

Environmental Science

Lecture 28

Case Study

If you look at the first case study, Himachal Pradesh was the first state to regulate the manufacture and use of plastics. The State proposed a ban on all types of polythene packing. The Indian Oil Corporation and the Department of Science & Technology are expected to establish India's first plant to convert waste plastic into petrol, diesel as well as LPG. A process was invented by an Indian couple to convert the world's most polluting objects into its most sought after commodity and this has been validated. The results of 11 experiments conducted at the Indian Oil Corporation's (IOC) R&D centre have proved that the plastic-to-petrol process does indeed work. The invention yields 40-60% liquid petroleum from a kilogram of waste plastic, the production cost is a mere 7 Rs per litre. When we were just talking about consumerism and waste products, we have already come to a conclusion that certain wastes cannot be prevented from being generated. Plastic has pretty much entered every realm of the packaging industry, every realm of even the manufacturing industry, most primarily the water bottles, plates, disposable cups, everywhere you turn things are made from plastic. Even computer parts, gadgets, everywhere there is an element of plastic that has been utilized. Actually coming up with such a useful use from waste of plastic is stupendous because we are generating the waste of plastic in tonnes and mega tonnes and petrol is also simultaneously getting consumed at the same rate and it being a fossil fuel, this proves to be a marriage in heaven where the waste from plastics is getting converted into a prized commodity like petrol, diesel as well as LPG.

Alka Zadgaonkar was the first one to find a method to convert waste plastic to oil. Shredded plastic waste - free of oxygen is heated with coal and a secret chemical. The products include fuel range liquids, coke and LPG range gases. About 1kg of plastic and 100 gm of coal churn out a litre fuel which contains the gasoline range. This was the first product that was found by Alka but now IOCA and its R&D team with another couple are in talks of doing it on a different level without the use of coal and fossil fuel.

Environmental Protection Act

Constitution of India had come up with the 42nd amendment in the year 1976, 'It shall be the duty of every citizen of India to value and preserve the rich heritage of our composite culture. To protect and improve the natural environment including forests, lakes, rivers and wildlife and have compassion for living creatures. It actually became a law around that time as the industrial revolution subsided, technological boom happened, wars happened, amendments regarding artillery, weaponry, all of that settled. We saw the damage we caused to the environment and way our lives deteriorated when compared to the 40s and 50s and that's when we realized that

a law must be passed. The constitution must recognize the role of environment as a being that needs to be sorted, rather than a separate entity that can be utilized and exploited. Utilization of environment and natural resources in one, at the same time exploitation of it is another human issue entirely.

Conference on the human environment was held in 1972. The government of India participated in the conference and strongly voiced the environmental concerns. While several measures have been taken for the environmental protection, both before and after the conference, the need for general legislation to further implement the decision of the conference became increasingly difficult. What happens is, the implementation process is always a problem. At first there is this moment of inertia when we have to start and work on something. Even if we cross that moment of inertia and come up with a plan or policy or anything, the implementation phase is the next bottleneck that we usually face. We have a nation and even as the entire globe, all the countries together have realized that the environment is a finite source, we have to ensure that we preserve it for the future generations. It's not something that's going to keep giving never endingly. At one point of time, all the oil fields will run dry, all the oxygen might get consumed at the rate we are going with consumption of fossil fuels as well as deforestation at the same time. There is a balance of nature that we must maintain and not exploit it with our over usage.

The Environment protection Act of 1986. The Department of environment was established in 1980. This later became ministry of environment and forest. Environmental Protection Act of 1986 came into effect soon after the Bhopal Gas strategy. EPA was passed in March 1986 and came into force on 19th Nov, 1986. It is only when a tragedy occurs, when something happens and an intervention is required to wake up and when some legislation is required where people are answerable if some kind of mishap occurs. It is considered to be an umbrella legislation as it fills the gaps in the existing laws. Thereafter large number of laws came into existence as many problems begun to rise.

