

PAPER-1

UGC NTA NET

People, Development & Environment - Unit 9

1. The air pollutants are mainly classified as Primary and secondary pollutants.
2. NO_2 , SO_2 , CO and SPM are primary pollutants.
3. Atmospheric pollutants are mainly present in Troposphere and lower stratosphere.
4. Lead affects our Central nervous system.
5. Mercury is responsible for Minamata disease.
6. Peroxyacyl nitrate (PAN) is a by-product of Photochemical smog. Insta-ugnet-notes
7. Global warming during winter becomes more pronounced at the Tropic of Capricorn.
8. The main pollutant of the Indian coastal water is Industrial effluents.
9. With the absorption and decomposition of CO_2 in ocean water beyond desired level, there will be Growth of phytoplanktons.

10. Human ear is most sensitive to noise in 13-16 kHz frequency range.
11. Maximum soot is released from Thermal power plants.
12. Carbon monoxide affects human health by reducing the blood's ability to carry oxygen to different parts of the body.
13. The constituent of smog that causes irritation to the eyes is PAN. Insta - ugcnet - notes
14. The term 'green muffler' is associated with Noise Pollution.
15. BOD Stands for Biological Oxygen Demand.
16. Acid Rain is formed by the Combination of chemical air pollutants with atmospheric water droplets.
17. Combustion of most fuels releases CO₂.
18. Montreal Protocol signed in 1987 was signed to phase out the use of CFC's which cause depletion of the ozone layer.

19. Unburnt carbon particles causes Respiratory Problems

20. The living organism that serves as an indicator of air pollution is Fungi.

21) Water (Prevention and Control of Pollution) — 1974
Air (Prevention and Control of Pollution) — 1981
Wildlife Protection Act — 1972
Environment Protection Act — 1986

22) Fertilizers can be washed into rivers by rain leading to Eutrophication.

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23) Stockholm Convention is a global treaty to protect environment and human health from Persistent organic pollutants.

24) The maximum loss of forest lands in India is caused by Agriculture.

25) Bitumen is obtained from Crude oil.

26) The largest soil group of India is Red soil.

- 27) Thermal power generation in India is carried out by burning Coal.
- 28) With the help of photosynthesis, plants convert solar energy into Chemical energy.
- 29) Coal is a conventional source of energy.
- 30) Biogas is 50-70% of methane.
- 31) The tallest trees in the world are found in the Equatorial Region.
- 32) The biggest fresh water lake in India is Wular.
- 33) In India, oil is mostly found in Sedimentary Rocks.
- 34) Sulphur dioxide causes acid rain.
- 35) Leader in harnessing wind energy - China.
- 36) Shale gas is basically entrapped in Sedimentary rocks.

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37) Pacific Ocean is known as 'Ring of Fire' as it has the earth's most active volcanoes.

38) Elastic rebound theory describes the build-up and release of stress during an earthquake.

39) Body waves consists of P and S waves.

40) Rio Summit — 1992

Johannesburg Earth Summit — 2002

Kyoto Protocol — 1997

Stockholm Conference — 1972

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41) The earthquake waves that have transverse movements are known as Secondary waves

42) The Richter Scale measures The energy released by an earthquake.

43) (Phenomenon) Country

Cyclone — India

Hurricane — USA

Typhoon — China

Willy Willy — Australia

44) Main cause of global warming -
Burning of fossil fuel.

45) The greenhouse effect involves warming of the earth's surface and the Troposphere.

46) <u>National Parks</u>	<u>States</u>
Periyar	Kerala
Nandankanan	Rajasthan Odisha
Corbett National Park	Uttarakhand
Sariska Tiger Reserve	Rajasthan

47) The Great Indian Bustard Bird is found in Thar Desert of Rajasthan.

48) Chipko Movement, originated in 1974 in Uttarakhand. Insta-ugchut-notes

49) Ramsar Convention is related to the conservation of Wetlands.

50) The Great Indian Rhinoceros has its natural home in Kaziranga National Park.

51) Wild water buffalo / Asian buffalo / Indian buffalo is mostly found in Eastern Himalayas.

