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## SOCIAL JUSTICE REGARDING ENVIRONMENTAL ISSUES

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### Abstract

*Any country's environmental problems are related to the level of its economic development, the availability of natural resources and the lifestyle of its population. In India, rapid growth of population, poverty, urbanization, industrialization and several related factors are responsible for the rapid degradation of the environment. Environmental problems have become serious in many parts of the country, and hence cannot be ignored. The main environmental problems in India relate to air and water pollution particularly in metropolitan cities and industrial zones, degradation of common property resources which affect the poor adversely as they depend on them for their livelihood, threat to biodiversity and inadequate system of solid waste disposal and sanitation with consequent adverse impact on health, infant mortality and birth rate. In India, efforts are being made on for the environmental management in a sustainable manner. At all levels of education provisions have been made for the knowledge of environment and its conservation. In the country many centres are providing special training for environmental management.*

**MEANING OF ENVIRONMENT:** Environment is everything that is around us. It can be living or non-living things. It includes physical, chemical and other natural forces. Living things live in their environment. They constantly interact with it and adapt themselves to conditions in their environment. In the environment there are different interactions between animals, plants, soil, water, and other living and non-living things.

**ENVIRONMENTS ISSUES IN INDIA:** Environmental pollution refers to the introduction of harmful pollutants into the environment. These pollutants contaminate the environment. It has a hazardous effect on the natural world and on the activities of living beings.

There are many environmental issues in India. The major types of environmental pollution are **air pollution, water pollution, noise pollution, thermal pollution, soil pollution and light pollution.**

### 1. AIR POLLUTION:

Air pollution is one such form that refers to the contamination of the air, irrespective of indoors or outside. A physical, biological or chemical alteration to the air in the atmosphere can be termed as pollution. It occurs when any harmful gases, dust, smoke enters into the atmosphere and makes it difficult for plants, animals and humans to survive as the air becomes dirty.

### CAUSES OF AIR POLLUTION:

**1. Burning of Fossil Fuels:** Sulphur dioxide emitted from the combustion of fossil fuels like coal, petroleum and other factory combustibles is one the major cause of air pollution. Pollution emitting from vehicles including trucks, jeeps, cars, trains, airplanes cause immense amount of pollution. We rely on them to fulfil our daily basic needs of transportation. But, there overuse is killing our environment as dangerous gases are

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polluting the environment. Carbon Monoxide caused by improper or incomplete combustion and generally emitted from vehicles is another major pollutant along with Nitrogen Oxides that is produced from both natural and man-made processes.

**2. Agricultural activities:** Ammonia is a very common by product from agriculture related activities and is one of the most hazardous gases in the atmosphere. Use of insecticides, pesticides and fertilizers in agricultural activities has grown quite a lot. They emit harmful chemicals into the air and can also cause water pollution.

**3. Exhaust from factories and industries:** Manufacturing industries release large amount of carbon monoxide, hydrocarbons, organic compounds, and chemicals into the air thereby depleting the quality of air. Manufacturing industries can be found at every corner of the earth and there is no area that has not been affected by it. Petroleum refineries also release hydrocarbons and various other chemicals that pollute the air and also cause land pollution.

**4. Mining operations:** Mining is a process wherein minerals below the earth are extracted using large equipment's. During the process dust and chemicals are released in the air causing massive air pollution. This is one of the reason which is responsible for the deteriorating health conditions of workers and nearby residents.

**5. Indoor air pollution:** Household cleaning products, painting supplies emit toxic chemicals in the air and cause air pollution. Have you ever noticed that once you paint walls of your house, it creates some sort of smell which makes it literally impossible for you to breathe.

Suspended particulate matter popular by its acronym SPM, is another cause of pollution. Referring to the particles afloat in the air, SPM is usually caused by dust, combustion etc.

#### EFFECT OF AIRPOLLUTION:

**1. Respiratory and heart problems:** The effects of Air pollution are alarming. They are known to create several respiratory and heart conditions along with Cancer, among other threats to the body. Several millions are known to have died due to direct or indirect effects of Air pollution. Children in areas exposed to air pollutants are said to commonly suffer from pneumonia and asthma.