The Environmental Act of 1986 has been divided into 4 chapters relating to preliminary, general powers of the central government, Prevention, control and abatement of Environmental Pollution and Miscellaneous. When you think of preliminary, it has to stat what does it encompass. When you think of Environment pollution, what are stipulations and limitations of the act? Then, the General powers of the central government. This pretty much entails what are the details and ways in which the central government has control over the different bodies as well as the people who are going to exploit these so called laws and policies? Prevention, control and abatement; all of this encompasses all of the elements. Air, water, pollution; any kind of pollution in the environment as a whole and miscellaneous pretty much details out any appendices, any kind of data that we need to back up on for our information.

Central government actually has the power to take out all measures for protecting and improving the quality of environment. It is a combination of coordination of actions by state government officers and other authorities under this act or under any law, laying down standards for the quality of environment in various aspects, laying down standards for emission or discharge of environmental pollutant from various sources. Prevention and control also entails; laying down certain procedures and safeguards for handling of hazardous substances and more than laying down procedures and safeguards, prior to this is to create an awareness when people are working with hazardous substances. In a country like India where illiteracy is quite rampant, people are not even aware that there might be working in a factory that can cause harm to them in the long run, if they do certain things they can protect themselves. They might be given earmuffs which they might find irritating and keep it aside. They don't realize that they can go deaf if they are constantly exposed to such loud noisy circumstances. They might have a mask to breathe through which they may remove, they might in turn be breathing asbestos dust or any other kind of dust in the construction industry. Before having procedure and safeguards, the people have to be made aware that they are dangers around them and of how can they safeguard and overcome them. Examination of manufacturing process, materials and substances which are likely to cause pollution, carrying out and sponsoring investigations and research relating to problems pollution. Establishment and recognition of laboratories. To exercise powers and perform functions central government may constitute authority. We actually have to decide who is going to be the authoritative board, who is going to decide, who is going to implement them and who has the power to make sure those laws are being followed.

Environmental pollution is not only affecting individuals, but also countries all over the world. This is the one issue that all countries will come together for. Twelfth five year plan has emphasized the need of sound environmental management, which includes environmental planning, protection, monitoring, assessment, research and education as a major guiding factor for national development. When you think of talking about the economics of the country, the GDP etc, this is also a very important thing we need to talk about. Recently, Bhutan came up with the title of being the only country in the world to have a negative carbon footprint where we are consuming so many fossil fuels and depleting natural resources. This doesn't mean that people are living in Bhutan like cavemen with no technological advancement. Everything is there but in control. All amenities can be enjoyed, no one is going to prevent them from living a good life. To lead a good life one doesn't need to pollute the environment or exploit nature. All we need to do is strike the right balance and seeing that Bhutan has done this successfully, it is obviously a possible factor and not something Utopian that can never be thought about.

India is a 'soft state'. We have excellent environmental laws but politics and corruption prevents the effective implementation of such laws which is disastrous to the environment and economy as a whole. Any reform that needs to come to the environment is thought of as a blockade for growth of industries. Say a particular industry is given a 'no objection' certificate or an 'objection' certificate because it is polluting a particular river or it is endangering a particular type of species, they might actually pay off a government official and get the lead for it. Eventually, they are going to be the losers in the long run and this is what they don't realize. The main reason for that is a lack in awareness and education. It is a vicious circle that we have to encounter where we need to first create a well appointed pattern. Everyone needs to be aware of the decisions they are making and what sort of a repercussion it might have on them.

Air Prevention and Control of pollution Act 1981. The scope and object of the act - the presence in air, beyond certain limits, of various pollutants discharged through industrial emission and from certain human activities connected with traffic, heating, use of domestic fuel, refuse incinerators, etc; has a detrimental effect on the health of the people and on plant and animal life as well. The Central Government legislated the bill to implement the decisions taken regarding the preservation of the quality of Air and control of air pollution, in Stockholm in the United Nations Conference on the Human Environment, held in June, 1972 that we just discussed. The EPA conference that we just discussed, India was a part of it then we came back and saw how everything was going on and went about setting our own rules, regulations and legislations which will aid and abide with our country in progressing in the right pattern. This act is designed to prevent control and abatement of air pollution, the provisions relate to preservation of quality of air and control of pollution. Keeping in view these objects, the act has provided for measures that are preventive in nature, in the cases of industries to be established, and in the case of industries that are already present, there are certain remedial procedures as well. It insists that one has to get the consent of the Board, making the industry amenable to the administrative control of the Board. Once a consent is given, the Board can issue orders or directions which are complied by the industry. There is no choice to follow it or not. Once one has an industry, they have to ensure that the effluents are checked every now and then and if at all there are certain harmful effluents, if one does not do anything about it depending on the seriousness of the effluent, their plant and industry may even be shut down and they might have to pay a huge fine and might even have a prison sentence.

