630
5	South Africa	3,310
6	Russia	2,260
7	China	750
8	Indonesia	640
9	India	440

Equity disparity among countries: There are vast differences between the economies of the developed countries and the developing countries (MDCs or more developed countries and LDCs or less developed countries, as they are referred to these days). Gross national product per person of some countries as per World Bank, World Development Indicators (2000) is given above: (Figures in dollars — value of 1 dollar was about rupees 35 in 1998).

The figures speak for themselves. Though there are poor people in

the rich countries also, most of the poor in the world live in Africa and Asia. World Bank figures show that almost half the world's population survives on about 1 dollar per day.

More than 1 billion people do not have access to clean drinking water. The available water itself is polluted in many areas and this leads to many water-borne diseases. The number of people dying of cholera, typhoid, jaundice, dysentery and such other water-borne diseases is very high in the LDCs. Diseases that spread from garbage, malnutrition, infant mortality etc. are all more in these countries.

Equity disparity within countries: Within countries also, disparities are very clear. In general, in the rich countries, the difference in income between the rich and the poor is not as much as in the poor countries. *In the poor countries, the rural masses are affected most by environmental degradation.* The quantity of firewood collected by the poor from the forests is much less when compared to the huge quantities used by different wood based industries like timber, paper, plywood, rubber, package, etc. Thus the rich industrialists consume the forest produce the maximum while the rural poor take the blame for the deforestation and at the same time remain poor. Similarly, the poor fishermen are often blamed for over utilizing the marine resources. The fact is that the rich use trawlers go deep into the sea and collect fish in huge quantities while the poor fishermen using simple boats cannot penetrate far. It is thus the poor who are at the receiving end, always.

As such, *more and more people are migrating from the villages to towns and cities.* There is not enough of water or food or land for the migrants, aren't enough of roads or healthcare systems for them in the towns and cities. Yet, unable to endure the poverty in our villages, many people migrate to urban areas. The final result is that poverty spreads everywhere. If the rich in the rural and also the urban areas waste resources just because they can afford to waste, it is the poor all over who suffer.

Inequality in consumption of resources: There is no doubt that the LDCs remain less developed because they have not been able to control their population growth rate to the desired level. When the population is more, demand for everything increases — water, food, firewood, coal and petroleum — every type of natural resource. There is a big deficit in supply in many of these. Some LDCs do produce enough food and more, but then, these are exported to the MDCs; as a result, the starving poor are not benefited. Deforestation, desertification, pollution etc. all increase when population increases.

Even with all this, *consumption of natural resources is much more in the MDCs*. This is because the people in the rich countries demand more from nature. They use much greater quantities of energy resources like petroleum, electricity etc. Their usage of food and water resources is also more. Consumption of resources leads to industrialization and technology, which increase and consume still more resources. Similarly, machines and technology lead to surplus wealth, which is invested in more machines and more technology. In this way, resource consumption becomes a vicious circle in all rich countries. Above all, most of the rich countries are wasteful in nature.

USA has only about 4% of the world's population, but consumes about 25% of the world's resources. One reason for this high consumption is the high wastage.

The gender inequality: Women who constitute 50% of the population do not get justice in any matter. Women work for longer hours than men, for they have to do the household work and in addition work outside the home. They get up earlier and go to bed later than men. Women are mostly undernourished and often fall prey to anaemia. In areas of water scarcity, women have to walk long distances to bring water for household needs. Again, it is the women who go to the forest to collect firewood. Back home, they have to cook using fuel inefficient stoves. The fuel efficient stoves designed by educational institutions in the country have reached to only very few villages. In the field of education, women lag behind men everywhere. Whether the national average or the average of any state in India, truth remains that less women are literate than men. Because of this, they do not know their rights and also are not given any say in matters concerning society. They do not have the freedom even in matters related to themselves.

Environmental degradation affects women the most. Women feel the maximum brunt of water scarcity, deforestation, lack of good alternative energy sources etc. It has always been women whose health is not taken care of properly in society. On the whole, girls and women do not get the share due to them in society. Unless this state of affairs changes, society as a whole can never progress. And only in an enlightened society can there be any environmental awareness.

Destroying natural resources belonging to future generations: If the present rate of destruction of forests and water bodies and coral reefs continue, what will be left for the future generations? This is a question to ponder. We do not own the earth or its resources. We are only their

custodians. We have to pass on these resources intact to our children. In fact, we have not worked hard to get these resources in the first place. These have been handed over by our forefathers. So now it becomes our duty to preserve them as best as possible for the benefit of future generations. Living in a clean environment is everyone's right. One generation cannot deny that right to another generation.

When forests are cut down, many animals have nowhere to go and they finally perish. The felling of even a single tree changes the environment. Many birds lose their nests, many squirrels, snakes etc. lose their shelter, many plants living in the shade of the tree die and countless microorganisms and small insects and worms in the soil are deprived of their food, as they eat the leaves fallen from the tree. In the absence of the tree, soil erosion, light intensity, temperature and wind velocity of the place increase, while fertility of the soil and atmospheric humidity decrease. Thus *cutting down of one tree is destroying one entire ecosystem.*

When the temperature of the sea water rises even slightly as a result of our activities, polyps that make the coral reefs die. When mercury and other such toxic chemicals from our factories are released into rivers, innumerable fish die. We drain wetlands, home to a variety of unique animals, only to make homes for ourselves. The list is truly endless. We owe it to our children that they also enjoy the benefits of the vast biodiversity on this planet. We have no right to destroy it.

Animal rights: While thinking or talking about animal rights, the first thing for us to remember is that we are also animals. We are one type of mammals; that is the truth. Agreed, we are more intelligent than all the other mammals, but that is all the more reason for us to understand that they, who depend on us in many ways, deserve our kindness. *Cruelty to animals is wrong ethically, just like cruelty to fellow human beings is wrong, ethically.* The animals are never cruel to us; they do not harm us for the sake of harming us. Lions and tigers kill their prey only when they are hungry. That is not wrong. Likewise human beings also catch fish or kill animals for food. That is part of the balancing system of nature. But men kill for sport too. This is cruelty. They cage birds; this is cruelty. We must respect the rights of animals, especially as they cannot talk. Finally, understanding that by protecting the animals, we are benefiting ourselves too is plain logic. In fact, what is good for nature is good for man as man is part of nature.

ETHICS AND MORALS

There are positive laws and natural laws in the world. *The positive laws are the laws that are enforced by the police and the judiciary. But to enforce the rights of the oppressed or the animals, a different kind of law is necessary. Such laws are called natural laws. These are based on ethics and morals.* These are the same to all, irrespective of countries, religion, caste, class, creed, age, sex etc.

If human beings have the same rights everywhere, it is because of ethical and moral standards. These are universal in application. Yet, in some countries, where the laws of the land are not being implemented truly, sections of people remain oppressed and there may not be any solace at all as the oppressors naturally have no ethical or moral feelings.

In fact, there is no practical difference between ethics and morals because ethics is the science of morals. It is concerned with human conduct and character. It is a system of morals or a set of rules of behaviour. Morals relate to character or conduct considered good or bad. Moral behaviour is always directed towards right. An individual with high morals is able to differentiate between right and wrong. Moral laws are supported by evidence of reason.

For an individual to feel ethical towards the planet earth and its resources, environmental education is a must from childhood. If a child grows up admiring the beauty of nature and its infinite variety, he will definitely be concerned about the environment throughout his life. This will lead to the making of successive generations concerned about nature and natural resources.

APPROACH OF SWAMI VIVEKANAND TOWARDS YOUTH, WOMEN AND SOCIAL DEVELOPMENT

Narendranath Dutta was born on 12th January 1863 in Bengal. Later he became a disciple of the great saint Ramakrishna Paramahansa. Soon he took the name Vivekananda and became a swami himself. He was an icon for his courage and fearlessness. He gave many speeches on the Hindu Philosophy. *He is also remembered for his positive outlook on the role of women in society and social problems in general. He used to inspire the youth to work hard for the country. Swami Vivekananda's birthday is celebrated even today, every 12th January, as National Youth Day.* He was against superstitions. He spoke against discrimination based on caste and religion.

Swami Vivekananda travelled throughout India. During these travels, he had stayed with kings as well as paupers. He saw for himself the disparity in riches and also how the lower castes were dominated by the upper castes. He understood that if India wanted to progress, a national awakening was necessary. He advised people to have faith and be holy and selfless.

In 1893, he addressed the World Parliament of Religions in Chicago, America. When he began his first lecture addressing the audience with the words, “Sisters and Brothers of America”, there was a standing ovation for full two minutes! It was the first time that the Americans had heard such an affectionate way of address. He entered straight into their hearts with those words of his. In fact, that was the beginning of western interest in Hinduism.

After his return to India, he gave a series of lectures here. These lectures helped to raise the spirits of the demoralized Indians of those days to a great extent. *He encouraged people to serve the poor* and told them that this was indeed service of God. He named this type of service ‘Daridra Narayana Seva’. He argued that if God resided in all, then there could not be any difference between different individuals, whichever caste he belonged to. However, there are many people who do not know this fundamental truth. So it is the duty of all who know this truth to teach the same to all those who do not, and help them come up in life.

Swami Vivekananda believed that religion must not mingle with the government. Social customs are usually formed with the permission of religious heads, but once these are formed, religion has nothing to do. The four basic castes have their own functions in society. All are essential for the well being of the society. Therefore, if any one dominates another, there will not be harmonious relations in society. Religion must not be used to change rules in the society. The rules would change by themselves if necessary and at the right time.

Here are some quotations from Vikenanda:

- “Aye, who ever saw money making the man? It is always man that makes money. The whole world has been made by the energy of man, by the power of enthusiasm, by the power of faith.”
- “It is a tremendous error to feel helpless. Do not seek help from anyone. We are our own help. If we cannot help ourselves, there is none to help us.”
- “All power is within you, you can do anything and everything. Believe in that, do not believe that you are weak.”

No wonder then that many years after his death, Rabindranath Tagore

said about him, “If you want to know India, study Vivekananda. In him, everything is positive and nothing negative.”

Here are some more selected quotes of Vivekananda:

- When I asked God for strength
He gave me difficult situations to face!!!
- When I asked God for wealth
He showed me how to work hard!!!

The quotes speak volumes. *Swami Vivekananda believed in hard work.* His words are capable of motivating everyone, especially the youth. *He knew the role of science in bringing about development in society.* It was he who advised Jamshedji Tata to set up the Indian Institute of Science.