**2. Global warming:** Another direct effect is the immediate alterations that the world is witnessing due to global warming. With increased temperatures world-wide, increase in sea levels and melting of ice from colder regions and icebergs, displacement and loss of habitat have already signaled an impending disaster if actions for preservation and normalization aren't undertaken soon.

**3. Acid Rain:** Harmful gases like nitrogen oxides and sulphur oxides are released into the atmosphere during the burning of fossil fuels. When it rains, the water droplets combines with these air pollutants, becomes acidic and then falls on the ground in the form of acid rain. Acid Rain can cause great damage to human, animals and crops.

**4. Eutrophication:** Eutrophication is a condition where high amount of nitrogen present in some pollutants gets developed on sea's surface and turns itself into algae and adversely affects fish, plants and animal species. The green colored algae that are present on lakes and ponds is due to presence of this chemical only.

**5. Effect on Wildlife:** Just like humans, animals also face some devastating effects of air pollution. Toxic chemicals present in the air can force wildlife species to move to new place and change their habitat. The toxic pollutants deposit over the surface of the water and can also affect sea animals.

**6. Depletion of Ozone layer:** Ozone exists in earth's stratosphere and is responsible for protecting humans from harmful ultraviolet (UV) rays. Earth's ozone layer is depleting due to the presence of chlorofluorocarbons, hydro chlorofluorocarbons in the atmosphere. As ozone layer will go thin, it will emit harmful rays back on earth and can cause skin and eye related problems. UV rays also have the capability to affect crops.

When you try to study the sources of Air pollution, you enlist a series of activities and interactions that create these pollutants. There are two types of sources that we will take a look at: **Natural sources and Man-made sources.**

## 2. WATER POLLUTION:

Water bodies e.g. lake, river, ocean and ground water get contaminated due to discharge of pollutants in the water bodies without any treatment to remove harmful compound. Water pollution adversely affects not only aquatic plants and animals but it also affects human beings and ecosystems.

### CAUSES OF WATER POLLUTION:

Water pollution is caused due to several reasons. Here are the few major causes of water pollution.

1. **Sewage and Waste Water:** Sewage, garbage and liquid waste of households, agricultural lands and factories are discharged into lakes and rivers. These wastes contain harmful chemicals and toxins which make the water poisonous for aquatic animals and plants.
2. **Dumping:** Dumping of solid wastes and litters in water bodies causes huge problems. Litters include glass, plastic, aluminium, Styrofoam etc. Different things take different amount of time to degrade in water. They affect aquatic plants and animals.
3. **Industrial Waste:** Industrial waste contains pollutants like asbestos, lead, mercury and petrochemicals which are extremely harmful to both people and environment. Industrial waste is discharged into lakes and rivers by using fresh water making the water contaminated.
4. **Oil Pollution:** Sea water gets polluted due to oil spilled from ships and tankers while traveling. The spilled oil does not dissolve in water and forms a thick sludge polluting the water.
5. **Acid Rain:** Acid rain is pollution of water caused by air pollution. When the acidic particles caused by air pollution in the atmosphere mix with water vapour, it results in acid rain.
6. **Global Warming:** Due to global warming, there is an increase in water temperature. This increase in temperature results in death of aquatic plants and animals. This also results in bleaching of coral reefs in water.
7. **Eutrophication:** Eutrophication is an increased level of nutrients in water bodies. This results in bloom of algae in water. It also depletes the oxygen in water, which negatively affects fish and other aquatic animal population.

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### EFFECT OF WATER POLLUTION:

1. **Human Health:** We all drink water that comes from a source: this may be a lake or local river. In countries that have poor screening and purification practices, people often get water-borne disease outbreaks such as cholera and tuberculosis. Every year, there are an estimated 3–5 million cholera cases and 100,000–120,000 deaths due to cholera. In developed countries, even where there are better purification methods, people still suffer from the health effects of water pollution.
2. **Ecosystems:** Nutrient pollution from upstream (creeks and streams) often flow downhill and even travel miles into other larger water bodies. The effect is that, it breeds algae growth and causes the growth of many more water organism. This algae attack affects fish and other aquatic animals by absorbing and reducing their oxygen supply. Algae growth also clogs fish gills. Naturally, the order of ecosystems in that water is affected negatively, as the destruction or introduction of any foreign organism alter the entire food chain in there.
3. **Death of animals:** Animals, including water animals die when water is poisoned for various reasons. Other animals are stressed and their populations are endangered. In a classic case of marine pollution in recent time, 16000 miles of a US coastline was affected by an oil spill. That water pollution caused a lot of damage and deaths of many animals. Animals are also affected by solid waste thrown into water bodies, as they harm them in many ways.
4. **Economic cost:** From the above it is evident that there is some real financial implications that will result from water pollution. It can cost a lot more to purify drinking water that takes its source from nutrient polluted water bodies. Fishing stock is affected negatively when there is a depletion of oxygen. Consumers are also weary of fish from these sources and tend to stay away from them, costing fisheries to lose revenue. In places where there are water activities or sports, lots of money is spent to clean up the water from algae blooms and the like.

