



**RGPVNOTES.IN**

Program : **B.Tech**

Subject Name: **Energy & Environmental Engineering**

Subject Code: **ES-301**

Semester: **3rd**



**LIKE & FOLLOW US ON FACEBOOK**

[facebook.com/rgpvnotes.in](https://facebook.com/rgpvnotes.in)

## Energy and Environment Engineering – Notes

**Subject name:-** EEE

**Subject code** ES-301

### Module 5: Social Issues and the Environment

• From Unsustainable to Sustainable development; urban problems related to energy; Water conservation, rain water harvesting, watershed management; Resettlement and rehabilitation of people; its problems and concerns. Case Studies Environmental ethics: Issues and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies Wasteland reclamation; Consumerism and waste products; Environment Protection Act; Air (Prevention and Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; Issues involved in enforcement of environmental legislation; Public awareness.

#### Introduction

The activities of human are continuously laid low with our values. Though the environmental crisis has been led to by the activities of human it is in fact a crisis of values. It's regarding the concept of realizing the values of the surroundings and accepting it. Humans produce cultural values supported nature (i.e. natural values). However, people used to believe that solely humans had values whereas the atmosphere didn't. We recognized solely cultural values, however not environmental values. Moreover, we often realized cultural values by damaging environmental values. Those behaviors have caused the loss of environmental values and harm to the natural basis on that humans produce cultural values that has light - emitting diode to the matter of non-sustainability. It is under such circumstances that the problem of environmental values has arisen.

#### Human values for environment

Environmental ethics is that the philosophical discipline that considers the ethical and moral relationship of folks to the surroundings. Environmental ethics helps outline man's ethical and moral obligations toward

the surroundings. However, human values become an element once observing environmental ethics. Human values are a unit the items that are a unit vital to people that they then use to gauge actions or events. In alternative words, humans assign worth to bound things so use this assigned worth to form selections regarding whether one thing is correct or wrong. Human values are a unit distinctive every to every individual because of not everybody places a similar importance on each component of life.

#### Impact of west on society:

Modernization and progress has had its share of disadvantages and one in every of the most aspects of concern is that the pollution it's inflicting to the world – be it land, air, and water. With increase within the international population and the rising demand for food and alternative necessities, there has been an increase within the quantity of waste being generated daily by every menace. This waste is ultimately thrown into municipal waste assortment centers from wherever it's collected by the world municipalities to be any thrown into the landfills and dumps. However, either attributable to resource crunch or inefficient infrastructure, not all this waste gets collected and transported to the ultimate dumpsites. If at this stage the management and disposal is wrongly done, it will cause serious impacts on health.

Waste that's not properly managed, particularly waste product and alternative liquid and solid waste from households and the community, square measure a significant jeopardy and cause the unfold of infectious diseases. Unattended waste lying around attracts flies, rats, and alternative creatures that successively unfold malady. Commonly it's the wet waste that decomposes and releases a nasty odor. This ends up in insanitary conditions and thereby to an increase within the health issues. The plague natural event in Surat could be an ideal of a town suffering attributable to the callous perspective of the native body in maintaining cleanliness within the town. Plastic waste is another cause for pathological state. Therefore, excessive solid

waste that's generated ought to be controlled by taking bound preventive measures.

### Impact on Health:

Modernization and progress has had its share of disadvantages and one among the most aspects of concern is that the pollution it's inflicting to the world – be it land, air, and water. With increase within the world population and therefore the rising demand for food and alternative necessities, there has been an increase within the quantity of waste being generated daily by every house. This waste is ultimately thrown into municipal waste assortment centers from wherever it's collected by the world municipalities to be any thrown into the landfills and dumps. Impacts of solid waste on health.

The cluster in danger from the unscientific disposal of solid waste embrace – the population in areas wherever there's no correct waste disposal methodology, particularly the pre-school children; waste employees; and workers in facilities manufacturing noxious and infectious material. Alternative unsound cluster embrace population living near a waste dump and people, whose water system has become contaminated either thanks to waste merchandising or outflow from lowland sites. Uncollected solid waste additionally will increase risk of injury, and infection.