Swami Vivekananda always tried hard to instill confidence, enthusiasm and a sense of responsibility among the youth. *He tried to direct their energy towards nation building activities.* Youth must realize their inherent talent and proceed in the right direction; utilize energy and progress economically. They must utilize the available natural resources constructively, keeping away from antisocial activities. Youth must put the nation on the path to peace and progress.

According to Vivekananda, freedom is responsibility. *He focused on youth, women and the poor.* Youth must take the responsibility and try to wipe out poverty from the country. He told the youth, “Take the responsibility on your shoulders. Know that you are the creator of your own destiny.”

Vivekananda provided a holistic vision of life. He went to the root of the problems. According to him first we must understand what is influencing us. Then we will know what is wrong.

He knew the correct meaning of education. He said, “Essence of education is concentration of mind, not collecting facts.” He also believed that self-discipline and integrity are more important than bookish learning. A nation’s future depends on youth, and nation building takes place through character building.

He had great love for mankind and sympathy for the poor and the downtrodden. He wanted them to fight against exploitation. He stood firm for women’s rights. He was against the caste system. He believed that caste was the biggest dividing factor in the society. *Casteism was responsible for social divisiveness and poverty.* Brahmins are responsible for priest craft, untouchability and exclusive claim on spiritual scriptures. In India, the tyranny of the rich over the poor was also related to castes. Vivekananda wanted India to be raised by the spread of education. Priest

craft must be removed and the poor must be fed. The upper castes are responsible for the upliftment of the lower classes.

Vivekananda studied the position of women in the past and in his own time. He said that *educated women would inculcate virtues in their children* and prepare the new generation who can distinguish these virtues. He stressed the importance of women in house keeping, religion, art, science and hygiene. He said that all girls must develop these skills.

He was also in favour of education of widows. It was indeed a bold step in those times. Vivekananda said that women must be put in a position where they are able to solve their problems in their own way. He believed that no one else ought to do this task for them because our women are quite capable as in many other parts of the world. *According to Vivekananda, upliftment of women and awakening of the masses are the first requisites before any real good can come to India.* “Arise! Awake! How much longer would you remain asleep?” His clarion call to the Indian masses is as much applicable today as it was more than a century ago.

APPROACH OF MAHATMA GANDHI TOWARDS YOUTH, WOMEN AND SOCIAL DEVELOPMENT

In the **Young India** Mahatma Gandhi wrote as far back as 1929, “This is my message to the youth....The youth must believe in the all-conquering power of love and truth.” *Gandhiji wanted youth to do voluntary service to society.* He said that the youth must be involved in various social issues. They must have the spirit to serve the country.

Mahatma Gandhi believed that as India lives in her villages, the country cannot progress unless the village life becomes better. For this rural transformation, the youth must play a major role, according to him. He wrote that youth must be persuaded to make village life their goal. He agreed that there are many drawbacks in rural life, but all these can be corrected. *He wanted the youth to set up co-operatives in villages to better the conditions of the rural poor.*

There were more than 7,50,000 villages in India during Gandhiji's times. Urbanisation cannot support the rural population, as he wrote in the *Harijan* in 1934. Urbanisation is the death of villages. If the youth start living in the villages, the villagers will be served and the middle class job seekers will get honourable employment too.

Thus the *Mahatma believed that the youth could be agents of social transformation.* They must put their mind to rest and concentrate on energies. They must spread the message of peace and harmony in society.

According to Mahatma Gandhi, indicators of peace are:

- Elimination of wars
- Absence of conflicts between different classes, castes, religions and nations
- Love
- Rest
- Mental equilibrium
- Harmony
- Cooperation
- Unity, and,
- Happiness

In short, peace is must for social harmony. For peace, there must be proper utilization of natural resources in the society. *Youth must ensure that water, soil, forests, minerals, animals etc. should be utilized properly by uniform distribution and conservation.* The natural resources should not be exploited or destroyed.

Gandhiji exhorted youth to be patriotic. They must be loyal and affectionate to the country, national symbols etc. Patriotic feelings towards the country will encourage the youth to work selflessly for the country.

Society is a mixture of different religions, cultures and races. Gandhiji stressed upon the youth to bring about social changes in society. He especially extolled them to work for the abolishment of the following social evils:

- Sati
- Polygamy
- Untouchability
- Caste system
- Child marriage
- Dowry
- Prostitution
- Forced labour
- Sexual discrimination
- Religious misguidance, and,
- Exploitation

The Mahatma said that youth should believe in:

- Non-violence
- Equality
- Justice, and,
- Love

Violence destroys society. He also told the youth to cooperate with elders and children. Gandhiji put forward the concept of young entrepreneurs (young self-employed) for growth and equality in the country.

Mahatma Gandhi said that everyone is equal in the eyes of God, and so the youth should reduce the gap between the different sections of society. He appealed to the youth to eliminate all discrimination, oppression and exploitation and establish equality. Money in only some hands can cause political instability and social inequality. When there is equality, there is justice.

Gandhiji believed that men and women are equal and that they complement each other, though their functions are different in the society. None can be superior or inferior. He was the first Indian leader to encourage women's participation in political and social work. He believed that home life is entirely the field of women and so they should know the domestic chores. They should also have sufficient knowledge in the upbringing of the children. Women however must not be mere cooks or objects of pleasure to men. They are life companions of men. They are equal partners of life, sharing the joys and sorrows of men in all spheres. All our efforts to improve our country will be wasted, if these truths are not recognized.

The Mahatma extolled the youth to follow the principles of *Bhagavad Gita*, get internal happiness and utilize their energy positively. Truth was his main value. He believed in 'Sathyameva Jayathe'. He wanted the youth to practise truth in thoughts, words and actions. They must have the courage to say the truth, always.

Mahatma Gandhi said that basic education is everyone's right. Education gives the right values to people. Role models should come from the educated youth. They will build the nation.

For all this, social transformation is a must and the youth must be involved in:

- Community development
- Education, and
- Health.

He professed the dignity of labour to all. He said, "No labour is too mean for one who wants to earn an honest penny. If the sense of shame that wrongly attaches to physical labour could be got rid of, there is enough work to spare for young men and women of average intelligence." The aim should be a self-sufficient, non-exploitative society that has no social evils.

He had travelled throughout the length and breadth of the country. He saw that there were too many poor in India. He therefore suggested that *in addition to agriculture, people must own simple industries*. The spinning wheel can introduce successful cooperative societies. Handicrafts should not be displaced and machines should not replace labour. However, he did say that where necessary, machines must be introduced.

Gandhi knew, and truly so, that *India cannot progress unless her villages progress*. He therefore had given extremely detailed schemes for the upliftment of Indian villages. He had said, “We have to awaken villagers themselves and make them capable of tackling their own problems and forging ahead through their own strength.” Gandhian approach to youth, women and social development is what we need now.

Similarly, Swami Vivekananda's views remain as fresh as ever. Even after almost sixty years of independence, if we have not progressed to the extent we should have, if there is poverty and inequality in our villages even now, it is because we have forgotten the wise words of Swami Vivekananda and Mahatma Gandhi. It is high time the energetic youth of India take up their responsibilities and lead the country from progress to progress.

THROW AWAY SOCIETY ETHICS

As science and technology advance, more and more finished products are being produced every year by the industry for the comfort and luxury of man. Part of the wastes produced during their manufacture may be blown away by the wind or carried away down the streams. Steps may not be taken to dispose them of safely. If the byproducts or side products are utilized in any way, throwing away of these can be avoided, which will also help in keeping the environment clean.

High level of urbanization has resulted in the mushrooming of towns and cities all over the world. While in the MDCs (more developed countries) the disparity between the rich and the poor is not very high, in the LDCs (less developed countries), this disparity is very high. More and more people believe that more money would improve their life. So people dream of a life of wealth. All their efforts are directed towards maximization of wealth. In this rat race, no one has the time to stop and think of the conditions of the poor. The poor are ignored. They remain poor without getting opportunities. Many a times, the poor become poorer because of the activities of the rich, like construction of skyscrapers in areas occupied

by the poor. Unsuccessful in getting the promised compensation, they are compelled to move to still poorer localities. *The gap between the rich and the poor enlarges further.*

Most of the poor, especially in LDCs like India are uneducated. They have no idea of hygiene. They therefore dirty the environment by throwing away the unwanted things just outside their huts. *The slums in cities thus become breeding grounds of diseases.* The environment gets choked by used tins, plastics, rubber tyres etc.

In India, the educated are no better, in many cases. They also throw away plastic bags, plastic glasses, and many other unwanted things carelessly around, in a most unethical manner. The recent great flood in Mumbai was caused by the choking of drains by plastics. After a heavy rain for 18 hours on 26th July 2005, the city of Mumbai came to a complete standstill for the next 48 hours. People travelling in trains throw away the used plastic glasses and thermocol dishes just out of the windows. Nobody bothers to think of the effect of these on the environment. There are no proper waste management systems in trains or for that matter in most other places in India.

As people are getting wealthier, the throw away concept is also catching up. Earlier, people used to buy refills for their ball point pens. But nowadays, nobody bothers. As soon as the refill is over, the old pen is thrown away and a new pen bought. The concept of repair and reuse is almost nil now.

So what is happening to the environment? *Unwanted things are accumulating in the ecosystems.* Plastics are the main culprits. In India, we see cattle and buffaloes roaming around the streets. These animals eat the plastic bags in the absence of good green grass and develop tumors in their stomachs. In Lucknow, recently, cows have been operated to take out even ten or fifteen kilograms of plastics from their stomachs.

Plastics of today are the electronic wastes of tomorrow. There is no limit to the electronic equipment like televisions, computers, mobile phones, calculators etc. thrown away by people. Earlier, this was a problem for the MDCs alone. But now this is a serious problem for LDCs like India also.

With growing computerization, the quantity of the e-waste is increasing day by day. For example, over 85 million **cell phones** are in use now, in 2006. This number is expected to go up to 275 million or more by 2010. Now 7 Indians out of 1000 own a *computer*. By 2008, this is going to double. Along with these, are the other electronic equipment like

calculators, music i-pods etc. Televisions are more in number than the land line phones now. The IT industry is growing in India, and such changes are bound to happen. All this is undoubtedly good for the economic boost of India. *The question is how we are going to dispose of this scrap.* There is no safe method yet. *The old computers of the USA and Europe all land in Africa, India or China.* There, they are manually dismantled, releasing the toxic materials like lead, mercury, cadmium etc., all highly toxic, along with copper. The LDCs are becoming the waste bins of the MDCs.