### 3. NOISE POLLUTION:

By definition, noise pollution takes place when there is either excessive amount of noise or an unpleasant sound that causes temporary disruption in the natural balance. This definition is usually applicable to sounds or noises that are unnatural in either their volume or their production. Our environment is such that it has become difficult to escape noise. Even electrical appliances at home have a constant hum or beeping sound. By and large, lack of urban planning increases the exposure to unwanted sounds. This is why understanding noise pollution is necessary to curb it in time.

### CAUSES OF NOISE POLLUTION:

**1. Industrialization:** Most of the industries use big machines which are capable of producing large amount of noise. Apart from that, various equipment like compressors, generators, exhaust fans, grinding mills also participate in producing big noise. Therefore, you must have seen workers in these factories and industries wearing ear plugs to minimize the effect of noise.

**2. Poor Urban Planning:** In most of the developing countries, poor urban planning also play a vital role. Congested houses, large families sharing small space, fight over parking,

frequent fights over basic amenities leads to noise pollution which may disrupt the environment of society.

**3. Social Events:** Noise is at its peak in most of the social events. Whether it is marriage, parties, pub, disc or place of worship, people normally flout rules set by the local administration and create nuisance in the area. People play songs on full volume and dance till midnight which makes the condition of people living nearby pretty worse. In markets, you can see people selling clothes via making loud noise to attract the attention of people.

**4. Transportation:** Large number of vehicles on roads, aeroplanes flying over houses, underground trains produce heavy noise and people get it difficult to get accustomed to that. The high noise leads to a situation wherein a normal person loses the ability to hear properly.

**5. Construction Activities:** Under construction activities like mining, construction of bridges, dams, buildings, stations, roads, flyovers take place in almost every part of the world. These construction activities take place every day as we need more buildings, bridges to accommodate more people and to reduce traffic congestion. The down point is that these construction equipment are too noisy.

**6. Household Chores:** We people are surrounded by gadgets and use them extensively in our daily life. Gadgets like TV, mobile, mixer grinder, pressure cooker, vacuum cleaners, washing machine and dryer, cooler, air conditioners are minor contributors to the amount of noise that is produced but it affects the quality of life of your neighbourhood in a bad way.

While this form of pollution may seem harmless, it in fact has far reaching consequences. The adverse effects on the health of the environment are quite severe. Not only is the local wildlife affected by the pollution, humans also facing a number of problems due to it.

#### **EFFECTS OF NOISE POLLUTION:**

**1. Hearing Problems:** Any unwanted sound that our ears have not been built to filter can cause problems within the body. Our ears can take in a certain range of sounds without getting damaged. Man made noises such as jackhammers, horns, machinery, airplanes and even vehicles can be too loud for our hearing range. Constant exposure to loud levels of noise can easily result in the damage of our ear drums and loss of hearing. It also reduces our sensitivity to sounds that our ears pick up unconsciously to regulate our body's rhythm.

**2. Health Issues:** Excessive noise pollution in working areas such as offices, construction sites, bars and even in our homes can influence psychological health. Studies show that the occurrence of aggressive behaviour, disturbance of sleep, constant stress, fatigue and hypertension can be linked to excessive noise levels. These in turn can cause more severe and chronic health issues later in life.

**3. Sleeping Disorders:** Loud noise can certainly hamper your sleeping pattern and may lead to irritation and uncomfortable situations. Without a good night sleep, it may lead to problems related to fatigue and your performance may go down in office as well as at home. It is therefore recommended to take a sound sleep to give your body proper rest.

