4 . Practices for Environmental Protection

4.1 Consumer education

Progress in science and technology has led to increase in consumerism globally. This has led to a dramatic rise in the purchasing power of many people. Although this development is welcome as it assures a decent standard of living for many people, there are also problems because of increased purchasing power. As a result substandard products and services are made available at a higher price.

People face several problems while purchasing the product. Are they getting a product which is worth the cost? Are the products free from toxic chemicals, pesticides and adulterants? Consumer education is the only solution to these doubts and issues.

Consumer education may be defined as imparting knowledge to a consumer regarding cost effectiveness, budgeting ability and developing awareness of purchase.

Need and importance of consumer education

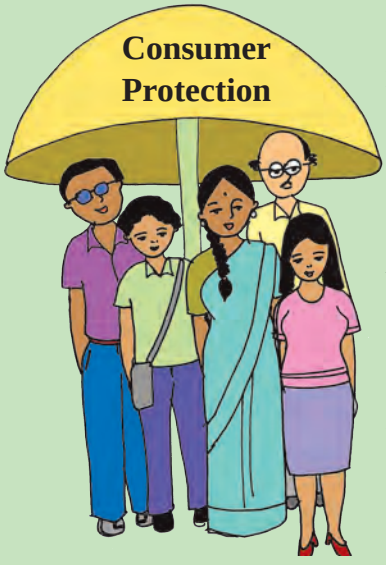
The economic status of a country and the wellfare of its citizens are linked to each other. Both of these can be achieved only when the people of the country are able to make right choices in their purchases, so that they get value for their money. Consumer education is the only tool that can assure this protection to consumers for the following reasons :

- Provides necessary skills to select the right type of goods and services from a huge available range.
- Enables consumers to assess the market situation and make proper decisions.
- Reduces the number of complaints against cheating on the quantity and quality of products and services.
- Overcome poverty and promotes ethical values and human rights.
- Ensure sustainable consumption by using ecofriendly products.

Do you know?

Consumer Protection Act 1986

The Consumer Protection Act, which was passed by the Indian parliament in 1986, extends the following rights to consumers :



- Right to be protected from hazardous goods and services.
- Right to be informed about the quantity and performance of goods and services.
- Right to free choice of goods and service at competitive prices.
- Right to be heard in any decision – making process concerning consumer interest.

- Right to redressal if consumer rights are violated.
- Right to consumer education.

Efficient and Eco-friendly Practices

Eco-friendly products are those which ensure natural use of resources without harming the environment.

Eco-friendly products

Some examples of efficient and eco-friendly technologies from the Indian sub-continent

- **Janata refrigerator :** Earthen pot-in-pot units are used to keep vegetables fresh for a few days.
- **Treadle pumps :** Foot-operated pumps which are used to draw water from wells.
- **Sand filter :** Slow sand filters are used to filter water.
- Earthen cups and glasses are eco friendly.
- Plates made of green leaves replace styrofoam plates.
- Use of Compost - Manure made from organic waste.
- Use of Bio pesticides.

Construction Housing

Construction focus is on developing designs that optimize the use of solar energy to cut down the electricity bill. Fly ash bricks and plastic doors are becoming popular. These are made from recycled material instead of natural resources.

Do you know?

In India, a Bengaluru based firm, is using processed plastic waste mixture to lay roads. It substantially reduces the cracking of road surface due to rain or low temperatures and provides durability.

4.2 Eco-labelling

During the last few years, people have become aware of the deterioration of environment. There is growing demand for goods and services that cause less damage to the environment and health of human. Numerous initiatives have started from both private and public industries in order to define sustainability related information of products. This was achieved by introducing different kinds of symbols like labels and logos. The information that is provided on products can be used to influence or inform purchasing decisions. Now a days, there is increasing concern about purchasing of environment friendly products. It leads to conservation of natural resources and sustainable development.

Eco-labelling is the use of labels on products to show how environment friendly they are.

Eco-labelling is a method of environmental performance certification and labelling that is practised around the world.

International Organization for Standardization (ISO) has given different eco-labeling schemes and logos in operation around the world. It covers a different range of environmental criteria such as pollution and energy consumption during production.

Benefits of Eco-labelling

- An eco-label makes the customer more aware of the benefits of certain products, for example, recycled paper or toxic-free cleaning agents.
- It promotes energy efficiency and waste minimization.
- It helps in reducing environmental damage.
- It improves industry image and sale of product.