52) Ozone depletion — Montreal Protocol
CO₂ reduction — Kyoto Protocol
Sustainable Development — Rio Summit
Hazardous Waste — Basel Convention

53) UNESCO stands for —
United Nations Educational, Scientific and
Cultural Organization.

54) Environment Day — June 5

55) E. Coli is the common indicator organism
of water pollution. *Insta - ugcnet - notes*

56) National Action Plan on Climate Change
(NAAPCC) — 2008.

57) India exploded her first underground nuclear
device at Pokhran (Rajasthan) in the Thar Desert
on 18th May, 1974

58) Best quality Coal — Anthracite

59) Target for the solar energy production in
India by 2022 — 100 GW

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UGC NTA NET NOTES

Unit 9- People, Development & Environment

60) World Wetlands Day - 2nd Feb

61) Ramsar Convention -

- Named after the city of Ramsar in Iran, where the convention was signed in 1971. ^{adopted in 1975}
- Also known as the Convention on Wetlands.
- International treaty for the conservation and sustainable use of wetlands.
- 46 Ramsar sites in India (wetlands)

62) Environmental Performance Index

Measure of environmental performance.

→ EPI Index 2020 measured the environmental performance of 180 countries.

→ India secured 168th rank in the 12th edition of the EPI in 2020

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63) World Youth Skills Day - 15th July

64) Sustainable Development Goals (SDGs) set up in 2015 by the United Nations are intended to be achieved by 2030.

65) Carbon dioxide - Contribution to global warming as a greenhouse gas.

Carbon monoxide - Toxic and can cause respiratory diseases.

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NDC NTA NET NOTES

Nitrogen oxide - Formation of acid rain. (a)
Benzene and - Toxic and are carcinogenic hydrocarbons (1)

66) Identify the correct sequence of continents in decreasing order of their yearly carbon dioxide emissions, at present.
- Asia, North America, Europe, Africa.

67) Day time noise standard prescribed for residential areas in India is 55db.

68) In a polluted urban area, Carbon monoxide has the highest concentration in photochemical smog.

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69) Montreal Protocol - Phasing out ozone-depleting substances

Paris Agreement - Intended Nationally Determined Contributions.

Climate Action Plan - Integrated water resource management.

Kyoto Protocol - Emissions Trading.

70) Pathogens in water Diseases they cause

Virus	Hepatitis
Bacteria	Cholera
Protozoa	Dysentery
Helminths	Schistosomiasis.

71) Which among the following are emitted from a coal-based thermal power plant?

- Carbon monoxide
- Sulphur dioxide
- Particulate matter

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72) Under MDG 5, maternal mortality ratio between 1990 and 2015 was to be reduced by 75%.

73) India has a huge Thorium reserve, a potential source of nuclear energy. This thorium reserve is mainly confined in the coastal sands of Kerala sea.

74) Man-made activities are also termed as anthropogenic activities.

75) Long term exposure to noise levels above 75 dB seriously hampers human hearing.

76) Primary Pollutants.

- Suspended particulate matter (SPM)
- Oxides of Carbon
- Hydrocarbons (methane)
- Sulphur oxides
- Nitrogen oxides
- Chlorofluorocarbons [CFCs]

→ Lead

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Secondary Pollutants

- Sulphur trioxide
- Smog Formation
 - Sulphurous or London smog
 - Photochemical or Los Angeles smog
- Ground level ozone
- Acid Rain

77) Sound is measured in Decibel (dB). The unit was chosen in the honour of Alexander Graham Bell, who invented the telephone.

78) 'Swachh Bharat Abhiyan' (Clean India Mission) was started on 2nd Oct, 2014

79) Indore, the country's cleanest city, has now been declared as the first 'water plus' city of India.