**4. Cardiovascular Issues:** Blood pressure levels, cardio-vascular disease and stress related heart problems are on the rise. Studies suggest that high intensity noise causes high blood



pressure and increases heart beat rate as it disrupts the normal blood flow. Bringing them to a manageable level depends on our understanding noise pollution and how we tackle it.

**5. Trouble Communicating:** High decibel noise can put trouble and may not allow two people to communicate freely. This may lead to misunderstanding and you may get difficult understanding the other person. Constant sharp noise can give you severe headache and disturb your emotional balance.

**6. Effect on Wildlife:** Wildlife faces far more problems than humans because noise pollution since they are more dependent on sound. Animals develop a better sense of hearing than us since their survival depends on it. The ill effects of excessive noise begin at home. Pets react more aggressively in households where there is constant noise.

#### 4.THERMAL POLLUTION:

When someone thinks of pollution, the idea of thermal pollution often doesn't come to mind. People will first think of things like carbon emissions, personal pollution and waste, and a variety of other changing factors. However, thermal pollution is a real and persistent problem in our modern society.

Thermal pollution is defined as sudden increase or decrease in temperature of a natural body of water which may be ocean, lake, river or pond by human influence. This normally occurs when a plant or facility takes in water from a natural resource and puts it back with an altered temperature. Usually, these facilities use it as a cooling method for their machinery or to help better produce their products.

#### CAUSES OF THERMAL POLLUTION:

1. **Water as Cooling Agent in Power, Manufacturing and Industrial plants:** Production and Manufacturing plants are biggest source of thermal pollution. These plants draw water from nearby source to keep machines cool and then release back to the source with higher temperature. When heated water returns to the river or ocean, the water temperature rises sharply. When oxygen levels are altered in the water, this can also degrade the quality and longevity of life in wildlife that lives underwater. This process can also wipe away streamside vegetation, which constantly depends on constant levels of oxygen and temperature. By altering these natural environments, industries are essentially helping decrease the quality of life for these marines based life forms and can ultimately destroy habitats if they are not controlled and careful about their practices.
2. **Soil Erosion:** Soil erosion is another major factor that causes thermal pollution. Consistent soil erosion causes water bodies to rise, making them more exposed to sunlight. The high temperature could prove fatal for aquatic biomes as it may give rise to anaerobic conditions.
3. **Deforestation:** Trees and plants prevent sunlight from falling directly on lakes, ponds or rivers. When deforestation takes place, these water bodies are directly exposed to sunlight, thus absorbing more heat and raising its temperature. Deforestation is also a main cause of the higher concentrations of greenhouse gases i.e. global warming in the atmosphere.
4. **Runoff from Paved Surfaces:** Urban runoff discharged to surface waters from paved surfaces like roads and parking lots can make water warmer. During summer

seasons, the pavement gets quite hot, which creates warm runoff that gets into the sewer systems and water bodies.

5. **Natural Causes:** Natural causes like volcanoes and geothermal activity under the oceans and seas can trigger warm lava to raise the temperature of water bodies. Lightening can also introduce massive amount of heat into the oceans. This means that the overall temperature of the water source will rise, having significant impacts on the environment.

#### EFFECTS OF THERMAL POLLUTION:

Among recognized scientists and scholars, there are generally two schools of thought when it comes to the effects of thermal pollution. Some lean on the side of the negatives of this pollution on marine ecosystems and how it is detrimental to positive environmental practices. However, some lean towards the side that without these industries operating the way they do, then some of the most basic parts of human life would be completely obsolete. Waste water would not be able to be properly maintained, we would have no industries that could produce the goods we need, and so on. The effects of thermal pollution on ecosystems, however, greatly outweigh the benefits that industries have by participating in the act.