In explicit, organic domestic waste poses a heavy threat, since they ferment, making conditions favorable to the survival and growth of microorganism pathogens. Direct handling of solid waste may result in numerous forms of infectious and chronic diseases with the waste employees and therefore the rag pickers being the foremost vulnerable. Exposure to unsafe waste will influence human health, kids being a lot of prone to these pollutants. In fact, direct exposure will cause diseases through chemical exposure because the unharnessed of chemical waste into the surroundings results in chemical poisoning. Several studies are dispensed in numerous components of the globe.



### Solid waste management

Rapid increment and urbanization in developing countries has light-emitting diode to folks generating monumental quantities of solid waste and sequent environmental degradation. The waste is often disposed in open dumps creating nuisance and environmental degradation. Solid wastes cause a significant risk to public health and therefore the surroundings. Management of solid wastes is vital to attenuate the adverse effects exhibit by their indiscriminate disposal.

Types of solid wastes: counting on the character of origin, solid wastes are classified into Urban or Municipal Wastes

Industrial Wastes

Hazardous Wastes

### SOURCES OF URBAN WASTES

Urban wastes embody the subsequent wastes: Domestic wastes containing a spread of materials thrown out from homesick: waste matter, Cloth, paper, Glass bottles, synthetic resin baggage, Waste metals, etc.

Commercial wastes: It includes wastes starting up from outlets, markets, hotels, offices, establishments.

Ex: paper, packaging material, cans, bottle, synthetic resin baggage, .

### Classification of urban wastes

Urban wastes are classified into:

Bio-degradable wastes - Those wastes that may be degraded by small organisms are referred to as bio-degradable wastes Ex: Food, vegetables, tea leaves, dry leaves, etc.

Non-biodegradable wastes: Urban solid waste materials that can't be degraded by small organisms are referred to non-biodegradable wastes.

Ex: synthetic resin baggage, scrap materials, glass bottles, etc.

Source of commercial waste:

The main supply of commercial wastes are chemical industries, metal and extraction industries. Uninuclear plants: It generated radioactive wastes, Thermal power plants: It produces ash in giant quantities.

Chemical Industries: It produces giant quantities of dangerous and cyan genetic materials.

Other industries: alternative industries manufacture packing materials, rubbish, organic wastes, acid, alkali, scrap metals, rubber, plastic, paper, glass, wood, oils, paints, dyes, etc.

#### STEPS concerned IN SOLID WASTE MANAGEMENT:

Two vital steps concerned in solid waste management

are: Reduce, utilize and Recycle of Raw Materials

Discarding wastes

Reduce - If usage of raw materials is reduced, the generation of waste additionally gets reduced Reuse - Refillable containers that are discarded once use may be reused

Rubber rings may be made of discarded cycle tubes and this reduces waste generation throughout manufacture of rubber bands.

Recycle- usage is that the reprocessing of discarded materials into new helpful merchandise

Ex: previous atomic number 13 cans and glass bottles are liquid and recast into new cans and bottles Preparation of polysaccharide insulation from paper

Preparation of automobile body and construction material from steel cans

This technique (Reduce, utilize & Recycle), i.e., 3R's facilitate economize, energy, raw materials and reduces pollution.

#### INCINERATION:

It is a hygienic manner of disposing solid waste. it's appropriate if waste contains a lotof dangerous material and organic content. it's a thermal method and effective for detoxification of all flammable pathogens. it's costly in comparison to composting or land-filling. In this technique municipal solid wastes are burnt in an exceedingly chamber referred to as furnace. Combustible substances like rubbish, garbage, dead organisms and non-combustible matter like glass, ceramic ware and metal a separated before feeding to incinerators. The non-combustible materials may be omitted for usage and utilize. The leftover ashes and clinkers might accountfor concerning ten to twenty which require any disposal by landfill or another suggests that.