- 80) Paleoclimatology or Palaeoclimatology is the study of climatic changes taken on a scale of the entire history of earth. It makes use of data from ice sheets, tree rings, sediments, corals, shells and rocks.
- 81) Greenhouse gases act like a blanket for earth and this blanket can be found in the troposphere layer of the atmosphere.
- 82) Greenhouse gases in order from strongest to weakest -
- Methane (CH_4)
 - Carbon dioxide (CO_2)
 - Nitrous Oxide (NO_2)
 - Water vapour (H_2O)
- 83) When body is in motion, it possesses kinetic energy.
- 84) Nuclear Energy is the mass converted into energy.
- 85) Tamil Nadu is a leader in Wind Power in India. In Muppandal windfarm the total capacity is 1500 MW, the largest wind power plant in India.

- 86) India now ranks 5th in the world after China, USA, Germany and Spain in grid connected wind power installations.
- 87) The Netherlands is called 'The Land of Windmills'.
- 88) National Institute of Wind Energy - Chennai
- 89) Hydroelectric Power is the second largest source of electricity. *Insta - ugcnet - notes*
- 90) Seismic Waves are waves of energy that travel through the earth layer and there are two main types - Body waves & surface waves
- 91) The Environment Protection Act of 1986 (EPA) came into force soon after the Bhopal Gas Tragedy and is also the Umbrella Act.
- 92) The biggest hindrance in using biomass as a major energy source is Large amount of land required to grow energy crops
- 93) An earthquake is rated as 'major' if its magnitude in Richter Scale is in the range of 7.0-7.9.

continued ...

* Millennium Development Goals (2000-2015)

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• 8 MDG Goals

- Eradicate Extreme Poverty & hunger
- Achieve Universal Primary Education
- Promote Gender Equality & Empower Women
- Reduce Child Mortality
- Improve Maternal Health
- Combat HIV/AIDS, Malaria & other diseases
- Ensure Environmental Sustainability
- Global Partnership for Development

- The UN MDG are 8 goals that were signed in September 2000, commits world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women, 189 world leaders came together at the UN New York for Millennium Summit.

- MDG of Global Partnership for Development envisaged making available the benefits of new technologies - specially which of the following?
Ans - Information and Communication.

* Sustainable Development Goals (2015-2030)

Very Imp.

17 SDG Goals

- No Poverty
- Zero hunger
- Good health and well-being
- Quality Education
- Gender Equality
- Clean Water and Sanitation
- Affordable and Clean Energy
- Decent Work and Economic Growth
- Industry, Innovation & Infrastructure
- Reduced Inequalities
- Sustainable Cities & Communities
- Responsible Consumption & Production
- Climate Action
- Life below Water
- Life on Land
- Peace, justice and strong institutions
- Partnerships for the Goals.

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- The SDG set up in 2015 by the UN are intended to be achieved by 2030.
- The 'Agenda 21' of Rio Summit 1992 is related to Sustainable Development.

- The Vienna Convention is for the protection of the Ozone layer.
- Montreal Protocol - global agreement to protect the stratospheric ozone layer was signed in 1987.
- 17 sustainable developments are there in the U.N Agenda, 2030. Insta - ugcnet notes
- Acc. to the 6th edition of Sustainable Development Report 2021, India with a score of 60.1 has been placed at both rank out of 165 countries. Finland topped the index followed by Sweden & Denmark.
- First airport powered by solar energy was at Cochin.
- Nuclear Energy - Atom
Nuclear Fusion [Combining Atoms]
Nuclear fission [Splitting of atoms]

* Stockholm Declaration (1972)

→ for protection of environment

→ To recognize the right to a healthy environment.

→ Declaration of the United Nations Conference on the Human Environment (Full form)

→ 1st International Convention.

Insta-ugcnet-notes

* CITES

(Convention on International Trade in Endangered Species of Wild Fauna and Flora) (1973)

→ The objective is to control international commercial trade in endangered species or products derived from them.

* National Solar Mission

→ Set up by National Action Plan on Climate Change (NAPCC) that was released on 30th June, 2008.

→ Target 100 GW by 2022.

→ Kamuthi Solar Power Project is the largest single location solar power plant in the world, located at Kamuthi in Tamil Nadu.