1. **Decrease in DO (Dissolved Oxygen) Levels:** The warm temperature reduces the levels of DO (Dissolved Oxygen) in water. The warm water holds relatively less oxygen than cold water. The decrease in DO can create suffocation for plants and animals such as fish, amphibians and copepods, which may give rise to anaerobic conditions. Warmer water allows algae to flourish on surface of water and over the long term growing algae can decrease oxygen levels in the water.
2. **Increase in Toxins:** With the constant flow of high temperature discharge from industries, there is a huge increase in toxins that are being regurgitated into the natural body of water. These toxins may contain chemicals or radiation that may have harsh impact on the local ecology and make them susceptible to various diseases.
3. **Loss of Biodiversity:** A dent in the biological activity in the water may cause significant loss of biodiversity. Changes in the environment may cause certain species of organisms to shift their base to some other place while there could be significant number of species that may shift in because of warmer waters. Organisms that can adapt easily may have an advantage over organisms that are not used to the warmer temperatures.
4. **Ecological Impact:** A sudden thermal shock can result in mass killings of fish, insects, plants or amphibians. Hotter water may prove favourable for some species while it could be lethal for other species. Small water temperature increases the level of activity while higher temperature decreases the level of activity. Many aquatic species are sensitive to small temperature changes such as one degree Celsius that can cause significant changes in organism metabolism and other adverse cellular biology effects.
5. **Affects Reproductive Systems:** A significant halt in the reproduction of marine wildlife (although this may be true, reproduction can still occur between fish – but the likelihood of defects in new-borns is significantly higher) can happen due to increasing temperatures as reproduction can happen within certain range of

temperature. Excessive temperature can cause the release of immature eggs or can prevent normal development of certain eggs.

6. **Increases Metabolic Rate:** Thermal pollution increases the metabolic rate of organisms as increasing enzyme activity occurs that causes organisms to consume more food than what is normally required, if their environment were not changed. It disrupts the stability of food chain and alters the balance of species composition.
7. **Migration:** The warm water can also cause particular species of organisms to migrate to suitable environment that would cater to its requirements for survival. This can result in loss for those species that depend on them for their daily food as their food chain is interrupted.

#### 6. SOIL POLLUTION:

Soil pollution is defined as the contamination of soil of a particular region. Soil pollution is a result of penetration of harmful pesticides and insecticides, which on one hand serve whatever their main purpose is, but on the other hand bring about deterioration in the soil quality, thus making it contaminated and unfit for use later. Insecticides and pesticides are not to be blamed alone for soil pollution, but there are many other leading causes of soil pollution too.

#### CAUSES OF SOIL POLLUTION:

**1. Industrial Activity:** Industrial activity has been the biggest contributor to the problem in the last century, especially since the amount of mining and manufacturing has increased. Most industries are dependent on extracting minerals from the Earth. Whether it is iron ore or coal, the by products are contaminated and they are not disposed of in a manner that can be considered safe. As a result, the industrial waste lingers in the soil surface for a long time and makes it unsuitable for use.

**2. Agricultural Activities:** Chemical utilization has gone up tremendously since technology provided us with modern pesticides and fertilizers. They are full of chemicals that are not produced in nature and cannot be broken down by it. As a result, they seep into the ground after they mix with water and slowly reduce the fertility of the soil. Other chemicals damage the composition of the soil and make it easier to erode by water and air. Plants absorb many of these pesticides and when they decompose, they cause soil pollution since they become a part of the land.

**3. Waste Disposal:** Finally, a growing cause for concern is how we dispose of our waste. While industrial waste is sure to cause contamination, there is another way in which we are adding to the pollution. Every human produces a certain amount of personal waste products by way of urine and feces.

While much of it moves into the sewer the system, there is also a large amount that is dumped directly into landfills in the form of diapers. Even the sewer system ends at the landfill, where the biological waste pollutes the soil and water. This is because our bodies are full of toxins and chemicals which are now seeping into the land and causing pollution of soil.

**4. Accidental Oil Spills:** Oil leaks can happen during storage and transport of chemicals. This can be seen at most of the fuel stations. The chemicals present in the fuel deteriorate the



quality of soil and make them unsuitable for cultivation. These chemicals can enter into the groundwater through soil and make the water undrinkable.

**5. Acid Rain:** Acid rain is caused when pollutants present in the air mixes up with the rain and fall back on the ground. The polluted water could dissolve away some of the important nutrients found in soil and change the structure of the soil.

#### EFFECTS OF SOIL POLLUTION:

**1. Effect on Health of Humans:** Considering how soil is the reason we are able to sustain ourselves, the contamination of it has major consequences on our health. Crops and plants grown on polluted soil absorb much of the pollution and then pass these on to us. This could explain the sudden surge in small and terminal illnesses.