The bodies constituted to enforce the Act, you have the Central Pollution Control Board constituted under section 3 of the Water Prevention and control of Pollution Act 1974. It was authorized to exercise the powers and perform the functions for the prevention and control of both air as well as water pollution. Even though the acts are separate, when you usually think about industries as such, most things are intrinsically linked. For instance, the acid rain. Even

though it begins cause of air pollution, its final result is water pollution. The sulphur dioxides, the nitrous oxides, all of these are effluents from typical industries manufacturing industries like tanneries and other industries like petroleum plants, all of these. Once these enter the water and the atmosphere, its going to cause a cyclic reaction in all human chain. Since it is going to affect the food chain, the plants, because the groundwater is going to be contaminated from surface water which in turn causes the animals and humans are going to eat those plants, this is going to reach another level entirely. Even though we might have the State Pollution Control board or Central Pollution Control board separately for air and water, they are authorized for the same purposes to exercise their powers and make sure they perform these functions not only to ensure that they prevent pollution but also where it cannot be completely avoided, they are aware of the source of that kind of air or water pollution.

The Functions of the central board - the main function of the Central Board is to improve the quality of air and to prevent, control or abate air pollution in the country. Some functions also include advice to the central government or any matter concerning the improvement or quality of air and prevention control. Especially when industries are going to be set up, certain areas that are already heavily polluted, the board can advise and tell them to not construct any more industries in this particular area and rather shift to a different area instead because the area is already over polluted and overpopulated as well. Provide technical assistance and guidance to the State board, carry out and sponsor investigations and research relating to the problems of air pollution and prevention, control or abatement of air pollution. Perform such of the functions of any state board as may be specified in the order under sub-sections as of 2 or of section 18. You need to lay down standards for the quality of air, let it be in state or in the Central board, there are certain standards that ought to be maintained for quality of air which is considered healthy and permissible. Any kind of impurity that is present beyond the permissible level is going to cause a lot of issues and the board has to be aware of this. Constant studies, research and tests have to be conducted, especially in highly industrially developed areas. You need to collect and disseminate information in respect of matters relating to air pollution and once these tests are done and a particular area/location is deemed unfit, like the recent scenario that happened in Delhi where the pollution reached alarming standards such that children and other individuals were getting affected with a lot of breathing issues and all of that causing the board to step in and severally tell that certain strict actions have to be taken against pollution, else it is going to have a detrimental effect. Even flights couldn't fly in and fly out because of the pollution and smog situation in Delhi. All of these encompass the functions of the Central board.

They have typical penalties for non compliance with the Central board like severe fines, imprisonment and if one fails to pay the fine, the industry or reason via which one is polluting

the atmosphere or the environment, those can be shut down and one would be looking at a prison sentence if they fail to comply with any of these standards. Anywhere from 1 to 7 is the punishable offence they'd be looking at.

The Air act is a beneficial legislation which is enacted for the purpose of proper maintenance of nature and health of public at large. Hence, even if it is possible to have two opinions on the construction of the provisions of the Act, the one which advances the object of the Act and is in favour of the people or the environment as such, only that is to be accepted. Any case that goes to the court because of pollution against an industry is always going to go only in favour of the party i.e being affected maximum which is the environment and the people. The industry is always going to be asked to shut down or must incorporate certain immediate practices that help curtail its effluent discharge.