→ This solar plant is the world's second largest solar park with a capacity of

648 MW, commissioned by Adani Power.

- The leading solar energy producing states are
- Rajasthan (1264 MW)
 - Gujarat (1024 MW)
 - Madhya Pradesh (679 MW)
 - * Tamil Nadu (419 MW)
 - Maharashtra (379 MW)
 - Andhra Pradesh (357 MW)

Insta-ugcnet-notes

* Major Renewable Energy Institutes in India

- National Institute of Solar Energy - Gurgaon
- National Institute of Wind Energy - Chennai
- SSS National Institute for Renewable Energy - Kaputhala (Punjab)
- Indian Renewable Energy Development Agency - New Delhi
- Solar Energy Corporation of India - New Delhi

* Earth Summit (1992) - Rio de Janeiro - on sustainable development.

* Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization to

the Convention on Biological Diversity.

→ The protocol was adopted on 29th October 2010 in Nagoya, Japan and entered into force on 12th Oct, 2014.

Insta-ugnet-notes

* Kyoto Protocol -

→ Entered into force on 16th Feb, 2005

→ Reduce greenhouse gas emissions.

→ Adopted in Kyoto, Japan.

→ Reduce the onset of global warming.

* International Solar Alliance

→ India is generating around 18.5% of India's total energy production from renewable energy sources.

→ Former President of France Mr. Francois Hollande, & our PM Shri Narendra Modi jointly laid the foundation stone on the International Solar Alliance on 25th Jan, 2016

→ The first summit of the International Solar Coalition (ISA) on 11 March 2018 in New Delhi was organized.

→ ISA consists of 121 countries.

→ ISA has set a target of 1TW of solar energy by 2030

* Paris Agreement

→ In 2015, Paris Agreement was signed as an international agreement with an aim to reduce global greenhouse gases and deal with climate change.

→ Main aim - to keep the global temperature rise this century well below 2 degree Celsius above the pre-industrial level.

* Kyoto Protocol is set to expire in 2020. Paris Agreement deals with what should be done in the decade after 2020 and beyond this time frame.

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* Target - Renewable energy capacity to 175 GW by 2022

100 GW - Solar energy

60 GW - Wind energy

10 GW - Bio power

5 GW - Small-hydro power

Target - 450 GW by 2030

MCQ's Continued

- 94) Recently in Brazil, a bacterium exhibited antibiotic resistance, which was not reported previously — Salmonella species.
- 95) Which of the following types of natural disasters has no definite beginning and end?
— Droughts.
- 96) Untreated sewage is a major source of pollution in rivers of India.
- 97) The global emissions (by weight) of following primary pollutants from natural sources are maximum in the case of Carbon dioxide.
- 98) Under Goal 4 of MDG, the reduction sought to be achieved in under-five child mortality rate between 1990-2015 was to the extent of Two-third.
- 99) The efficiency of the windmill depends on its design parameters.
- 100) Day time noise standard prescribed for residential areas in India is 55 dB.

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101) High hazard wastes may contain —
Pathogens, Radioactive wastes & Corrosive.

102) Energy sources in terms of their heat of combustion in increasing order —
Green wood, Dry wood, Natural fats & oils, Methane.

103) In a polluted urban area, Carbon monoxide has the highest concentration (ppv) in photochemical Smog.

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104) Thermal reactors produce energy by fission of the following nuclear fuels —

- Uranium - ^{235}U (^{235}U)
- Uranium - ^{233}U (^{233}U)
- Plutonium - ^{239}Pu (^{239}Pu)

105) Noise pollution is measured in decibels (dB) with reference to a standard sound intensity of the following magnitude — 1 pico watt per m^2

106) States in terms of increasing wind energy potential
→ Rajasthan - M.P - Gujarat - Tamil Nadu.

107) When did the United Nations Environmental Program (UNEP) and the International Program in Environmental Education (IEEP) come into existence - 1975.

108) Contamination of aquatic environment by Polychlorinated Biphenyls (PCBs) can originate from Sewage effluent, Waste incinerators, Toxic dumps.

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109) Coal (sub-bituminous) sources of energy on combustion produces maximum carbon dioxide per unit of energy output or heat content.

110) Formulation of long term emission development strategies by each country was suggested under Paris Agreement.