Most of the industrialized nations are thus high-waste or throwaway societies. They try to sustain their economic growth by increased input of raw materials and also energy. Utilization of fossil and other forms of energy is also maximum in developed countries. *The wastes finally end up in low waste societies. This is absolutely against all ethics.*

It is however a welcome change that 'recycling' is catching up everywhere. Many companies are also eager to become 'zero waste companies' by recycling or reusing its waste materials in various suitable ways. These business houses recycle their by-products and do not send them to landfills, as was being done earlier. New revenues are generated also in the process. This has led to cost reduction and increased profits. Sanyo, Canon, Toyota etc. have reported that they have achieved zero waste production. Such activities will help in reducing the number of throwaway societies in general.

SUSTAINABLE EARTH SOCIETY ETHICS

Many aspects of nature can be classified as sustainable and non-sustainable. Resources, economy, development, society etc. can all be sustainable or otherwise. *Sustainable development has the following characteristics:*

- It is an overall socio-economic growth of the society.
- It is done through rational exploitation and optimal utilization of resources.
- Ecofriendly technologies are adopted for the process.
- Environmental education is necessary for sustainable development.
- It involves better organization.
- It leads to sustainable economy.
- Environmental quality and ecological balance are maintained.
- It ensures continued yield of resources to the present and future generations.

This means that the final goals of sustainable development in a society are two:

1. To provide a strategy (action plan) that will improve the quality of human life, and,
2. To provide a strategy that ensures the vitality and diversity of the earth.

Sustainable development must be beneficial for the people and also for the environment as a whole. The quality of the environmental resources must not decrease and at the same time the society should develop. If development is sustainable, then the society will automatically become sustainable. *A society where sustainable development is practised in all fields is called a sustainable society.*

Some guidelines (principles) for a sustainable earth society are given below:

- Improve quality of human life.
- Respect each other for harmonious coexistence and community life.
- Conserve biodiversity.
- Minimise utilization of non-renewable natural resources.
- Ensure that renewable resources remain sustainable.
- Change personal attitudes towards resources and environment.
- Maintain earth's carrying capacity.
- Motivate every individual to take care of the environment.
- Link development with conservation.
- Establish global treaties.

Due to the wide disparities in the economies of the developed and the developing countries, it is difficult to form policies for establishing sustainable earth societies. Developing countries like India account for a very large population; in fact every 6th world citizen is an Indian. The developed countries are pointing fingers at such countries (mainly India and China) and accusing them of depleting natural resources much faster than they can regenerate by natural processes. On the other hand, the industrialized west is utilizing a major portion of the earth's resources, in spite of having low population levels. *Accusing each other in this manner is not going to solve the problems. The rich and the poor nations together should formulate policies for establishing a sustainable earth society.* Every individual will then follow the ethical principles involved in such a society.

ETHICAL GUIDELINES

Ethics had been strong in all societies in the earlier times. All over the world, people led simple lives. In those days, natural resources were aplenty. It was believed that these will never end. Gradually, population increased greatly in some countries like India and China. Industrial revolution that spread in the west increased people's desire for luxury and comforts. Everywhere in the world, man's needs increased as his greed grew. This led to a depletion of the natural resources. The situation remains the same today. There is no limit to man's desires and wants. If this tendency is not checked and if we do not take care to replace the resources we are using, the shortages are sure to grow to dangerous proportions.

In India, nature used to be worshipped in the earlier days. The wisdom of the sages and other knowledgeable persons had prevailed upon the common masses. Thus many trees like Peepal, Bargad, Neem, Kadam etc. and small plants like Tulsi used to be worshipped. In tribal areas, there were festivals related to trees like Karam. They also protected Mahua trees which provided edible flowers and oil from seeds and alcohol.

Many animals were also considered sacred. Many of them have been depicted as vehicles of gods and goddesses or associated to them in different ways in the Hindu mythology. For example, eagle, bull, peacock, swan, mouse, tiger and owl are respected as vehicles of Vishnu, Shiva, Karthik, Saraswathi, Ganesh, Durga and Lakshmi respectively. Animals like cow, snake and monkeys are associated with Krishna, Shiva and Rama respectively. Hanuman was in the form of a monkey while Jambavan was in the form of a bear. Lord Vishnu's earlier incarnations were all in the form of different animals like fish, tortoise, boar etc. Such associations used to motivate people to love and respect these animals and birds.

There were unwritten rules against polluting water bodies. Many rivers in India are considered holy. Some well known examples are Ganga, Yamuna, Krishna, Cauvery, Godavari, Narmada, Tapti, Gomati, Sarayu, Son, Netravati, Gandaki, Sindhu etc. Mountains like Himalaya, Vindhya, Satpura etc.; hills like Nilgiri, Nallamala, Mahadeo, Parasnath, Rajmahal etc. are all venerated by the people. Forests are thought to be governed by Van Devta's, i.e. forest gods and goddesses. In this way, *plants, animals, forests, mountains, rivers, in fact, all parts of nature were loved and respected in India.*

There was the practice of setting up sacred groves in many parts of India. For example, in Kerala, these are called 'Kavus'. These are dedicated to different gods and goddesses. Kavus dedicated to snakes are also

common. *A sacred grove is a patch of dense vegetation including a small shrine and a pond or stream.* The vegetation is so dense and undisturbed and pollution free that many rare species of plants and animals live here. The ponds and streams never dry in the cool and humid environment and conserve precious water. The ‘kavus’ are owned by families who take every care to maintain them. Big sized sacred groves are maintained by a few families together or the whole community. The belief that gods lived in the groves helps the owners to look after them well. The non-believers, among Hindus themselves and also other religions, have often contested to the existence of the sacred groves. But it is a good sign that environmentalists have come to their rescue. Now the government has also decided to protect them.

Mahatma Gandhi and many other great men of India preached and practised ‘Plain living and high thinking’. His Principle of Enoughness is very popular: “The earth provides enough for everyone’s needs but not everyone’s greed.” *Simple living will automatically reduce overexploitation of natural resources.* Many great men of the past had motivated people to protect the plants and animals. Ethically, Swami Vivekananda had said, “Not injuring any living being is a virtue; injuring any being is a sin.” Though this is not possible fully as many plants and animals are eaten, the words can be followed to avoid cruelty to them and also not to kill or injure for sport.

It was environmental ethics that motivated Rabindranath Tagore to set up Shanti Niketan. This is a beautiful concept where lessons are imparted to students in the open, under the trees, in natural surroundings. This makes the students nature lovers.

There can be many ethical guidelines to prevent the earth from further degradation. If these guidelines are followed, environment on the earth will improve greatly:

For conservation of vegetation:

- Plant trees wherever possible.
- Prevent cutting of trees.
- Know the medicinal values of various plants and put them to use.
- Pass on the information you have to others so that others will take interest in protecting medicinal plants.
- Do not overwater your plants; they may die due to waterlogging.
- While going out of station for holidays, place a long hose pipe with holes at intervals along the row of plants in your garden and keep the tap partially open. This is drip irrigation for homes. The

- Get involved in community programmes like tree plantation on vacant lands nearby.

For Conservation of energy:

- Reduce electricity consumption by all possible methods like:
 - a) Switching off fans and lights, television, computer etc. while not in use.
 - b) Using tube lights in place of ordinary bulbs.
 - c) Using energy saver bulbs.
 - d) Turning off electric heaters in the kitchen slightly before the food is cooked as the heat that lingers on will complete the cooking.
 - e) Placing study tables near windows to use sunlight in daytime .
 - f) Not keeping hot food in refrigerators as that will consume more electricity.
 - g) Getting electric metres checked etc.
- While using gas stoves in the kitchen, remember that:
 - a) Avoid reheating of food; this is bad for health also
 - b) After the curry starts boiling, bring it sim
 - c) Soak pulses beforehand so that they will cook faster.
 - d) Use pressure cookers as much as possible.
 - e) Take out eggs or other cooled items from the fridge beforehand so that extra gas does not burn to bring them to the room temperature first.
 - f) Use flat bottomed vessels for cooking on flat hot plates, but while cooking on gas, use round bottomed vessels to utilize the energy to the maximum.
 - g) Cook items covered whenever possible.
- Use alternative energy sources like:
 - a) Biogas
 - b) Solar energy
- Avoid waste of petrol by:
 - a) Walking or cycling as much as possible
 - b) Arranging for car pools instead of each person using his own car. If a few neighbours have to go in the same direction for work or college at the same time, car pooling system is ideal.
 - c) Trying to use public transport like trains and buses.
 - d) Servicing vehicles regularly and getting emission checks done.

e) Not keeping the car switched on while parked.

f) Stopping fully at traffic signals if the light is red.

The list can go on and on. All the practices mentioned here and more are easy to follow. The only thing needed is determination.

The ethical guidelines can be summarized as follows:

1. We should understand that we are part of nature and behave accordingly.
2. We should try our best to conserve all the resources that nature has gifted us with and not waste any resource.
3. Where we have to take out resources, we must see to it that they are replaced
4. We should not degrade the earth's physical, chemical or biological capital.
5. We must do Environment Impact Assessment (EIA) studies before starting any project.
6. To find out whether our projects will be harmful for the future generations, we can do a GIA study also (Grandchild Impact Analysis) — this is a recent concept.
7. We should honour the right of all beings to live on the earth.
8. We should try hard to preserve the present biodiversity in nature
9. We should not allow certain human communities also, like forest dwellers, to perish.
10. We must be kind to animals.
11. We must try to lead simple lives and motivate others to do so.
12. We can and must think globally, but we must act locally to solve different problems.

Those who follow these ethical guidelines are True Earth Citizens.

GROWTH OF CIVILIZATION AND SOCIAL STRUCTURES

Human beings belong to the species *Homo sapiens*. We have been on the earth, as per fossil and anthropological studies, for the past 40,000 years or so, while our planet, as per estimates, has been in existence for the past 4.6 billion years. So man can be said to be a newcomer.

In many ways, man is inferior to other animals. He does not have glossy fur or glowing feathers. He does not possess the strength of the bull or the speed of the deer. He cannot swim under water like a fish, nor can he fly in the air like a bird. Yet he is the head of the animal family as a whole. He is at the top of the ladder of evolution. He can adapt to any situation, using his hands and brain, unlike the animals.

According to this view, these stages were progressive and it showed that man had become more and more rational.

Some other anthropologists gave more stress to social evolution in civilizations compared to religious evolution. Accordingly, *there was a social evolution from polygamy to monogamy* and said society became more specialized and complex as evolution progressed.

By the end of the nineteenth century, many anthropologists started voicing objections to the theories of the evolutionists. They objected to the method of study (without fieldwork) and also to the fact that westerners were considered civilized by them in contrast to others who were pictured as savages. This was wrong.