- It helps to increase consumer awareness, and encourage them to identify and purchase environment friendly products.
- Industries become more accountable for producing and marketing ecofriendly products.

Do you know?

Green building

Green building or sustainable design is the practice of using resources efficiently. It reduces impacts on environment and human health, right from selecting site, design, construction, operation and maintenance.

The design of green building includes five main elements as building material, energy water and health along with practicing 4 'R' principles (Reduce, Reuse and Recycle, Recover).

Indian Green Building Council (IGBC) 2001 is a leading green building movement in India for residential sector.

ECO Mark

The Government of India launched the eco-labelling scheme known as `ECO Mark' in 1991 for easy identification of environment-friendly products. The aim of the scheme is to help the consumers to easily identify and encourage to purchase those products which are less harmful to the environment.

Criteria of ECO Mark

Any product that is made, used and disposed off in a manner that significantly reduces the harm to the environment, can be labelled with ECO Mark.

The criteria for awarding Eco–mark covers all stages of product. It is also called as cradle-to-grave approach. Main parameters include the source and type of raw materials used, judicious use of natural resouces, energy efficient production, waste management and biodegradability of products.

The requirements for ECO Mark are as follows :

- Products to meet the relevant standards of Bureau of Indian Standards (BIS).
- The products to display the list of critical ingredient in descending order of quantity.
- The packaging to display the criteria, based on which the product has been labelled environment friendly with details instructions for proper use.
- The material used for packaging to be reusable / recyclable / biodegradable.

ECO Mark has been notified for 16 product categories by the eco mark technical committee. These are mainly soap and detergents, paper, food items, lubricating oils, packaging materials, paints, batteries, electronic goods, cosmetics, plastic products, leather etc.

Do you know?

An earthen pot has been chosen as the logo of ECO Mark scheme in India. The familiar earthen pot uses a renewable resource like earth, does not produce hazardous waste and consumes little energy in making. Its solid and graceful form represents both strength and fragility.

ISO 14000 standards

ISO 14000 is a series of environmental management standards developed and published by the International Organization for Standardization (ISO) for organizations. The ISO 14000 standards provide a guideline or

framework for organizations that need to improve their environmental management efforts. It is a process for managing organizational activities that have an impact on the environment. Through ISO 14000, an organization matches its environmental practices against an internationally accepted standard. Certification under ISO 14000 means that the organization follows a management system that ensures eco-friendly practices.

ISO 14000 standards brings several benefits to organization like providing a system for pollution prevention and waste managment. It also helps in saving money through conservation of raw materials and energy.

4.3 Environment Impact Assessment (EIA)

Environmental Impact Assessment is a systematic process to identify, predict and evaluate the environmental effects of proposed action and projects.

Objectives of EIA

(i) To identify, predict and evaluate the economic, environmental and social impacts of developmental activities of an area.

(ii) To provide information on the environmental consequences for decision making.

(iii) Identification of appropriate alternatives and mitigation measures.

(iv)To promote resource conservation, waste minimization and recovery from waste.

(v) To promote sustainable development.

EIA in India

Whenever a new developmental project is planned which is likely to affect environmental quality, it is necessary to carry out EIA.

The Ministry of Environment Forests and Climate Change of India (MoEF and CC) have taken efforts in Environmental Impact Assessment in India. The responsible body for this is Central Pollution Control Board.

EIA was started in India from 1994. Under the EIA notification of September 2006, EIA is statutory for 40 activities under specified sectors such as industries, mining, irrigation, power and transport etc.

It is the Government policy that any developmental project has to obtain prior environment clearance from the MoEF and CC

Importance of EIA

1. EIA is potentially a useful component of environmental management.
2. It focuses on problems, conflicts, natural resource constraints that could affect the viability of a project.
3. After predicting the problems, an EIA identifies measures to minimise the problems.
4. Outlines the ways to improve the project sustainability.
5. EIA is considered as an instrument for sustainable development

The EIA notification specifies two categories of project

Category A - These are large projects like the ports, highways, water and sanitation, urban transport, solid waste management sectors and those with greater potential for environmental impacts. Such proposals are handled by the central government through Expert Appraisal committee, (EAC).

Category B - These are smaller projects and those with less environmental impacts. These are considered at the state level by state expert appraisal committee (SEAC).