PEOPLE & ENVIRONMENT

Date

No.

1. The term ecosystem was coined by Arthur Tansley.
2. Haeckel defined Ecology in 1866.
3. Biome is a natural community of Plants and animals in a geographical area.
4. Biosphere - All the ecosystems present on earth.
5. The transitional area between two ecosystems is called Ecotone.
6.

Troposphere	—	Dust particles
Stratosphere	—	Ozone layer
Ionosphere	—	Meteors
Exosphere	—	Aurora
7.

Atmosphere	—	Inert gases
Biosphere	—	Organic Substances
Hydrosphere	—	Salt, fresh water, snow and ice
Lithosphere	—	Light silicates
8. Sequence of different layers of atmosphere —
Troposphere, Stratosphere, Ionosphere, Exosphere
9. NO_2 , SO_2 , CO and SPM - Primary pollutants
10. Mercury is responsible for Minamata disease.
11. Intake of lead may primarily cause damage of Brain.
12. The main pollutant of the Indian coastal water is Industrial effluents.

13. Human ear is most sensitive to noise in 13-16 KHz frequency range.
14. maximum soot is released from Thermal power plants.
15. Surface Zone is produced from Transport sector.
16. In the metro city, the major cause of air pollution is Carbon monoxide.
17. Nitrogen oxide affects human health by Aggravating asthma problem.
18. Sulphur dioxide is mainly released from Cars and trucks.
19. PAN (constituent of smog) causes irritation to the eyes.
20. The main source of water pollution is sewage water.
21. BOD - Biological Oxygen demand.
22. Combustion of most fuels releases CO₂.
23. Petrol engines release gaseous oxides of Nitrogen.
24. CO₂ is stored as a liquid in cylinder at high pressure.
25. The Tehri Dam is located in Uttarakhand.
26. Oligotrophic lakes are characterized by Low level of nutrients.
27. One of the main outcomes of the Rio+20 conference was to develop a set of Sustainable Development Goals.
→ United Nations Conference on Sustainable Development (UNCSD) also known as as Rio 2012, Rio+20, Earth Summit 2012.

Unit 9: People, Development and Environment

1. The global emissions (by weight) of following primary pollutants from natural sources are maximum in the case of Carbon dioxide.
 2. The Sustainable Development Goals (SDGs) set in 2015 by the UN are intended to be achieved by 2030.
 3. Sequence of countries in decreasing order of their contribution to global carbon dioxide emissions.
China - USA - India - Russia - Japan
 4. Mitigation, sometimes called prevention or risk reduction, is often considered the "cornerstone of disaster management" (CFEMA, 2005)
- @ugcnet-notes
5. Under Goal 4 of Millenium Development Goals (MDGs), the reduction sought to be achieved in under five child mortality rate between 1990-2015 was to the extent of Two-third.
- | <u>Emitted Pollutants</u> | <u>Environmental Impact</u> |
|-----------------------------|---|
| A. Carbon dioxide | Contribution to global warming as a greenhouse gas. |
| B. Carbon monoxide | Toxic & can cause respiratory diseases |
| C. Nitrogen oxides | Formation of acid rain |
| D. Benzene and hydrocarbons | Toxic and are carcinogenic. |
7. Day time noise standard prescribed for residential areas in India is 55dB.

8.

List I.

Water pollutants

A. Oxygen demanding wastes

B. Plant nutrients

C. Acids

D. Polychlorinated

List II.

Sources

Paper mills and food processing units biphenyls PCBs
modern washing powders and agriculture run-off
Mine drainage
Water incineration and toxic dumps

9) The phenomenon of ozone depletion is caused by:
• Volatile chlorinated hydrocarbons
• Excessive use of nitrogen-containing fertilizers.
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10) India is the largest emitter of sulphur dioxide (SO_2) in the world, sulphur dioxide combines with water and air, it forms sulphuric acid, which is the main component of acid rain.