The belief that no society was more civilized than any other became strong. *Ethnography became a new branch of studies. It describes a society based on the cultures and characters as per the viewpoint of the natives.* This paved the way for the recognition of the various cultures of the world. This was long overdue. In this method of research, collection of data became very important.

Meanwhile, some anthropologists argued that all cultures began in one or more specific areas. From these areas, they spread all over the world. *This belief that different cultures had a common origin is called diffusionism.*

The extreme diffusionists believed that there was only one point of origin. Some believed that the origin of all cultures was Egypt. But this view was wrong, as it would mean that Egypt had a primitive culture, and the western cultures were more evolved.

Most of the diffusionists however believed that there were many *centres of origin of civilization and social structures.* These were called *culture circles*. It was because the culture circles overlapped that cultures also overlapped.

Later, some other diffusionists modified the idea of culture circles. They put forward the concept of culture areas. *Areas of origin of civilizations and social structures related to geographical areas are called culture areas.* From this concept, the age-area-hypothesis evolved. *As per the age-area-hypothesis, as cultural characters spread out in all directions from the point of origin, the age of these traits can be determined from the geographical distribution. Older cultures cover wider areas.*

However, this hypothesis was also rejected later as culture cannot be explained only on the effect of the environment. This led to more research and the formation of *Functionalism*. *Functionalists believe that there is no need to trace the history of civilizations based on speculations; instead,*

present civilizations must be studied without trying to compare them with the past ones.

Functionalists believe that each custom and belief of a society has a specific function, which helps to maintain the structure of that society. They compare present day-societies in terms of similarities and differences in structure and function both.

People all over the world have biological as well as psychological needs. There are other needs also, like instrumental needs (law and education), integrative needs (religion and art) etc. The ultimate function of any society is to fulfill these needs. Suppose science and technology are not able to provide answers to some questions, people may turn to religion, magic etc. for answers.

By the twentieth century, another trend developed, called *neo-evolutionism*. Many anthropologists from America and Europe were neo-evolutionists. According to them, all *civilizations consist of 3 essential components — techno-economic, social and ideological*. The economic aspect includes environment also, according to him, as society will naturally adapt to the prevailing environment. *This is called the cultural materialist approach.*

All modern anthropologists search for the general laws that determine the way civilizations and social structures form, grow and adapt to changes in the environment.

Social groups: Social groupings are important to humans because they give identity and support to the members of the group.

Marriage and Family: Men and women are interdependent. Parent-child bonds are also strong in human beings. This gave rise to families. Family provides for economic co-operation and also a setting for child bearing. To control sexual activity, the system of marriage developed. Different types of marriages and family patterns came into existence in different parts of the world. Establishment of families helped to solve many problems which individuals could not solve independently, by themselves.

Societies: Some problems could not be solved by families. In matters of defence, resource distribution for works of large scales etc., as the challenges were too great, societies were formed. In general, extended (joint) families evolved in agricultural societies and nuclear families in industrialized societies.

Social organizations: Kinship and marriage were sufficient to deal with most organizational problems. But other groupings also came into

world. People who practise shifting cultivation and people who are hunters live in unstable settlements. For example, some tribes of the North Eastern India like Jhumias' live by cultivating land. They first clear forest land and plant their crops there. When the soil becomes infertile, they leave that settlement and move to some other place where they clear new parts of forests for cultivation. This is called shifting cultivation. Tribes who do this in the North East have no other alternative as the terrain there is full of hills and slopes only. Slopes lose fertility very fast due to soil erosion. However, shifting cultivation is bad for the environment as more and more land becomes infertile as the tribes keep on shifting.

Unstable settlements become a necessity in areas with extreme weather conditions. Gujjars and Bakarwals of Jammu Kashmir live in the valleys in winters which are comparatively warmer. They live grazing their goats and sheep in the pastures. In summer, when temperatures rise in the valleys, they move up the mountains, along with their animals.

Stable settlements: *Stable settlements can be rural or urban. Settlements develop in the areas between villages and cities also. This is the concept of rural-urban continuum.*

Stable Rural settlements: *Any settlement in which most of the people are engaged in agriculture, forestry, mining or fishery is a rural settlement. Most of the settlements in the world are rural and stable.*

Rural settlements are broadly of three types:

1. Compact or nucleated settlements
2. Semi-compact or semi-nucleated settlements, and,
3. Dispersed settlements

Compact or Nucleated settlements: A compact rural settlement is based on agriculture. It includes farms, grazing fields, religious structures and other buildings. Croplands are not more than about 3 km away from the houses and market places are in the centre.

In the beginning, people needed each other's help for clearing forests, tilling the land, to protect themselves from wild animals etc. This must have been the reason for the development of compact settlements.

In India separate localities may be allocated to upper and lower castes in compact settlements. It is high time social reformation takes place in India so that such wrong practices are corrected. The upper castes must realize that all are equal in the eyes of God and the lower castes must gather courage to fight such injustices.

Other than farming communities, fishing communities also may live in compact settlements. This is because mutual co-operation is essential

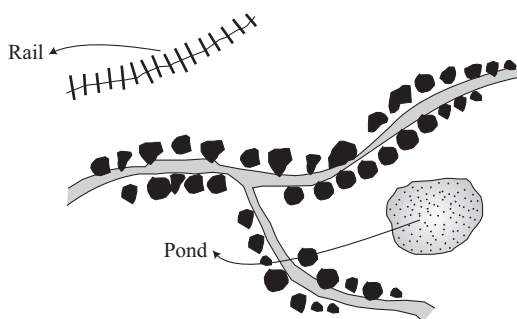
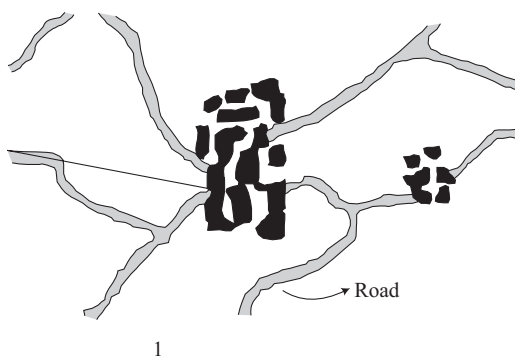
for making and maintaining fishing boats. Hunting communities of Africa also form compact settlements for the sake of safety from wild animals.

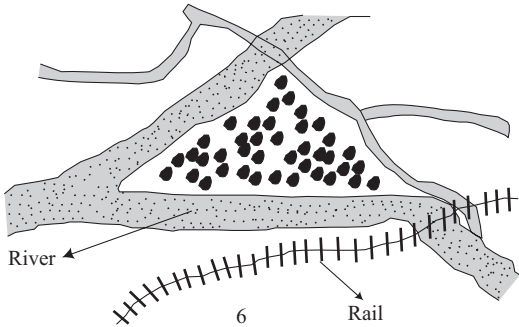
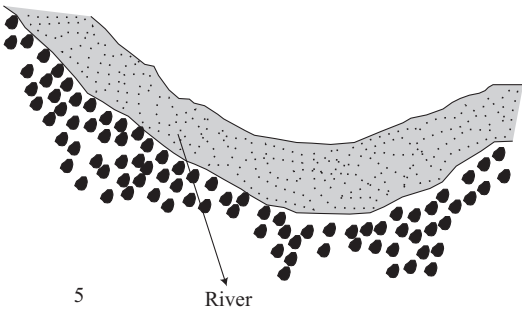
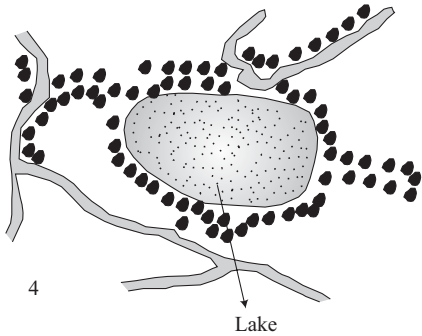
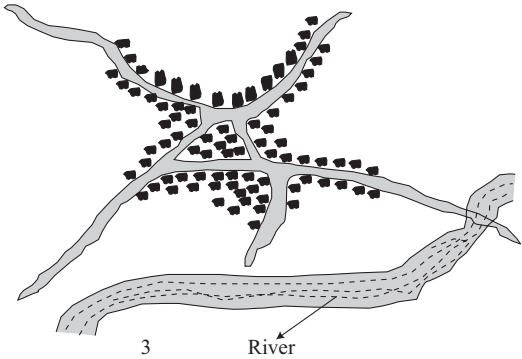
Compact settlements develop on the plains or near rivers or other water bodies. If the resources are not much, the settlements are small. In the deserts of Rajasthan, such a settlement has only a maximum of 10 houses. But in African jungles, where resources are aplenty, very large compact settlements are seen.

Semi-compact or semi-nucleated settlements: This is a phase between the compact and the dispersed settlements. When the population in a compact settlement increases, houses are built in the surrounding open spaces. This is how semi-compact settlements are formed. In the hilly areas of M.P. and the north eastern states, such settlements can be seen.

Dispersed settlements: In areas where extreme environmental situations are present, like very dense forests, very hot deserts, land devoid of proper nutrients etc., dispersed settlements develop. In such areas, the farmers will have to be always present near their farms. In parts of Rajasthan, Jammu & Kashmir and the north-east, such settlements have developed.

Patterns of rural settlements: The relationship between one house or building with another is called settlement pattern.





- b) When population increases, some families have to move out.
- c) If monoculture is done, soil loses fertility. (Crop rotation must be done to avoid this.)

Rural-Urban continuum: *The land between the rural and the urban areas is known as rural-urban continuum. It shows characters of both rural and urban communities.*

Urban settlements: *If the people in a settlement are engaged in secondary, tertiary or quaternary activities, it is called an urban settlement. (Primary activity is agriculture.)*

These have developed along:

- Trade routes
- Rivers
- Seacoasts
- Mountain crossings
- Harbours
- Estuaries
- Sites of resources like minerals, precious stones, energy resources like coal and petroleum etc.
- Spots of scenic beauty
- Spots of religious importance etc.

The word 'Urban' means related to towns and cities. In the case of cities and mega cities, the definition is based on the number of people living there. These numbers are different in different countries.

Cities: In our country, an urban area with more than one lakh people is considered a city. Cities have many business houses and many houses. It has a specific administration.

Towns: Urban areas with population of less than one lakh are towns.

Metropolis or Metropolitan area: This has many urbanized areas.

Mega city or mega polis: A city with a population of 8 million or more is a mega city. Examples are Tokyo, London, Paris, Mumbai, Kolkata, Delhi etc.

Suburbs: Areas outside the boundaries of towns and cities are called suburbs.