(Environment Impact Assessment) EIA process includes :

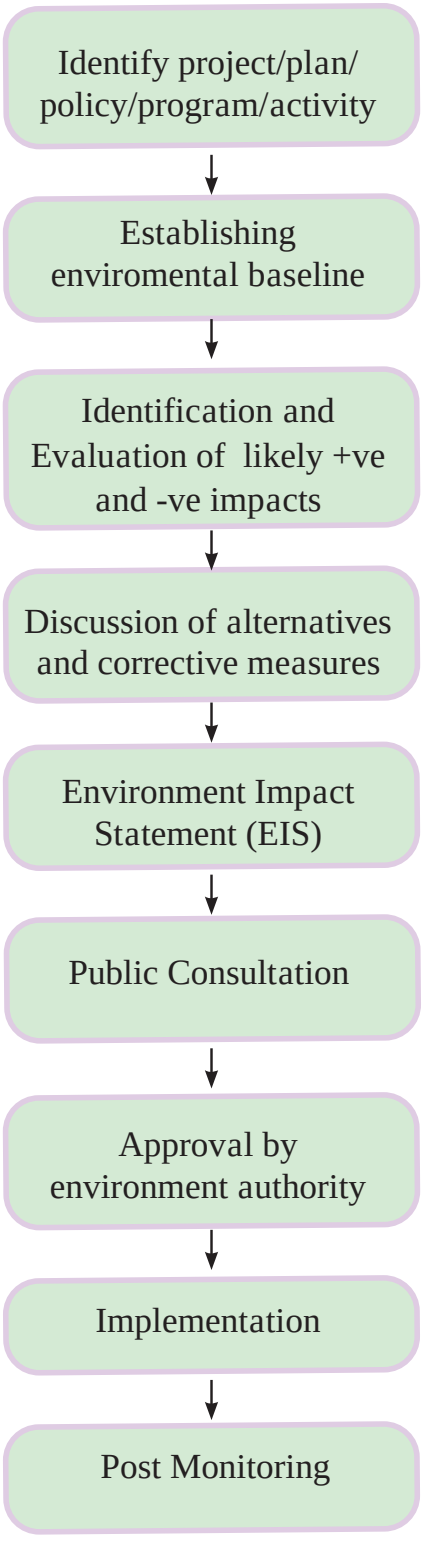


Figure 4.1 EIA process

1. Project Screening

First stage of EIA. Screening is dependant on criteria, project scale, sensitivity of proposed location and expectation of adverse environmental impacts.

2. Scoping

Scope of EIA depends on impacts and issues that it addresses. Process of scoping is to determine key impacts of the project.

3. Establishing the Environment Baseline

The term 'baseline' refers to the collection of background information on the biophysical, social and economic settings of the proposed project area.

4. Impact Analysis

This stage identifies and predicts the likely environmental and social impact of the proposed project and evaluates the significance.

5. Consideration of Alternatives

It focuses on mitigation measures and corrective actions based on the impacts of the project.

6. Preparation of Environment Impact Statement (EIS)

It covers the detail description of project, impact of the project on natural environment as well as on the people. It also covers the mitigation measures and suggestion of aletrnatives or corrective actions.

7. Public Consultation

This is the process by which the views and concerns of affected people are taken into consideration. It includes public hearing and written responses.

8. Decision Making

Environment authority decides whether the project is rejected, approved or needs further change.

9. Post Monitoring

This stage comes in play once the project is commissioned. It checks to ensure that impacts of the project does not exceed the legal standards and implementation of mitigation measures are in the manner as described in EIA report.

4.4 Green audit

Rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crisis. On this background, it becomes essential to adopt the system of environmental audit for institutes, organizations etc. which will lead to sustainable development. As environmental sustainability is becoming an increasingly important issue for the nation, the role of organizations in relation to environmental sustainability is more important.

Green Auditing is a unique process that allows to know the uses of available resources i.e. Energy, Water quality, Builtup Space, Air quality in the organization. Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments.

It was initiated in 1970 with the motive of inspecting the work conducted within the organizations, which can cause risk to inhabitants and environment.

Green audit can be a useful tool for an organization to determine how and where they are using the more energy water or other resources; the organization can then consider how to implement changes for conservation.

Main objective of the audit is to upgrade the environment conditions in and around the organisation. It also aims to secure the environment thereby cutting down the threats posed to human health. It is used to analyse environmental practices within and outside the organisation, which will have an impact on the eco-friendly ambience.