The heat made within the furnace throughout burning of refuse is employed within the style of steam power for generation of electricity through turbines. Municipal solid waste is mostly wet and incorporates a high hot price. Therefore, it's to be dried initial before burning. Waste is dried in an exceedingly preheated from wherever it's taken to an oversized incinerating chamber referred to as "destructor" which might incinerate concerning a hundred to a hundred and fifty tones perhour. Temperature commonly maintained in an exceedingly combustion chamber is concerning 700 C which can be hyperbolic to one thousand C once electricity is to be generated.

#### ADVANTAGES

Residue is barely 20-25% of the first and may be used as clinker once treatment requires little or no house Cost of transportation isn't high if the furnace is found at intervals town limits Safest from hygienic

purpose of read. A furnace plant of 3000 tons per day capability will generate 3MW of power.

### DISADVANTAGES

Its capital and overhead are high Operation wants experienced personnel Formation of smoke, mud and ashes wants any disposal which might cause pollution.

### Examples of moral things

A patient has kidneys that square measure failing and desires chemical analysis (a medical treatment to get rid of waste merchandise from blood) to survive. The patient is refusing chemical analysis.

His spouse cares that her husband doesn't notice the results of his call. ought to chemical analysis be given?

A patient recently old a systole (heart stopped beating). though his heart was restarted, he suffered brain injury that's probably permanent. he's within the medical aid unit connected to a ventilator. The patient has antecedently expressed that he wouldn't wish to measure connected to machines. ought to the machine be disconnected?

A loved one observes a staffer treating another patient in what seems to be a disrespectful manner. What ought to happen next?

A patient has been diagnosed with a terminal unhealthiness. Her family doesn't wish her au courant of the identification. Ought to the patient be informed?

## Preliminary studies regarding Environmental Protection Acts

### CHAPTER I - PRELIMINARY

1. Short title, extent and commencement- (1) This Act could also be referred

to as the surroundings (Protection) Act, 1986.

(2) It extends to the full of Asiannation.

(3) It shall get force on such date because the Central Government might, by notification within the Official Gazette, appoint and totally different dates could also be appointed for various provisions of this Act and for various areas.

### Definitions - during this Act, unless the context otherwise requires-

(a) "environment" includes water, air and land and also the inter-relationship that exists among and between water, air and land, and mortals, alternative living creatures, plants, micro-organism and property;

(b) "environmental pollutant" suggests that any solid, liquid or vaporized substance gift in such concentration as could also be, or tend to be, injurious to environment;

(c) "environmental pollution" suggests that the presence within the surroundings of any environmental pollutant;

(d) "handling", about any substance, suggests that the manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, providing purchasable, transfer or variety of such substance;

(e) "hazardous substance" suggests that any substance or preparation that, because of its chemical or physic-chemical properties or handling, is prone to cause damage to mortals, alternative living creatures, plant, micro-organism, property or the environment;

(f) "occupier", about any works or premises, suggests that an individual UN agency has management over the affairs of the works or the premises and includes about any substance, the person in possession of the substance;

(g) "prescribed" suggests that prescribed by rules created beneath this Act.

### Top 6 environment Act in India

#### Environmental Act # one. life (Protection) Act, 1972:

Wildlife Act, a landmark within the history, was enacted for providing protection to wild animals and birds. Wildlife was transferred from State list to synchronal list in 1976, therefore giving powers to the Central government to enact legislation. The Act additionally provides the constitution of Indian Board of life (IBWL), that actively took up the task of putting in place life National parks and sanctuaries.

Objectives of the Act:

1. Restriction and prohibition on searching and trapping life.
2. Rehabilitation of vulnerable and vulnerable species.
3. Preservation of biological diversity by establishing sanctuaries, national parks and region reserves.
4. Grant of a special allow to hunt a life for research, scientific management and assortment of specimens for zoological gardens, museum setc.
5. Regulation of exchange life and national conservation strategy.
6. Collaboration with voluntary bodies and NGO's.