11) Nitrogen Dioxide + Sunlight + Hydrocarbons = Ozone

12) Smog is a combination of airborne particulate matter, like soot, and invisible toxic gases including ozone (O_3), carbon monoxide (CO), sulphur dioxide (SO_2), which are carcinogens (cancer causing agents)

13) Volatile Organic Chemicals (VOCs) are contaminants more commonly found in groundwater than in surface water.

14) Small hydro power plants have capacity in the range 1-25 MW.

2021 PYQ's

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1. In agricultural regions, groundwater can have significant concentration of Nitrate pollutant.
2. The abbreviation NMSHE, in the context of Climate Action Plan of Govt. of India, stands for National Mission on Sustaining Himalayan Ecosystem.
3. Eutrophication in a water body leads to-
 - Bloom of algae
 - Increase in turbidity and odor of the water body
 - Difficulty in sustaining normal aquatic life.
4. There are 8 missions under the Climate Action Plan of Govt. of India.
5. CO₂, N₂O, CH₄ Green House gases were the target gases whose emission was to be covered under the first commitment period of the Kyoto Protocol.
6. Polycrystalline silicon often used in Photovoltaic cells as semiconductors are Many individual crystals with different orientations.
7. Solar flat plate collectors essentially work on the principle of Green house effect.
 - Is a heat exchanger that converts the radiant Solar energy from the sun into heat energy using the well known greenhouse effect.
8. Black absorber plate radiates infrared radiations.

- _/_/_
- 9) India's national-level forest policy dates back to 1894
 - 10) Disaster Management Act came into existence in 2005
 - 11) The Environment (protection) Act, 1986 was the result of India's commitment, to take appropriate action for the protection and improvement of environment at the United Nations Conference on the human environment, Stockholm 1972.
 - 12) Properties of permanent hardness in water:
 - Presence of sulphates of calcium and magnesium
 - Presence of chloride of calcium and magnesium
 - 13) Biochemical Oxygen Demand (BOD) is a key indicator of the process performance of waste water treatment plant. The plant is said to be efficient, when BOD Decreases
 - 14) 57% of India's land is vulnerable to earthquakes
 - 15) Convention on Biodiversity was signed during Earth Summit at Rio de Janeiro, 1992.
 - 16) Epidemic is characterized by progressive occurrence and multicasuality
 - 17) As per SDG 3, one of the targets is to reduce under-5 mortality per 1000 live births to at least as low as 25

18) List I - Air Quality Index

- A) 0-50
- B) 51-100
- C) 101-200
- D) 201-300
- E) 301-400

List II - Colour Code

- Green
- Yellow
- Orange
- Red

19) Correct Sequence in decreasing order of percentage of total world's water in the locations.

Ice caps and glaciers - Groundwater - Lakes (Fresh water) - Atmosphere - Rivers and Streams

20) The primary treatment of wastewater involves removal of Solids.

21) In a polluted urban area, Ozone has the least concentration (parts per billion by Volume)

22) Noise levels (db) are referenced to the human hearing threshold at a frequency of 1 KHz.

23) NITI Aayog is an apex advisory and non statutory body

24) By the year 2030, SDG Goal 7 aims at enhancing the global rate of improvement in energy efficiency by a factor of Two.

25) In Gujarat, India the largest integrated solar-wind energy part of 30 GW capacity is in process of setting up.

26)	E-Waste Components	Uses
	A) Mercury	Flat screen monitors
	B) Poly Chlorinated Biphenyls (PCB)	Capacitors and Transformers
	C) Brominated Flame Retardants	Printed Circuit Board
	D) Poly Vinyl Chloride (PVC)	Insulation

27) Methane pollutant has the least residence time in atmosphere.

28) Aquatic weeds are fast growing weeds which can attain very high productivities when cultivated on nutrient rich waste water such as domestic sewage.
Eg: Water hyacinth, salvinia, duck weed etc.

29) Methanol [CH_3OH] also known as wood alcohol has a much higher octane rating than gasoline.

30) Ozone layer to become ozone hole, the concentration of ozone should be < 220 Dobson Unit.

31)	List I	List II
	(A) Earth Day	22nd April
	(B) UNO Day	24th October
	(C) Environment Day	5th June
	(D) International day of Education	24th January

32) By the year 2020, one of the targets in SDG is to reduce global deaths and injuries from road-traffic accidents by 50%.