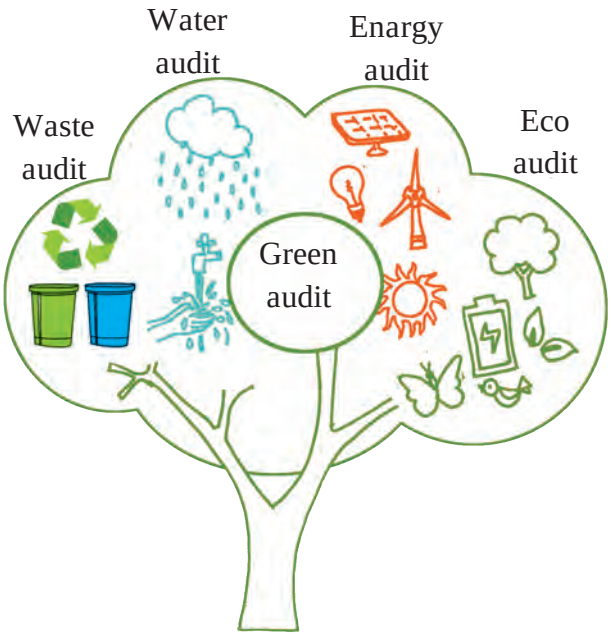


Figure 4.2 : Green audit

Green audit includes

Waste audit – It can be used to determine the type and volume of waste. It helps for a recycling project or to improve waste minimization plan. It guides to reduce the waste generation by segregating, reusing, recycling and composting. By checking waste collection and disposal system, it helps to understand what goes waste and how to make a 'zero waste' campus.

Water audit – It evaluates facilities of raw water intake and determines facilities for waste water treatment. It measures the total water requirement, amount of water harvested and recycled. Main objective of water audit is to balance the demand and supply of water along with harvesting it to use at the time of scarcity.

Energy audit – It deals with the energy conservation and methods to reduce its consumption and related pollution. It helps to target energy consuming practices and suggest the energy conservation techniques.

Ecological audit – It focuses on land use of organization to map green areas, to identify biodiversity and to understand the relationship with environment. It measures the percentage of green cover of organization, as green area has an important role in minimising air pollution and supports biodiversity. It also checks the use of pesticides and organization's initiative to maintain the ecology by using environment safer options.

Benefits of Green audit

- It empowers the organization to frame better environmental performance.
- It helps to prepare an inventory of the resources of an organization.
- It helps an organisation to develop and implement its own ways to conserve and manage the environment.
- To demonstrate that an organization is aware of its impacts upon the environment by providing feedback.
- Promotes environment friendly practices by efficient resource use.

Process of Energy audit

Energy audit refers to examination and verification of energy consumption in the form of electricity, gas and other forms of fuel energy used in households, industries, institutes, schools etc. It can be considered as the first step towards knowing how energy is being used in a given facility. It indicates the ways in which various forms of energy are being used and quantifies energy use according to different functions. It identifies the potential for improvement and thus where energy management efforts must be concentrated.

Energy audit of an institute is based on following criterias :

1) Types of energy used
2) Per day energy consumption
3) Efficient use and conservation of energy

Energy conservation means using energy more efficiently and less wastefully. Conservation of energy is an important energy resource because a unit of energy saved is as good as a unit of energy generated.

Steps of Energy audit

Step 1 - Prepare survey questionnaire taking into consideration construction, design features of the buildings of Institute, habits and practices of consumers and maintenance of the buildings. (Refer activity no. 1)

Step 2 - Identifies the quantity and cost of energy consumed by verious devices used in the institute. (Refer activity no. 2)

Step 3 - Identifies energy consumption at department level. (Refer activity no. 3)

Step 4 - It calculates how much energy an institute consumes and energy wastage points are inditified.

Step 5 - Recommends use of alternate energy sources as - renewable energy sources, like solar energy.

How to save energy?

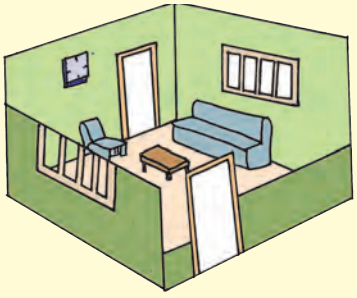
- Use renewable energy sources like solar energy, whereever possible.
- Turn off lights, fans and other electronic equipments while leaving the room or classroom.
- Instead of lift, use the staircase while coming downstairs.
- Don't waste water.