Impact on the environment: Both rural and urban settlements have an impact on the environment.

Impact of rural settlements on the environment:

- Deforestation due to cutting down or burning of forests for cultivation.
- Soil erosion due to deforestation.
- Desertification due to deforestation and overgrazing.

- Salinification (soil becoming saline) due to excess watering of crops.
- Depletion of groundwater due to overuse and lack of conservation.
- Pollution of air, water and soil due to excessive use of fertilizers and pesticides.
- Pollution of air due to smoky stoves using coal (*koyla chulhas*), burning dried cow dung cakes (*goytas* or *uplas*) etc.
- Formation of garbage heaps in the absence of proper solid waste management.
- Spreading of diseases due to lack of hygiene and lack of education etc.

Impact of urban settlements on the environment:

- Air pollution due to large number of automobiles
- Air, water and soil pollution due to fumes and solid as well as liquid wastes from industries.
- Fumes of sulphur dioxide and nitrogen oxides from industries and sulphur dioxide from automobiles released into the air cause acid rain.
- Large amounts of carbon dioxide released into the air from industries and automobiles lead to greenhouse effect, ozone depletion and global warming.
- Effluents from industries containing many chemicals, some of them toxic, like the heavy metals cadmium, mercury etc. are released into rivers without treatment. These kill fish and other aquatic animals in large numbers.
- Noise pollution due to vehicles and all other types of noises associated with city life.
- Soil erosion along the unpaved footpaths on the sides of the roads.
- Shortage of water due to increased population and also absence of water conservation schemes.
- Accumulating garbage on roadsides in the absence of properly functioning municipalities.
- Diseases spread by houseflies, mosquitoes and also due to air and water pollution, adulterated food items etc.

HUNTING AND GATHERING SOCIETY

For many thousands of years, the primitive men lived as hunters and gatherers. They collected edible fruits, berries, roots, stems, nuts, seeds, leaves etc. from the forests where they lived. Initially, they ate the remnants

and old people used to be killed by the young and strong in the settlements. Later, herbs were found out which could be used as contraceptives and also for abortion. They also understood that as long as young mothers breast-fed their babies, chances of getting pregnant were very low.

Due to lack of medicines and proper childcare, infant mortality was very high those days. Moreover, life expectancy was also low, as low as 30 to 40, again due to diseases and the rough and dangerous wildlife in the jungles. Therefore, the growth rate of hunter gatherer populations was very low.

The impact of hunting and gathering societies on environment: The activities of the hunter gatherers had a harmful effect on the environment. As they developed better and better tools for hunting, they killed more animals than they needed for food. They also planned group activities like while some chased the animals out of the jungles, others who waited outside killed them. Quite frequently, the scared animals used to run, causing a stampede in which many other animals were killed unnecessarily.

After the invention of fire, hunter gatherers became more confident of their capabilities. Often, the fires they made spread and killed animals. It is thought that the extinction of some animals in the stone-age was caused by the activities of the hunting and gathering societies.

However, *people were very few in number and the resources in abundance; therefore, the impact of the early men on the environment was not much.* The impact was only minor and local. They used limited resources. The negative effects were soon rectified by nature in natural processes. As the hunter gatherer societies lived on the earth for tens of thousands of years, it can be assumed that they had not harmed the environment to any great extent. In fact, *it is not that the hunter gatherers lived only in the distant past. Even today, many such tribes are scattered all over the world.*

Hunting-gathering societies in the present world: Pygmies of Central Africa are the simplest and the most primitive people. They are less than 5 feet tall and are mostly naked. Seen in countries like Congo, Cameroon, Rwanda etc, they collect roots, fruits, leaves, frogs, lizards and other animals for food. They do not know farming, animal husbandry etc. They have no permanent settlements, social rules, warfare, religion, or any knowledge of ceramics, weaving, basket making etc. Other tribes in Africa are Twa, Tswa etc. who live by fishing and hunting. There were 200,000 Pygmies in Africa in 2001.

Examples of some other hunting gathering societies of the present day:

- Semangs and Sakais of Malaysia.
- San bushmen in the Kalahari desert of Angola, Botswana and Namibia in South Africa.
- Blackfoots and other Red Indian tribes in parts of America.
- Eskimos near the North Pole, living in four countries — United States, Canada, Russia and Greenland.
- Aborigines of Australia.
- Andamanese of Andaman Nicobar Islands of India.
- Gujjars and Bakarwals of Jammu and Kashmir in India etc.

AGRICULTURAL SOCIETY

From being hunters and gatherers, man changed his lifestyle when he learnt to till the soil. The first harvest must have been gathered 10,000 to 15,000 years ago. In Egypt and Iraq, land was certainly tilled in 6,000 B.C.

The *Agricultural Revolution* had begun in different parts of the world at approximately the same time. In the beginning, agriculture was used as a supplement to hunting and gathering. Soon however, it became a main practice. Reasons for a shift from hunting gathering to cultivation must have been different in different parts of the world. Climate changes might have been one reason.

Plant cultivation must have developed in different areas of the world. In the tropical forests of South East Asia, North East Africa etc, cultivation became popular. The method used was slash-and-burn. *During slash-and-burn, people cleared a small forest area by cutting down the trees and bigger plants and by burning the ground vegetation. The ash obtained was mixed with the soil to make it fertile.*

Water is very much essential for cultivation. In the early days, men could choose locality of his fields as they wished. But as the number of people in a tribe increased, the fertile land became rare. In such situations, the strong tribes drove the weaker tribes towards the deserts. In some cases, where rivers or streams were nearby, the early men even dug canals with their simple tools and diverted water towards their fields.

Agricultural societies practised shifting cultivation in the earlier days. *When a plot became infertile due to continued cultivation, it was discarded. The whole settlement moved to another area with fertile soil. This is called shifting cultivation.* This method of cultivation is of course bad for the soil, but in the earlier days, land was available in plenty and people were very few. So there was ample time for the degraded land to regain its

fertility by natural processes. Later, the same plot could be used again for the same crop. However the early growers knew that degraded land could be used for tree crops, medicinal plants, firewood, etc. and they tried this. In 20 to 30 years, the land became fully fertile again. *Cultivation where the land is not degraded is sustainable cultivation.*

The early cultivators grew only how much food they wanted for themselves; this practice is called subsistence farming; meaning 'to plough or till'. In the early days, the tools used for farming were only sharpened stones and sticks and the like. The first ploughs were probably hooked pieces of wood. Such ploughs helped only to make the surface of the ground rough. This was one reason why large plots could not be cultivated. It was about 7,000 years ago that metal was discovered and used to make simple tools. With the advent of metallic ploughs with wooden handles, farming became easier. Soon, animals were used to pull the ploughs. And men guided the animals. Now areas where soil was crisscrossed with dense roots of plants could also be tilled and made into croplands. Men planted a mixture of crops in the cleared fields. Food crops and tree crops were planted as a mixture; this is the earliest known agro-forestry.

The shift from hunting gathering society to agriculture society had many effects on the life-style of people and the nature of society itself. Some of these are:

- More food produced could support more people. Earlier, life depended fully on hunted or gathered food and so death rates were high. Now death rate fell and thus the population increased.
- When men began using animals to pull their ploughs, food production increased. Now more food could be produced with less human labour.
- More and more areas were put to agriculture as man learnt to build canals and irrigate their fields.
- Hunter gatherers could not reserve food for times of scarcity. Whatever they collected they had to consume immediately on a daily basis. As agriculture became the method to get food, seeds, rhizomes etc. could be stored and consumed later.
- As fewer people were needed to produce food for the whole community, others left farms and took to other professions like pottery etc. Gradually, towns were set up and villages became different from towns. This was the beginning of urbanization.
- When wild animals entered cultivated fields, they had to be driven away or killed. Thus many animals became man's enemies. Birds,

rats etc. which tried to share the crops also became man's enemies. He tried to find out ways to protect his crops from all of them.

- Ownership of land became a family affair. As a result, fights between families for land, canals etc. became common.

The impact of agricultural societies on environment: As the number of people increased due to availability of food in times of need, more and more land was cultivated and more and more wood was cut for clearing forests and making huts. The resulting deforestation led to soil erosion and loss of fertility of soils. Forests were converted to grasslands or even deserts. Many wild plants and animals became endangered or even extinct. With the discovery of metals, mining began. This led to more degradation of land. Towns and cities were established. Accumulation of garbage and neglect of waste water led to diseases. Thus the whole face of the world changed to a great extent by the activities of agricultural societies.

Some agricultural societies of the present times: Agriculture has become the main occupation of many in the present world. As such, it is not possible to designate all those who have farms as agricultural societies. However, *there are some agricultural societies even today in different parts of the world.* Some examples:

- The Oceanians are agriculturists. Oceania is a group of scattered islands in the Pacific Ocean. Often, Australia and New Zealand are also included in Oceania. Agriculture is the main occupation of the Oceanians. They cultivate coffee, cocoa and coconuts.
- Yorubas of Africa, mainly in Nigeria and parts of Congo, cultivate maize, millets and banana. They also export cocoa.
- Bhils are agricultural tribes of India. They are spread in the four states, namely Gujarat, Madhya Pradesh, Maharashtra and Rajasthan. They are the 3rd largest tribe in India, after Santhals and Gonds. In 1991, there were 25 lakh Bhils in India. The heroic character Eklavya of *Mahabharata* was a Bhil. They cultivate cereals, vegetables and fodder crops; at the same time, they also hunt and gather food. So theirs is a mixed society.
- Gonds seen in parts of Orissa, Chhattisgarh, Madhya Pradesh, Maharashtra and Andhra Pradesh are also a mixed society, practising agriculture, hunting and gathering.
- The Nagas of Nagaland practise *jhum* cultivation and shifting cultivation. Cutting and burning the forest vegetation and using the ash as fertilizer in the same place is called *jhum* cultivation. The crops planted are always mixed. The Nagas make excellent handicraft items with bamboos etc. also.

But man's observing power was more than all of them. He observed how seeds sprouted in nature to give rise to new plants; he observed how the seeds were formed on the mature plants. He utilized this knowledge to cultivate the plants of his choice. *It is believed that wheat was the first cultivated crop.* He had understood that wheat grains have a tough coat which needs to be broken to reach the soft interior. For this, he used two stones of suitable shapes. This, we can say, was the first grinding device.

Later man found out that he could self-pollinate and cross-pollinate his plants. By this method, he produced better quality plants. For example, the date palm bears male and female flowers on separate trees. The ancient Babylonians used to cut branches bearing male flowers and shake them over female flowers. This method of cross-pollination made sure that good dates were formed.