- _/_/_
- 33) Targets of Goal 7 of the MDG's are :-
- Universal access to modern energy
 - Increase global percentage of renewable energy
 - Double the improvement in energy efficiency.
- 34) Wind farms are generally set up on exposed hilltops or coasts in remote areas.
- 35) The saltiness of the ocean water can be attributed to the minerals and salts deposited by the various rivers that flow into it. However, rivers are not saline because River water is replenished by rain.
- 36) MDG 8 - 'To develop global partnership for development' has the following targets -
- To address special needs of least developed countries
 - To deal exhaustively with debt problem of developing nations
 - To provide access to affordable essential drugs in developing world in collaboration with private sector
- 37) Virus responsible for COVID-19 is SARS-Cov-2
- 38) Small hydro power potential in India is estimated approx as ~ 20 GW.
- 39) The 'Vision statement of International Solar Alliance' is 'Let us together make the sun brighter.'
- 40) 'Wheezing' is the most relevant Health Effect in case of the air pollutant Sulphur dioxide.

- 41) For drinking and irrigation purposes, the availability of suitable water out of earth's total water supplies is about less than 1%.
- 42) Sequence of solar cell base materials in order of their Band gap energy:
Cadmium Sulphide (CdS) > Gallium Arsenide (GaAs) > Silicon (Si) > Germanium (Ge)
- 43) Under SDG 12- Sustainable Consumption and Production, one of the targets is to reduce per capita food waste at retail and consumer levels by 1/2 (Half).
- 44) The National water mission under Climate Action Plan of Govt of India seeks to improve water use efficiency by 20%.
- 45)
- | List I | List II |
|---------------------------------|------------------------------------|
| A) Kyoto Protocol | Clean Development Mechanism |
| B) Montreal Protocol | Phase out of chlorinated compounds |
| C) Paris Agreement | Nationally Determined Contribution |
| D) International Solar Alliance | Clean and Affordable energy |
- 46) International Solar Alliance Framework Agreement entered into force in the year 2017.
- 47) Flotation is a unit operation, used in wastewater treatment to -
• Remove the lighter suspended solids

- Concentrate biological sludge
- Remove oil and grease

- 48) Particulate matter (PM_{2.5}) and Ozone have adverse implications for human health as well as climate change.
- 49) Under SDG 3 - Good health and Wellbeing, by 2030, the premature mortality from non-communicable diseases is to be reduced by 50%.
- 50) 'To conserve and sustainably use the oceans, seas and marine resources' - is the aim of SDG number 14.
- 51) Noise Pollution has an adverse impact on hearing ability as well as psychological well being of a person.
- 52) Major factors for loss of biodiversity are:-
- Changes in land and sea use
 - Direct exploitation of organisms
 - Climate Change
- 53) Lockdown in 2020 in India was imposed under the Disaster Management Act. COVID-19 is the first pan-India biological disaster being handled under this act.
- 54) ∴ India's share of nuclear energy in the electricity generation is approx 3%.

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55) Point sources of water pollution are -

- Underground coal mines
- Sewage treatment plants
- Power-plants

56) In comparison to coal and oil, natural gas contributes much less to global warming per unit energy.

57) During a combustion process, the following air pollutants are produced Nitric oxide, Nitrogen dioxide, Carbon monoxide.

58) O₃ (ozone) has both, positive and negative radiative forcing in the climate.

59) Over the past 100 years, the estimated rise of global sea level is by 10 to 25 cms more. This is attributed to -

- Melting of glaciers and small ice caps
- Thinning of the Greenland ice sheet
- Changes in terrestrial water storage.

60) The optimal range of wind speed for wind power generation is 4-12 m/s.

61) 'Solar water still' is a device to convert saline water to potable water using solar energy.

62) Tropospheric Ozone has positive radiative forcing or warming effect in the global climate.