Water Prevention and Control of Pollution Act

This Water Act was basically enacted by the Parliament in 1974. Similarly, the purpose was to provide for the prevention of water pollution as well as maintaining and restoring the wholesomeness of water. An on day, it is applicable in all the states of India. In this act, unless the context, otherwise requires - Occupier, Outlet, Pollution and Trade effluent. These are the main players in the act. An Act to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes aforesaid, of Boards for the prevention and control of water pollution and also to maintain the quality of water. The Water Board is even incharge to make sure that there is portable and drinkable water available to all in this country. Some people don't even have drinking available for them and they are forced to consume polluted, discarded water. All of this is an added responsibility of the Water Board essentially. They have to make sure that their powers and functions relating to water are well connected and well attached to the states involved as well. It provides for maintenance and restoration of quality of all types of surface as well as ground water. Especially in rural areas or where mining has happened, certain chemical spills have happened, at once they have to conduct water test and water checks to see if the water has been polluted in any way and if at all the groundwater is contaminated, a radius has to be at once checked out to see to what extent has it been contaminated and suitable measures have to be taken to prevent this contamination from spreading. It basically confers them with powers and functions to control pollution. It has provision for funds, budgets, accounts and an audit of Central and State Pollution Control board. It also makes sure that it has provision for various penalties, defaulters, as well as the procedure for the same. It is the main governmental organization at the Central level for prevention and control of water pollution. It basically advises the central government in matters related to prevention and control of water pollution. With respect to set up of water industries, if its going to be near the

Ganges river for instance, they will at once check the report of the industry, what kind of an industry is it, what is the product that is going to be manufactured, what is the affluent manufacturing element in this product, etc. All of the aforementioned has to be studied and they will advise the central government whether they must issue the license or not. All the state pollution control boards are guided and technically assisted by CPCB. It organizes training programs for prevention and control of pollution at various places like seminars to ensure that everyone, even the state and the Central area on the same page with respect to maintaining the policy. It organizes comprehensive programs on pollution related issues via mass media. It collects, compiles and publishes technical and statistical data related to pollution. It prepares manuals for treatment and disposal of sewage and trade effluents. Lays down the standards for water quality parameters. They are also deeply involved in the awareness program where in people are made aware of the fact of what's happening around them; like he or she knows that they live in an area where the river is polluted, or where so and so industry is in the vicinity, one needs to watch out. One needs to get their water tested to check the PPM value, the Particles per Million value in it, is it within the safety standards? If its not, what can one do, who should you contact. All of this information, irrespective of them being educated, it has to reach them and certain steps that have been taken by them especially in the rural level if the particular area or groundwater is contaminated, that particular sump is painted red to warn people that the water is contaminated and not fit for consumption but it has be made sure that people understand colours like how red denotes danger and that they are not supposed to consume that water

All of these are objectives of the pollution control board. It plans nation-wide programs for prevention, control or abatement of pollution. It establishes and recognizes laboratories for analysis of water, sewage or trade effluent samples. The state pollution control board also have similar functions to execute at the level of the state but under the guidance of the Central board.

CPCB identified polluted water bodies which leads to formulation of action plan for reservation of the water body. Based on CPCB's Recommendations, Ganga Action Plan was launched in 1986 to restore the WQ of the Ganga by interception, diversion and treatment of wastewater from 27 cities/ towns located along the river. Based on the experience gained during implementation of the Ganga Action Plan, Govt of India extends river cleaning programme to other rivers and lakes. In the same context, we should even talk about the non-governmental organizations who step in and clean smaller water bodies like lakes, ponds, estuaries that are actually part of the biodiversity in our city. For example, the Pallikaranai lake in Chennai which has been cleaned regularly by the community around that area with the help and support of the Govt to a small extent.

Moving on to the Wildlife Protection Act. The Wildlife Protection Act was passed by the parliament of India in 1972 to protect India's wildlife. Like we just saw, all of these elements - air, water, other elements of the environment and nature do find a need to be protected. Similarly, wildlife is a very intrinsic part of our ecological process. It cannot be ignored and is definitely going to affect human beings at the final level. The main objective of the act is - Prohibition of on hunting of specified wild animals, birds and plants. Setting up management of national parks and wildlife sanctuaries. Control of trade and commerce in wildlife and wildlife products. Definitions under this act that we need to look at are - What does 'animal' or 'wildlife' entail? It includes amphibians, birds, mammals, and reptiles and their young. It also includes in the cases of birds and reptiles, their eggs as well. 'Animal article' is used to refer to an article that has been made from any captive or wild animal, other than vermin, and includes an article or object in which the whole or any part of such an animal has been used and an article made there from. The ones you see on the slide are made using leather and the tusks that have been carved into attractive decor products.