In this way, gradually, *as man observed what was happening in nature and how it was happening, he learnt more and more things.* He successfully copied many feats of nature. In later years, he built boats which were shaped like fish and aeroplanes which were streamlined like birds. This studying nature and copying it will never end. In the present time, when man has advanced so much with all the discoveries and inventions, he is capable all the more of copying nature with perfection, using the vast knowledge he has gained from his past experiences.

As population is increasing steadily, man needs to have more food, more of everything. For this, he is trying to increase the efficiency of photosynthesis (making of food by green plants) by various means. He is also trying to increase the area of cultivation by reclaiming land degraded due to different reasons. To multiply plants in thousands, tissue culture is being adopted. To bring various useful genes in one combination, while plant and animal breeding were practised earlier, the same is being attempted by genetic engineering and biotechnology at present. Genetically modified (GM) foods and organic farming are becoming popular rapidly.

That fossil fuels will not last long has led to search for alternate energy sources. As a result, various such sources have already been found out. For example, *solar energy is being used for various purposes now.* Flat plate collectors using solar energy for heating water for domestic purposes have been in use for many years now. From the 1980s onwards, solar panels have been in great demand in the United States. Solar thermal electric power generation has also become common. Here, electricity is produced by using sunlight to boil water to steam, which is then used to drive an electric generator. More recent is the device which converts solar

treating the effluent, how can we say that we are a knowledge society? If we are cutting down forests and killing endangered species, how can we say that we are a knowledge society? So the first thing that we must know is that as part nature, we must protect nature. If we don't, we will perish. The day we realize this is the day when we can pride ourselves that we are a true knowledge society.

ENVIRONMENTAL MOVEMENTS AND PEOPLE'S PARTICIPATION

Europeans first went to North America in the 15th century. They saw that the resources were unlimited, and they began conquering the wilderness. This went on, with enormous wastage of resources. It was between 1832 and 1870 that some individuals became scared at the rate of loss and decided to spread environmental awareness. *By late 1800s a clear conservation movement began in the United States.*

In contrast to this, *the first environmental movement was organized in India in 1730, more than a century before such a movement originated in the U.S.* It was fought against indiscriminate tree felling in Jodhpur, Rajasthan. Amrita Devi, a village woman, collected 362 other women from her village and marched to the forest nearby. They declared that the forest trees could be cut down only over their dead bodies. And each woman clung to a tree and stood motionless when the contractors came. All the 362 women were axed to death by the tree fellers. This heart rending incident compelled the then king of Jodhpur to ban tree felling in that forest.

People's participation is a must in all environmental movements. Pollution of air, water and soil, and mindless utilization of natural resources have raised environmental degradation to dangerous heights across the globe. One of the best methods to reverse this trend is to organize movements emphasizing importance of environment.

Participation of local people is essential for any such movement to be successful. While ensuring people's participation, the following points must be kept in mind:

- As the people in charge of the programmes will be mostly outsiders, they will not have answers to all the questions. They should listen patiently to the local people.
- If there are any conflicts between individuals or groups of individuals in the locality, these conflicts should be removed so that people will interact a better-way.

- Some financial benefits must be there for the local people. Then only they will participate wholeheartedly.
- The decision makers should find out what issues are more important in the area from the local people themselves.
- The decision makers should always remember that their sole objective is to solve local environmental problems.

Some case studies

1. Gxalingenwa forest in South Africa covers an area of 616 ha and has great biodiversity. Here, outsiders are involved in illegal trapping of wild animals and trade of valued bird species, some of them endangered. Two environmentalists John Robertson and Michael J, Lawes (2005) surveyed the attitudes and opinions of the local people. The study showed that 77% of the local people wanted participatory forest management (PFM) in the area. They also wanted to share the benefits from the forest. They believed that the policies of the Government are obstructing their rights to the forest. Thus if participation includes sharing of profits, the users will ensure that the environment is not degraded. (The same must be true of the tribals of Jharkhand and other parts of India.)
2. Environmental conditions of a slum in Chandigarh were improved greatly by an awareness campaign involving the local people by Swami, Thakur, Gupta and Bhatia (2004). They involved mothers, childcare workers, medical students, teachers and school students in the programme and taught 40,000 slum dwellers the importance of hygiene.
3. Recently, in Plachimada in Kerala, villagers arose in protest against the powerful multinational Coco-Cola when they realized that the company was drawing an enormous quantity of ground water. "Drinking water is our birthright" read one placard.

SCOPE AND OBJECTIVES

Environment is everyone's concern. By the wrongful activities of human beings, nature has already been partly destroyed. Before the situation worsens further and the damage becomes permanent, it is our duty to preserve nature at least as it is now so that future generations will not accuse us of negligence.

Realizing the gravity of the situation, environmental movements have sprung up all over the world. *Environmental movements are most essential*

The list will be quite long. In this way, any issue related to environment is picked up by the environmentally conscious local people and a movement is born. Then they garner support and put their schemes into action. It is essential that the results of the activities of the movement reach the grass root level for a positive change to take place in the environment.

There have been many environment movements in India. The oldest of them is the Bishnoi Movement. It is believed to have been started by a sage called Sambaji 400 years ago in Rajasthan. People worship certain trees and the black bucks. The Bishnois worship and protect these plants and animals even today very sincerely.

Then there was the *Baliyapal Movement*. This was against the taking over of the thickly populated village of Baliyapal village's fertile land for testing missiles.

More famous Movements in India are the *Chipko Movement*, *Silent Valley Movement*, *Narmada Bachao Andolan (NBA)* etc.

WELL KNOWN ENVIRONMENTAL MOVEMENTS IN INDIA

The Chipko Movement: The first movement against indiscriminate tree felling was perhaps started in India in 1730, under the leadership of village woman Amrita Devi. Though at the cost of the lives of 363 courageous rural women, the movement was successful in that the King of Jodhpur banned illegal tree felling. However, nothing much happened as per records after that for more than two hundred years.

In 1972, the 'Chipko Movement' was initiated in Uttar Pradesh. Again, women were the pioneers. 'Chipko' means 'hug'. Timber contractors were felling trees in large numbers in the Uttarakhand hills. Under the leadership of Sunderlal Bahuguna, the Movement started in the Chamoli District of Garhwal region in U.P. The local women embraced trees when the contractors came to fell the trees. As a result, the contractors had to leave.

Chipko's plan is to planting the 5 F's, i.e. trees for

1. Food
2. Fodder
3. Fuel
4. Fire
5. Fertilizer

Every tree is a sentry to protect us from erosion, flood, draught etc. The most important product of trees is not timber as we think, but soil, water and oxygen. The movement soon became famous all over the world. Environmentalists from France, Germany, Sweden, Switzerland etc. came

to Inida to visit Bahuguna to learn about the unique Chipko Movement. On April 29th 1983, a group of school students assembled at the Union Square Park in New York and hugged a big tree to observe the Chipko Day.

Chipko Movement spread along the hill regions of India and reached Karnataka in 1983. On September 6th 1983, early in the morning, a group of villagers gathered near a pond and walked three kilometers towards the hills of Uttar Kannada. As they neared the foot of the hills, as expected, they saw men with axes about to cut down trees. The people, including women and children, ran towards them and each one stood hugging a tree. That was the beginning of the Appiko Movement in Karnataka. (Appiko means 'hug' in Kannada.)

It started without any propaganda, without media to cover the event or photographers to capture the moment in frame. They had no leader. They had only heard that somewhere in North India, some people had saved trees by hugging them and offering themselves to the axe men. It was only after the incident that Bahuguna visited the area.

The Chipko Movement of India was one of the four recipients of the 1987 Right Livelihood Awards totaling \$100,000. The Right Livelihood Awards Foundation introduced the awards in 1980. Every year, it honours and supports "those working on practicable and replicable solutions to the real problems facing us today". In a citation, the Foundation said, "Chipko is honoured for its dedication to the conservation, restoration and ecologically responsible use of India's natural resources."

Tehri Dam: Tehri Dam is built on River Bhagirathi, south of its meeting point with River Bhilangana. The dam is 260.5 metres high — more than three times the height of Qutab Minar. It is the highest rock fill dam in the world. It is more than 1 km wide in the riverbed. It can generate 2,000 MW of electricity. The dam can fully irrigate 2,70,000 ha and complement irrigation on another 6,00,000 ha of agricultural land.

The engineers who built it claim that the dam can withstand earthquakes of up to 7.2 on Richter scale. This magnitude is the same as that of the earthquake which rocked Kashmir in 2005. The engineers are thus extremely proud of their achievement.

The Central Himalayan region is a seismically active (earthquake prone) region. According to seismologists, an earthquake of more than 8.0 is expected to shake the whole of Tehri region before the end of this century. God forbid, but if this prediction comes true, the dam is sure to burst.

Even otherwise, whenever a dam is built and huge quantities of water

are stored in a reservoir, the tremendous pressure of the water itself has the potential to cause shifting of landmasses underground, resulting in earthquakes. If the dam is in an earthquake prone zone, this possibility is enhanced greatly.

Another danger is landslides. If a major landslide occurs and a huge landmass slides into the river upstream, the resulting wave will be so big that it will flow over the dam and flood all the areas downstream.

During the construction of the Tehri Dam, as in the case of other big dams, the engineering work was given all the importance. True, it is a major work and must be of excellent quality; but what about human lives? What about nature itself? In building the Tehri Dam, the social and environmental issues have been neglected. Bahuguna says, "This is a dam built on our tears". The reservoir will submerge 40 villages totally and 80 villages partly. This is in addition to the Old Tehri town. A total of 18,000 families had been displaced. But even though land acquisition had begun in 1979, only 13,000 local people have been rehabilitated till now.

Pratapnagar tehsil of the Tehri-Garhwal District is in between the two rivers, Bhagirathi and Bhilangana. The bridges connecting this tehsil with other places have been submerged. So the people have to take a much longer route to go anywhere. People of Lambagaon have to travel 80 to 100 kms to reach the District Head Quarters, in place of the 25 to 30 earlier. It is most difficult for pregnant women and other sick persons to go to the doctor along this long route. The cost of things and the transport cost have shot up steeply after the submergence of the bridge.

In general, in addition to submergence of good land and lack of proper rehabilitation packages for the displaced local people, mostly tribals and other rural poor, destruction to valuable biodiversity is a major concern when big dams are built. In the case of Tehri, these harmful effects of the dam do raise concerns in addition to the possibility of earthquakes.