#### **Environmental Act # two pair of. Forests (Conservation) Act, 1980:**

The Act covers every kind of forests together with reserve forests, protected forests or any wooded land no matter its possession. The Act has created ample provisions to see deforestation and encourage conversion of non-forest areas. The National Forest Policy (1980) prohibits State governments for declaring any portion of forests as non- reserved while not approval of Central government. The policy additionally prohibits authorities for allotting any forest land for non-forest functions. The amended Act (1988) prohibits lease of forest land to anybody apart from the govt. It enhances conservation, plantation and increase of forest cowl to a median of half-hour.

#### **Environmental Act # three. Water (Prevention and management of Pollution) Act, 1974:**

The Act outlined terms like pollution, sewerage effluent, trade effluent, stream and boards. The salient options and provisions of the Act area unit summed up as follows:

1. The Act provides for maintenance and restoration of quality of every kind of surface and wellwater.
2. It provides for the institution of Central and State Boards for pollution management.
3. The Act assigns powers and functions to those Boards to regulate pollution.
4. The Central and State Pollution Management Boards area unit given comprehensive powers to advise, coordinate and supply technical help for hindrance and management of pollution.
5. The Act has provisions for funds, budgets, accounts and audit of the Central and State Pollution Management Boards.
6. The Act prohibits disposal of any toxic, harmful or polluting touch the flow of water in an exceedingly stream. However, selling of any material into a stream for the aim of reclamation of land isn't thought of an offence.
7. The Act provides for severe and deterrent punishments for violation of the Act which has fine and imprisonment.

The main regulative bodies area unit the Pollution Management Boards, that are bestowed the subsequent functions and powers.

#### **Environmental Act # four. The Water (Prevention and management of Pollution) Act, 1977:**

1. This Act empowers the Central Water Board to gather access on water consumed by persons carrying on sure regular industries and by native Authorities liable for supply water.
2. The access and therefore the consent fees from the foremost sources of revenue to run the Central and State Water Boards.
3. The Act has been amended in 1991 with a read to enhance the resources of the Boards by removing the lacunae within the Act and to supply rebate to the industries for obliging with the consumption and effluent quality customary.

#### **Environmental Act # five. Air (Prevention and management of Pollution) Act, 1981:**

The Air Act was passed below Article 253 of the Constitution of India and in pursuance of selections of national capital Conference.

1. the target of this Act is to supply means that for the interference, management and abatement of pollution to preserve the standard of air.
2. The Act defines relevant terms like pollution, air pollutants, transport exhausts and industrial



plants. 3. The Act additionally includes vehicles, diesel vehicles, transport, railways and domestic fuels.

4. The Act provides, as per Section nineteen, the declaration of bound heavily impure spaces as pollution management area and no works shall be operated in these areas while not previous consent of the State Pollution control panel.

5. The Central and State Water Boards are entrusted with the task of dominant and preventing pollution and consequently they need been redesigned as Central Pollution control panel and State Pollution control panel severally.

### **Environmental Act # half-dozen. setting Protection Act, 1986:**

The setting Protection Act, Gregorian calendar month nineteen, 1986 was enacted as per the spirit of the national capital Conference command in June 1972 to require acceptable steps for the protection and improvement of the surroundings and to stop hazards to persons, living creatures and property. The Act consists of twenty-six Sections distributed among four chapters and extends to the complete country.

1. commonplace of quality of air, water and soil for varied areas and for varied functions.
2. most permissible limits of concentration for varied environmental pollutants (including noise) for various areas.
3. Procedures and safeguards for handling of venturesome substances.
4. Prohibition and restrictions on the placement of industries and concluding operations.
5. Procedures and safeguards for hindrance of accidents which can cause environmental pollution and 6. Providing for remedial measures just in case of accidents.