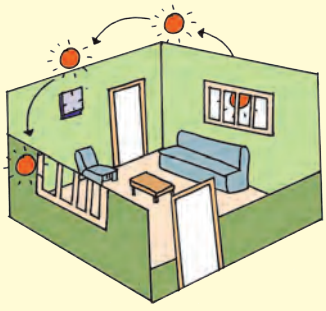
Benefits of Energy audit

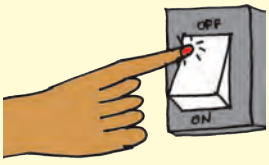
- Helps in understanding energy consumption pattern of the institute.
- By identifying energy wastage areas, saving energy and using renewable energy sources, the institute can become more energy efficient.
- Energy audit it is a small step towards preventing global warming.

Ativity 1 (based on Energy audit step 1)

Sr. No.	Question	Yes	No	Corrective measures
1	Is the ground around the building generally covered with trees, shrubs and grass?			
2	Are the walls and ceilings of the rooms inside the building of a light colour to reflect light?			
3	Are there few windows on the east and west side of the building?			
4	Have provisions been made for natural lighting wherever possible?			
5	Are all appliances turned off when the work is completed?			
6	Are the water taps free from leackages?			







Activity 2 (based on Energy audit step 2 and 3)

- The energy audit team of students should have one member from administrative section and one teacher.
- Find the sources of energy in the institute.

(Specify number, nature and origin of electricity connection.)

Connection-Number of phases	Meter location	Source	Suggestions for safety measures if any
A			
B			
Generator			

Find how much institute pays for electricity – (Period of electricity bill, number of units consumed and total amount in Rupees.)

Bill. No.	Period of bill	Number of units consumed	Total amount in Rupees	Alternatives to cut down cost/ conservation
1				
2				
Total				

Ativity 3 (based on Energy audit step 3)

Appliances	Total Number	Average Wattage (W/hr.)	Duration of per day usage (in hours)	Duration of per year usage (in hours)	Electricity used per year (in kWh)	Alternatives to cut down cost/ conservation
Tube lights		42				
Electric bulb (60W)		60				
Ceiling fan		50				

4.5 Ecotourism

Ecotourism, also called sustainable tourism, can be defined by a variety of travel practices. As an eco-tourist, you decide to travel in a way that shows respect to nature and does not contribute to its degradation.

Ecotourism is a part of environmental conservation and understanding the needs of the local people to improve their quality of life.

It also involves preserving the historical landmarks.

Principles of Ecotourism

As per the International Ecotourism Society principles of ecotourism are given. People who implement and participate in ecotourism activities should adopt the following ecotourism principles :

- Minimize physical, social, behavioural, and psychological impacts on the environment.
- Build environmental and cultural awareness and respect.
- Provide positive for memorable experiences for both visitors and local people.
- Generate financial benefits for both local people and private industry.
- Design, construct and operate low-impact facilities having low impact on environment.

Do's

- Total silence and discipline is required to spot wild animals.
- Small groups are preferred.
- Early mornings and late afternoons are the ideal time to visit forests.
- Seek the assistance of a guide while going into the forests.
- Trekkers are advised to ensure their safety.
- Avoid smoking.
- Respect animals and their habitats.
- Ensure that waste is disposed only in bins.
- Dress code should be followed, modest dress is preferred.
- Keep noise to the minimum to avoid frightening of wildlife.
- Maintain a safe distance from entire wildlife.

Don'ts

- Do not collect any form of plants and animals from any locations.
- Do not disturb any animal by making noise, chasing or flashing lights.
- Do not hand-feed fish and animals.

4.6 International conventions and agreements

International conventions and agreements have contributed to the framing of laws and policies for the country. When a country is a signatory for that convention, means that it needs to take actions in the country to implement it.

The Constitution of India expects the Central Government to translate International Conventions to be implemented in our country. For example: Implementation principles of Convention on Biological Diversity in India is followed by enacting the Biological Diversity Act, 2002.

Ramsar Convention

It is one of the first ecosystem specific conventions to conserve the wetlands. It addressed not only conservation but the wise use of wetlands. This intergovernmental treaty adopted on February 2, 1971 in the Iranian city of Ramsar on the shore of the Caspian Sea. The convention gives following opportunities for a country.

- To make its voice heard in the intergovernmental forums on the

conservation and wise use of wetlands.