Narmada Dam: River Narmada originates from a plateau in the district of Shahdol in the state of Madhya Pradesh. Its name is Amar Kantaka Plateau. The river flows westwards for about 1,300 km and empties in the Arabian Sea. It is the longest and largest west flowing river of India. Its annual water flow is 41 billion cubic metres. Between the Vindhya and Satapura mountain ranges, River Narmada drains almost 10 million hectares of land. Thus the basin of Narmada is very vast.

The Government of Madhya Pradesh decided to put to action a major plan called the Narmada Basin Development Programme. Accordingly, the plan was to build 35 large dams on River Narmada and its tributaries.

engineering studies. Whatever the case may be, it is a crime to destroy forests, which are vast gene pools of unique organisms.

Therefore, when the State Government of Kerala decided to construct a dam in the Silent Valley for generation of hydro power, there was a great furore. It was in 1976 that the Kerala Government put forward this plan of generating 120 megawatts of electricity by implementing the Silent Valley Project. The Government said that the dam would store 270 million cubic feet of water in a large reservoir, which would be 700 hectares in size. The estimated cost was Rs. 25 crores in 1979.

The educated people of Kerala are very much environmentally aware. They began protests immediately under the banner of the NGO, Kerala Sasta Sahitya Parishad (KSSP). The Parishad was supported by students, teachers and the general public of Kerala. A variety of protest methods were adopted.

It was a long struggle. Under the guidance of KSSP, people petitioned the Government to stop the project. Cycle and jeep rallies and hartals were organised, audio-visual films were prepared and articles were written in newspapers to create public awareness. In later stages, people of other states also came forward to help.

The Silent Valley Movement soon attracted the attention of environmentalists and environmental organizations in many foreign countries. Many, like IUCN (International Union for Conservation of Nature and Natural Resources) supported KSSP strongly. Finally, Prime Minister Indira Gandhi intervened and the Govt. of Kerala had to drop the project in 1984, by when the estimated cost had escalated to Rs. 51 crores.

This is the success story of how an NGO, supported by an enlightened public, converted an Environmental Movement into a mass movement and forced a state government to change its decision.

ROLE OF TRIBAL PEOPLE, WOMEN AND NGOS IN ENVIRONMENTAL PROTECTION

Role of Tribal people: As stated earlier, *hunter gatherers were the first tribal people in the world*. Many such tribes exist even today in different parts of the world. The hunter gatherers do not practice agriculture or animal husbandry. So they live in places close to the source of available water and food. So they move about a great deal. When food supply in one place gets over, they move to new places. This is of course bad for the forests where they stay, but the hunter gatherers live in small groups and the effect they can bring about in vast jungles is not much. Utilization is

never more than regeneration. Hunting gathering tribals' requirements were limited to the forest produce. The relationship between the tribals and the environment is therefore very friendly. Even when they hunt animals, the environment is not degraded as the requirement is limited.

Some other tribes took to pastoralism. Pastoralists are people who make a living by raising domesticated animals like cattle, sheep, horses and camels. Pastoralism is an adaptation to dense grasslands, mountains, deserts, etc. where agriculture and horticulture are not possible. Pastoralists are nomadic, moving far and wide in accordance with the weather conditions. One example is the Bakhtiari of Iran. They also do not destroy the environment as they are people who tend sheep and goats and move from Iran to Iraq and back when in search of grass in different seasons. However, they do clear forest areas by burning to set up temporary homes for their animals and themselves. Still due to the small numbers of animals and tribals, the damage to the environment is well within limits.

When the early man learnt to cultivate land, the agricultural tribals came into being. People became food producers about 10,000 years ago. When cultivation of food crops started, different river valley civilizations came into existence. Population increased. Modern tools were made which were used to clear forests by fire for jhumming cultivation. Shifting cultivation was also started when the original plots became infertile. Thus destruction of ecosystems start in the nature. Even today, jhumming is done in many parts of the North-East India and other countries of South and South-East Asia.

Some diverted from agriculture to horticulture. A good example of a horticultural tribe is the Gururumba of New Guinea. The family that keeps its garden neatest has the most prestige in the community. So the gardens are always well maintained. They use different soils for different crops. They also rotate crops. They do not use fertilizers. The crops are harvested at different times of the year. Altogether, the agricultural practices of the Gururumbas are environment friendly.

A tribe can be defined as a group of people in a primitive or barbarous stage of development acknowledging the authority of a chief and usually regarding themselves as having a common ancestry. They have a common dialect and occupy a common territory. In India, they are also called Vanavasis (forest dwellers) or Adivasis (primitive tribes).

Tribes are an integral part of the population of India. They are part of nature like others. The difference is that the tribal people know that they are part of nature, while others do not realise this truth. In such a situation,

it is not possible that they will destroy nature in any way. *Next to Africa, India has the largest tribal population in the world.*

Geographically, the tribes of India can be divided into three categories:

1. South Indian Tribes
2. North Indian tribes
3. Tribes of Central and Chotanagpur areas

In South India, there are many tribes. *Malapandarams are a very small tribe living in the Central Travancore Hills of Kerala.* They live in caves or very simple sheds. They are mainly gatherers, though at times they hunt with the help of tame dogs. They love forests and will never even imagine of destroying them. Other tribes in Kerala are hunters, fishermen or agriculturists. *Tribes of Tamil Nadu are also many, the most important being Todas.* They are a purely pastoral people, living in the forests of Nilgiris. *Of the Dravidian tribes, Gonds are the largest.*

Santhals are a very large tribe scattered all over Chota Nagpur and Santhal Paraganas. Santhals and Oraons depend on cultivation using ploughs. *Santhals, Oraons, Mundas and Hos are common in Jharkhand. Bhils are seen in M.P., Gujarat, Rajasthan, etc. Khasis and Garos are tribal people of Assam.* Many more tribes live all over India.

The tribal people live mostly in forests or nearby villages. They are a treasure house in the matter of knowledge in medicinal plants. In the forests of Uttarkhand, there is a special species of grass. It is famous all over the world for being inexhaustible. It is said to grow at night to compensate the loss happened due to grazing during daytime.

The Gonds are the most civilized and advanced aboriginal tribes of India. They are an agricultural tribe. They maintain the fertility of the soil by applying cow dung and all the garbage generated in their households to the soil. They always settle in elevated places so that there is a proper drainage. They also hunt animals. Their fields are fenced for protection. Oraons plant groves of fruit trees outside their village.

Kukis of Assam are a migratory race. They live in dense bamboo forests. They raise only one crop and then shift to another part of the forest where bamboos grow thickly. They cut down the bamboos and start cultivating. This is very bad for the soil. Garos also cultivate land for two years and then abandon the land. Khasis, a tribe living in Assam, burn down whole forests for cultivation.

In general, damage to our forests is brought about mainly by illegal tree felling by unscrupulous contractors and poaching of wild animals and birds by smugglers. These activities take place in many cases with

the knowledge and permission of forest officers. Industries also use a large quantity of timber for different practices. There are no laws that they must plant trees to make up for the loss. *The role of tribal people in damaging our forests is minimal.* They do not bring about large scale destruction as they depend on forests for their livelihood. These days, some tribal people have started selling forest produce illegally to urban traders, but this does not amount to much, though this tendency should be nipped in the bud.

In India, even after independence, the ancestral land and forest rights of our Adivasis were not recognized. This has been a historical injustice done for these past 59 years. Fortunately, Scheduled Tribes (Recognition of Forests Rights) Bill was drafted by the Ministry of Tribal Affairs in 2005. This has been supported by all political parties, tribal MPS cutting across party lines, tribal rights activists, anthropologists, social scientists and historians. Let us hope that this bill will be passed in Parliament. The state forest management has been proved to be ineffective in managing our forests. It is high time the forest rights are handed over to the tribal people, for they are sure to conserve the forests in a much better and sustainable manner.

Role of women: Throughout the developing world, women are often the most intimately connected to the use and care of the environment. This is partly because they are the most affected by changes in the environment. For example, in South and South East Asia, 60% of women are affected by HIV/AIDS while the percentage of affected men is less. Similarly, effect of toxic chemicals on health is maximal in women and children.

Women make half the population of the world. Yet they are a neglected lot. Though they work for two thirds of all the hours worked in the world, they receive only one-tenth of the world's income. They own only 0.01% of world's property. Women in the poor countries die more than men due to malnutrition and diseases related to pregnancy, which could have been prevented.

One of the main reasons for these discrepancies is the lack of education in women. Among the illiterate in the world, which was 950 million in 2001, more than two thirds were women. In many developing countries, literacy rates of women are less than half of those for men.

The UN Fourth World Conference on Women was held in Beijing, China in 1995. This Conference recognized that women have an important

part of the decision making group working in the areas of conservation, protection and rehabilitation.

Women are natural leaders in:

- Promoting environmental ethics
- Reducing resource pollution
- Recycling resources to minimize waste
- Reducing excess consumption of resources, etc.

It was in the Tehri Garhwal District, where the Chipko Movement led by Gandhian Sunderlal Bahuguna began, another Movement originated - the Beej Bachao Andolan (Save Seeds Movement or SSM). Here also, like in the case of the Chipko Movement, village women took the initiative. *The rural women took part most enthusiastically in saving traditional seeds and motivating farmers to practice organic farming.*

In farming villages, though men plough the fields, it is women who do most of the other work in the fields. Men bring new hybrid variety seeds as they get subsidies for such seeds. Men say green revolution seeds are better as they give a higher yield and this will increase profit. But the women know that these will ruin the land, and so they do not want to go in for short term gains. They prefer traditional seeds and it is well known today that these are best for long term sustainable development.

Some activists of the Save Seeds Movement participated in the famous Kashmir to Kohima foot march organized by Bahuguna. Forest Protection Committees were organized and watchmen (actually, watchwomen) were appointed for protection of many forests. This resulted in remarkable regeneration of forests in Jardhar, Kuri, etc.

Women of a village in Orissa decided to take the responsibility of protecting forests on their own shoulders when the male members who were doing the same began to face serious threats from the timber mafia. On October 26, 1999, 200 people with 70 carts were seen entering the forest for illegal tree felling. The men ran to the forest department but received no help from them. The women then gathered outside the forest, divided themselves into two groups and stood on either side of the path to the forest. When the men came out, the women attacked them with spades and sharp weapons. The men were scared of fighting the women due to social reasons, and ran away! The women then sent for the forest officials. The felled timber was sold by the villagers. The money was deposited in the village fund. This is a real woman power.

In hilly villages, women fetch fuel wood, fodder and water for their households. So it is the women who suffer most from loss of forests. They

will have to walk longer distances with heavy loads on their heads. They may also have to go to dangerous slopes to collect fuel wood and fodder. This was a major reason why the Chipko Andolan was supported more enthusiastically by women.