### **Environmental Education**

Environmental education brings the important world into the language schoolroom, empowering learners to create positive changes within their native communities and in the world. Language academics UN agency introduce environmental topics like rain forest destruction and vulnerable animal species into their lessons realize that student's area unit fascinated by problems these issues gift. Besides serving as a fashionable and stimulating supply of real-world content, environmental education:

- provides an efficient framework for desegregation language skills;
- bridges the gap between English and different faculty subjects;
- develops important and artistic thinking skills;
- fosters the event of problem-solving skills;
- provides opportunities for exploring society attitudes and values;
- engages multiple intelligences;
- encourages student interaction.

Another reason, and therefore the most vital, for conveyance environmental problems into the language schoolroom is that the urgency of the environmental scenario itself. If student's area unit to participate absolutely in resolution the environmental issues of these days and therefore the future, environmental education is important. issues like plant and animal extinction area unit pressing. All educators have associate moral and private responsibility to contribute to students' awareness of environmental problems and to foster in their students the event of skills that promote property development.

### **A Global Approach**

besides providing follow on specific language skills like speaking or reading, every of activities bestowed during this volume incorporates one or a lot of the subsequent international objectives associated with the environment:

- Awareness: Promoting awareness of a specific environmental drawback and what people will do

to assist solve the matter.

- Concern: Encouraging students to explore their own values and feelings of concern regarding the surroundings.
- Skills: serving to students to amass and develop the required skills to unravel environmental issues.
- Action: Providing opportunities for college students to induce actively concerned in doing one thing to remedy environmental issues.

### Self-exploration

The world's forests are being consumed speedily. Trees are bogged down for paper and wood product, for preparation fuel, to clear land for development, and to expand farming areas. The land left behind is stripped not solely of its trees, however the plants, animals, and insects that lived in this scheme further. With no plant roots to carry it in situ, valuable soil washes away with each precipitation and lands up within the rivers and streams upon which individuals rely for his or her water. In extreme cases, a whole bunch or thousands of individuals lose their homes or change state in landslides once deforested slopes become unstable.

Forests conjointly play a very important half in regulation world climate. Trees take away dioxide, a significant greenhouse emission, from the atmosphere, whereas athletics atomic number 8 into it. Once trees are bogged down, however, the dioxide is free once more. It's calculable that up to twenty fifth of the full quantity of dioxide going into the atmosphere each year is free from trees being cut and burned. It's clear that protective the world's forests is a very important a part of determination the worldwide global climate change drawback.

### Explanation about SWASTHYA

If we tend to choose the literal that means of swasthya, then it means that health. however, our health itself contains plenty of things, like our thoughts, wellbeing of our physical state, moreover as mental one, etc. we tend to ne'er notice the manner we tend to breathe, inhale, however would our lungs bebehaving throughout this? what all should be going within our body. What happens to the food once it goes down the esophagus? there are bound queries however we tend to ne'er care to seem or feel them. just because we all know ton overabundant} concerning digestion n have seen lot several things. however, is so?? my purpose here is that's it extremely all through? are not we tend to totally different from the represented representation. As said earlier SWASTHYA conjointly deals with our condition and its wellbeing. what we predict, however we predict and why we predict area unit the queries that area unit answered by the individual on his or her own. all has their own perceptions relating to their thinking method. as it's their own and that we might need our own opinion concerning that isn't accepted by the thinker.

### Explanation about SANYAMA

Sanyama deals with self-control, it's essentially the soul half. Our soul is that the in-built god precocious energy that provide the primary and therefore the basic most construct of our existence. Except for the superficial thoughts that soul is that this –that and bound different taboos, it's a glorious proven fact that soul is main interface between the heavenly energy and organic structure.





**RGPVNOTES.IN**

We hope you find these notes useful.

You can get previous year question papers at  
<https://qp.rgpvnotes.in> .

If you have any queries or you want to submit your  
study notes please write us at  
[rgpvnotes.in@gmail.com](mailto:rgpvnotes.in@gmail.com)



**LIKE & FOLLOW US ON FACEBOOK**

facebook.com/rgpvnotes.in