Long term exposure to such soil can affect the genetic make-up of the body, causing congenital illnesses and chronic health problems that cannot be cured easily. In fact, it can sicken the livestock to a considerable extent and cause food poisoning over a long period of time. The soil pollution can even lead to widespread famines if the plants are unable to grow in it.

**2. Effect on Growth of Plants:** The ecological balance of any system gets affected due to the widespread contamination of the soil. Most plants are unable to adapt when the chemistry of the soil changes so radically in a short period of time. Fungi and bacteria found in the soil that bind it together begin to decline, which creates an additional problem of soil erosion.

The fertility slowly diminishes, making land unsuitable for agriculture and any local vegetation to survive. The soil pollution causes large tracts of land to become hazardous to health. Unlike deserts, which are suitable for its native vegetation, such land cannot support most forms of life.

**3. Decreased Soil Fertility:** The toxic chemicals present in the soil can decrease soil fertility and therefore decrease in the soil yield. The contaminated soil is then used to produce fruits and vegetables which lacks quality nutrients and may contain some poisonous substance to cause serious health problems in people consuming them.

**4. Toxic Dust:** The emission of toxic and foul gases from landfills pollutes the environment and causes serious effects on health of some people. The unpleasant smell causes inconvenience to other people.

**5. Changes in Soil Structure:** The death of many soil organisms (e.g. earthworms) in the soil can lead to alteration in soil structure. Apart from that, it could also force other predators to move to other places in search of food.

A number of ways have been suggested to curb the current rate of pollution. Such attempts at cleaning up the environment require plenty of time and resources to be pitched in. Industries have been given regulations for the disposal of hazardous waste, which aims at minimizing the area that becomes polluted. Organic methods of farming are being supported, which do not use chemical laden pesticides and fertilizers. Use of plants that can remove the pollutants from the soil is being encouraged. However, the road ahead is quite long and the prevention of soil pollution will take many more years.

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## 7. LIGHT POLLUTION:

Light pollution is excessive, misdirected or inappropriate outdoor lighting. Too much of light pollution washes out view of the Universe, result in increase in the energy consumption, interferes with astronomical research, disrupts ecosystems, affects the health and safety of humans and wildlife. It may surprise you to know that light pollution can have as great an impact on the planet as levels of carbon monoxide and other airborne pollutants.

### CAUSES OF LIGHT POLLUTION:

Light pollution is unique as it is caused by man only. There is no comparable natural form of the pollution like there is with carbon dioxide. The main causes of light pollution are:

1. **Poor Planning** – The placement of signage and street lights is planned by engineers, if they do not take into account the effect placement has on the surrounding environment they can create glare, light trespass and light clutter.
2. **Irresponsible use** – You may love Christmas lights but leaving them on all night is a form of pollution, as is leaving a room with the lights still on or setting the timers on streetlamps and not adjusting the timer for the season. Not actively choosing to minimize energy waste is a huge source of light pollution.
3. **Overpopulation** – That is really a zoning issue. Too many businesses, or too many residences, grouped in one area can cause light pollution of many kinds.

### EFFECTS OF LIGHT POLLUTION:

While many people choose to dismiss light pollution as being the price of modern life, it has serious effects on everything around it.

1. **Animals** – Lights can attract or repel animals and insects. Most animal life functions on a diurnal or nocturnal system that is thrown out of sync by light pollution. This can place entire species in danger, or attract unwanted species into human areas.
2. **People** – The wrong kind of light, or too much light has been proven to have an impact on your health and quality of life. Light pollution also increases danger to people as it can interfere with important navigational systems for trains, planes and even automobiles.
3. **The Earth** – The Earth's ecosystem is dependent on cycles of natural light. Sky Glow alone can cause a loss in growth protection as the reflected light off the atmosphere will prevent the natural UV rays from reaching the Earth. This disrupts growth and decay cycles that our food, air and water supply is dependent on.

### CONCLUSION:

Much is being done to control, monitor and rectify damage done by pollutants. The problems are diverse and some are only being recognised but it is important to keep a close control over pollutants so that we can maintain the environment in an acceptable condition for future generations. We can follow green chemistry principles to avoid the pollution at a certain level. Our government implements "command and control" policies in which we try to control environmental pollution with the help of regulating activities which affect the environment.

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