It is women who do all types of work at home which need water, like cooking, washing of clothes and utensils, etc. Therefore *scarcity of water affects the women most*. The result is that they will use water very sparingly, as they know the real value of water.

Women nature writers play an important role in environment protection. Alice Hamilton (1869 to 1970) of the US was the first to write in detail about industries polluting the environment by toxic waste materials. She continued writing for the safety of workers in such industries. Rachel Carson (1907 to 1964), also of the US, was a nature lover. Her book 'The Sea Around Us' published in 1952 was a best seller. She also spread awareness in effect of pesticides among the common people. In India, Vandana Shiva, winner of many awards, published 11 books and 74 articles on research and analysis on environmental themes, mainly conservation of biodiversity.

Role of NGOs: Non-Governmental Organisations (NGOs) have become common in all countries in the world. This is because the Governments on their own have not been able to solve all the problems facing their peoples anywhere in the world.

NGOs play an important role in promoting:

- Nature conservation
- Pollution control
- Rural development
- Literacy
- Family welfare
- Social forestry
- Environmental awareness, etc.

There are many NGOs worldwide. Some of them are international, some national and some local. All are non-profit organizations. NGOs try to bring about changes in attitude in governments and business houses also, in addition to the people. NGOs are spreading very fast everywhere. In 1998, a study by Johns Hopkins University found that this non-profit sector employs 19 million people in 22 countries.

Formation of NGOs is a comparatively recent phenomenon. More than half number of all the NGOs in Europe were founded only in the last 10 years or so. 70% of those in the US are less than 30 years old. The total

number of international NGOs was just 176 in 1909. The number increased to 23,000 by 1998.

The strength of NGOs has been proved time and again. The signing of a treaty to ban landmines can be taken as one example. An international NGO, called the International campaign to Ban Landmines (ICBL) was formed in 1993. The aim was to promote a treaty to ban landmines. The NGO never had an office; nor did they have any permanent staff. Only with the help of e-mail and the internet, ICBL contacted more than 1,000 organizations in 60 countries and requested them to get governments to ban landmines. By 1999, 131 nations had signed a treaty which bans the production, stocking and use of landmines.

The method adopted by ICBL was simple. They did not project use of landmines as a military practice. Instead, they publicized the fact that 80% of the people who died or got injured were civilians. They also involved the injured in the campaign. By doing this, they gained sympathy from the public and the governments. Thus the whole issue was humanized. The result was extremely good.

The most well known international NGO is Greenpeace. This is a non-profit organisation with a presence in 40 countries. It organises public campaigns for almost everything related to environment. It is based in Amsterdam. In India, its office is situated in Bangalore. *Unilever Mercury thermometer production plant* in Kodaikanal, Tamilnadu, used to import mercury from the US and re-export thermometers back to the US. Lax safety standards at the plant left workers with mercury poisoning. Large mercury contaminated wastes were dumped in the surrounding areas by the company in complete disregard of the local communities. Local environment groups and Greenpeace exposed this in May 2001. The plant was closed, but the waste was left where it was. Cleanup has started recently. The Greenpeace campaigner in India says that several thousands tons of toxic waste contaminated soil are still to be identified. The beginning of the cleanup is a big victory for the campaigners in India.

This is a classic case of chemical industries of selling plants that are too dirty or inefficient for the US or Europe to countries such as India where environmental and safety standards are lower. Thus these industries continue to make profits from pollution in poorer countries. It is high time we Indians become aware of such nefarious designs. For this also, creating environmental awareness is of paramount importance for the third world countries. The latest example is the sending of an *asbestos laden ship*

held together by a sense of identity. A society in which there are differences in the cultures of its people is called a pluralistic society.

All the living and the non-living entities that surround man is his environment. The early man took a great step forward when instead of depending entirely on wild plants for food he began to grow them himself. When he had sown seeds, he had to wait for them to sprout and grow. This took time and so he had to settle near his crops. Homes were built. Spinning and weaving, pottery and metal-beating developed.

By choosing the best seeds from the best plants and by watering the plants regularly, man gradually produced cultivated varieties. Later he found that he could pollinate and cross-pollinate his plants and produce better varieties. Wheat was probably the first grass to be cultivated, between ten and fifteen thousand years ago. It was much later that man understood the importance of fertilizers in cultivation.

The dog was probably the first animal to become friendly to man. Later he domesticated many animals for their flesh, skin, milk and wool. The silkworm has been reared for several thousand years now. Later, man tried his hand at making things artificially, copying nature, and succeeded. Inventions and discoveries continued at great speed.

Man, the Destroyer of the Environment: As the human population and the greed of man increased, the environment's degradation began. Earlier, man used to kill animals only for food and clothing. But soon, he started to kill for sport and pleasure. Thoughtless destruction of animals has always resulted in an increase in the number of their prey. Snakes are killed for various reasons, but then mice are multiplying fast when there are no snakes to keep their numbers down.

To cultivate crops, he destroyed large areas of wild forests, resulting in large-scale extinction of many valuable plants and animals. When man cuts down great forests for timber, disaster follows unless he plants new trees. In Syria, Palestine and North Africa, cities of the past have become deserts due to this reason. Loss of wild plants and animals is a permanent loss to mankind. We never know which plants and animals in the wild have useful properties. Who can say with certainty that chemical substances which can fight cancer or AIDS were not present in the plants or animals that have become extinct now?

Man, the Preserver of the Environment: Luckily, man is beginning to realize his responsibilities towards living things and to the earth as a whole. He understands that for every tree cut, another should be planted and that the soil must be enriched every time a crop is harvested. He knows that

from France to India. The ship is said to carry many more tons of asbestos in excess of the declared quantity. Greenpeace has protested the deal, saying that the workers who do the ship breaking in Gujarat will fall victims to slow asbestos poisoning. (Asbestos is a carcinogen, i.e. a cancer causing chemical.)

The role of NGOs in creating environmental awareness and promoting environmental education is most significant. The Bombay Natural History Society (BNHS) began as a small society of 6 members in 1883. *BNHS is India's oldest research oriented NGO, working in wildlife research.* It publishes many magazines. Dr. Salim Ali, a great ornithologist, was a scientist in BNHS. The BNHS has helped Government of India in formulating many laws on wildlife. Though started for promoting wild life, *World Wide Fund for Nature - India (WWF-I) with Head Office in New Delhi works on many environmental issues.*

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Some other examples in India are:

- Khonoma is a village in Nagaland where the warrior tribe Angami lives. A lot of timber was being stolen from the forests. Khonoma is a tourist village. So the local Tourism Development Board is conducting an Environment Impact Assessment (EIA) study to know the impact of tourism on the environment. In this study, the NGO, 'EQUATIONS' helped the Board a lot.
- Satara Tukum is a small tribal village in Maharashtra. Till 1970, the forests in the village were quite healthy. But later, degradation set in slowly and very soon habitat degradation and loss of wildlife were noticed. It was the Nagpur based NGO, Vidharbha Nature Conservation Society, that formed a Nature Club with the village youth.
- The NGO 'Vasundhara' in Orissa helps in convening monthly meetings of women from nearby villages to discuss matters related to forest protection.
- Magsaysay award winner Rajendra Singh did a lot for water conservation in Rajasthan. He got the Ramon Magsaysay award for his work in 2001. He became famous as the Water man of Rajasthan. He was involved in the watershed management projects

11. Diffusionism and culture cycles
12. Functionalism and society
13. Origin of settlements
14. Rural settlements
15. Urban settlements
16. Impacts of settlements on environment
17. Wild life Protection Act 1972
18. Agricultural societies and their impacts on environment
19. Agricultural societies of the present times
20. Industrial revolution and its effects
21. NGO's

C] Long answer type questions:

- a) Write long notes on any two:
 1. (i) Characteristics of sustainable development
(ii) Comparison between stable and unstable settlements
(iii) Hunting gathering societies and their impact on environment
 2. (i) Views of early anthropologists on evolution of civilization and society
(ii) Guidelines for sustainable earth society
(iii) Throw away society ethics
 3. (i) Sustainable society ethics
(ii) Knowledge Society
(iii) People's participation in environmental movements
(iv) Scope and objectives of environmental movements:
 4. (i) Chipko Movement
(ii) Narmada Dam
(iii) Tehri dam
(iv) Silent Valley
- b) What are individual's rights and responsibilities towards clean environment?
- c) What do you understand by Environmental Ethics? Explain.
- d) What were Swami Vivekananda's views on youth, women and social development?
- e) What was Gandhiji's approach towards youth, women and social development?
- f) Describe in detail the ethical guidelines which prevent degradation of environment.

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7. Planting food crops and tree crops as a mixture is called:
(a) Social forestry (b) Afforestation
(c) Reforestation (d) Agroforestry
8. 'On the Origin of Species' was written by:
(a) Charles Darwin (b) George Mendel
(c) Carolus Linnaeus (d) George Bernard Shaw
9. An urban area with more than 1 lakh population is a:
(a) Town (b) Municipality
(c) Small town (d) City
10. Examples of mega cities are:
(a) London (b) Paris
(c) Mumbai (d) All of the above
11. Simplest and most primitive tribals are:
(a) Bhils (b) Pygmies
(c) Nagas (d) Eskimos
12. Arthasastra was written by:
(a) Aryabhatta (b) Kalidas
(c) Kautilya (d) Varahamihira
13. Swami Vivekananda's birthday on 12th January is celebrated as:
(a) National Youth Day (b) World Environment Day
(c) World Population Day (d) National Integration Day
14. Bhils are present in:
(a) Gujarat (b) Madhya Pradesh
(c) Maharashtra (d) All of the above
15. The oldest Environment Movement in India is:
(a) Silent Valley Movement
(b) Narmada Bachao Andolan
(c) Bishnoi Movement
(d) Chipko Movement
16. Chipko Movement is associated with:
(a) Medha Patkar (b) Arundhati Devi
(c) Sunderlal Bahuguna (d) Salim Ali
17. Tehri Dam is built on River:
(a) Yamuna (b) Sindhu
(c) Brahmaputra (d) Bhagirathi
18. Shanti Niketan was set up based on environmental ethics by:
(a) Jawaharlal Nehru (b) Mahatma Gandhi
(c) Rabindranath Tagore (d) Vidyasagar

- g) Trace the growth of civilization and social structures in the world.
- h) Give an account of human settlements.
- i) With the help of suitable diagrams, describe settlement patterns.
- j) Discuss the role of tribal people in environmental protection.
- k) What is the role of women in protecting the environment?
- l) How do NGOs help in environmental protection? Explain with examples.