- Brings increased publicity and prestige as these wetlands are of International importance.
- Brings access to expert advise on national and site related problems.
- Encourages international cooperation on wetland issues and brings up possibility to support wetland projects.

Convention on wetland came into force for India on February 1, 1982. India now has 27 sites designated as Ramsar sites of international importance. There are various criteria considered for declaration of a wetland as Ramsar site.

1. If the wetland is representative of rare or unique example.
2. If wetland supports vulnerable, endangered or critically endangered species.
3. If it regularly supports 20,000 or more water birds.
4. If it supports significant proportion of indigenous fish species, spawning ground or on migration path of fish stocks.

United Nations Conference on the Human Environment (Stockholm Conference), 1972

The United Nations Conference on Human Environment was held in Stockholm, Sweden from June 5-16,1972, also known as the stockholm conference. It was thought necessary to inspire and guide the people of the planet for preservation and conservation of Environment. It was the first major conference on international environmental problems and marked a turning point in development of international environmental policies. International guidelines for protecting the environment were laid down in this conference.

The conference conjointly created the 'Framework for Environmental Action,' an action plan, containing 109 specific recommendations related to human settlements, natural-resource management, pollution, educational and social aspects of the environment, development and international organizations.

India and Stockholm Conference

India had an important role in conference. India was also a signatory of conference. Environmental protection and conservation of natural resources emerged as key national priorities in India in the wake of the Stockholm Conference. The Prime Minister of India was present and at the conference she highlighted the issue of poverty and environment.

After the Stockholm Conference, Government of India brought the 42nd amendment in the Constitution and incorporated Article 48A and Article 51A (g). As per Article 48A the states are under the 'active obligation' to protect the environment; whereas as per Article 51A (g) every citizen has the duty to protect and improve the environment.

After 1972, India enacted the Water Act 1974, Air Act 1981, Environment Protection Act, 1986. India established Department of Environment under Ministry of Forests to look after the issues of environment.

United Nations Conference on Environment and Development (Rio de Janeiro 1992), 'The Earth Summit'

The United Nations Conference on Environment and Development is popularly known as 'The Earth Summit'. The Earth Summit was held twenty years after the first global environment conference held at Stockholm. The conference was held from 3 -14th June 1992 at Rio de Janeiro, Brazil, with

Representatives from 172 nations. It sought to help governments to find ways to reduce the destruction of non-renewable natural resources and pollution of the planet. The goal was to establish a new and equitable global partnership through creation of new levels of co-operation among countries, key sectors of societies and people. It worked towards international agreements which would respect the interest of all and protect the integrity of global environmental and development system.

The earth summit also produced two international environmental treaties.

a) Convention on Biological Diversity

It was the first international treaty to address preservation of biological diversity. More than 180 countries have signed this convention. It has three primary goals :

- Conservation of biodiversity
- Sustainable use of the components of biodiversity.
- A fair and equitable sharing of the benefits arising from resources.

It balances traditional conservation efforts with economic use of natural resources.

b) The United Nations Framework Convention on Climate Change (UNFCCC)

It seeks to combat global climate change by reducing greenhouse gas emissions. More than 190 nations ratified UNFCCC.

The purpose of UNFCCC is to allow governments to perform various acts -

- Collect and share information on greenhouse gas emissions, national policies and effective practices.
- Launch national strategies for addressing greenhouse gas emissions.
- Cooperate in preparing for adaptation to the impacts of global climate change.

India and Earth Summit 1992

Between the Stockholm Conference and the Rio Earth Summit in June 1992, India developed an organizational structure and a legal and policy framework for the protection of environment and wildlife in the country.

United Nations Conference on Sustainable Development, (Rio+20)

The United Nations Conference on Sustainable Development or also known as Rio+20, was held at Rio de Janeiro, Brazil between 20 - 22nd June 2012. This conference was the 3rd conference on sustainable development. Many important decisions were taken for sustainable development. Rio+20 was a 20 year follow-up of 1992 United Nations Conference on Environment and Development which was held in same city with 192 UN member participant states.

Exercise for Journal Assignment

1) Explain the requirements of green building.
2) Write down the various impacts that industries can have on the environment.
3) What is eco-labelling? What are its advantages?
4) Explain the environmental clearance process in India.
5) Write the information on Paris Agreement.
6) Importance of Ramsar Sites for conseration of wetlands.
7) Explain the need and importance of consumer education.
8) Explain ecofriendly practices for ecotourism.