- _/_/_
- 63) Acc. to Indian Meteorological Department, average sustained wind speed over 3 minutes of a cyclonic storm, is in the range 63-88 km/hr
- 64) High values of Dissolved oxygen (DO) indicate good-quality water.
- 65) During second commitment period (2013-2020) for parties under Kyoto Protocol, the target for reduction in Green House emissions with reference to 1990 levels is 18%.
- 66) The main concept behind solar ponds to store the Solar energy is fixed salt gradient from surface to bottom in the pond.
- 67) In the International Solar Alliance Mission, these entities are corporate Partners from India -
- National Thermal Power Corporation
 - Power grid corporation
 - Rural Electrification Corporation
 - Indian Renewable Energy Development Agency.
- 68) India's maximum energy comes from Thermal Power plant.
- 69) Prime Minister of India is the Executive Head of the National Disaster Management Authority (NDMA)
- 70) Acc. to WHO standards, the pesticide content (Lindane or DDT) in drinking water should not exceed 2 $\mu\text{g/L}^{-1}$

71) Acc. to WHO standards for drinking water quality, the concentration of Arsenic should not exceed 10 $\mu\text{g/L}$.

72) Methyl Chloride is an ozone depleting substance

73) Environmental education makes individuals aware of environmental issues, explore and analyse causes and effectiveness of the issues, and promotes environmental sustainability.

74) Tidal range (R) is a critical factor in determining whether an estuary would be useful for tidal power generation as energy (E) available per tidal cycle depends on scales with R as according to the following relation $E \propto R^2$

75) The faintest detectable noise by a healthy human ear is of 0 dB.

<u>Hazardous substance</u>	<u>Major Source</u>
A. Lead	Paint
B. PCB	Electrical Insulation
C. Benzene	Gasoline
D. Vinyl chloride	Plastics industrial uses.

77) COVID-19 stands for Corona Virus Disease 2019.

78) Acc. to NITI Aayog's SDA Index (2019-20) Himachal Pradesh is the best performer in the attainment of SDA-5 (Gender Equity)

- _/_/_
- 79) Geothermal power plants uses the least land per unit of GWh energy production.
- 80) In respect of Biochemical Oxygen Demand (BOD), the permissible Indian standard for discharge of treated effluents in Inland Surface Waters is 30.0 mg/L
- 81) Sulphate is a most abundant constituent, in a typical, fine continental aerosol.
- 82) Correct sequence of countries in increasing order of their present annual carbon dioxide emissions.
Japan < Russia < India < USA < China
- 83) The main environmental concern associated with geothermal energy is the ' ' release of Hydrogen Sulfide.
- 84) The second highest concentration in biogas is that of Carbon dioxide.
- 85) Black Carbon, Methane (CH_4), Hydrofluorocarbons (HFCs), Surface Ozone (O_3) pollutants are termed 'short-lived climate pollutants'.
- 86) As part of the intended Nationally Determined Contributions, India's target of 33-35% reduction in carbon emission intensity by the year 2030 is sought to be achieved with reference to 2005 levels.

87) Acc. to Noise Pollution (Regulation and Control) Rules, 2000, the night time noise standard for commercial areas in India is 55 dB.

88) Acc. to Red list, the percentage of threatened mammals in the world is about 25%.

89) Identify the correct sequence of BRICS countries in relation to their SDG Index (from highest to lowest) as per Sustainable Development Report, 2020 -

China > Brazil > Russian Federation > South Africa > India

90) Kigali Amendment to the Montreal Protocol envisages reduction in HFCs consumption by late 2040s to the extent of 80-85%.

91) From the energy security perspective, Solar energy is considered most secure for India.

92) Which SDG is related to sustainable consumption and production patterns? SDG 12.

93) In 2012 the first commitment period of the Kyoto Protocol came to an end.

94) 32% of the total primary energy used in India is derived from biomass.

95) Methyl mercury in water can cause adverse human effects such as mental disturbance and

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impairment of speech, hearing and vision.

96)	List I- Disease	List II - Mode of spread
	A. Cholera	Ingestion of polluted water
	B. Trachoma	Lack of water to maintain cleanliness
	C. Schistosomiasis	Involves water contact but not ingestion
	D. Dengue	Requires host

97)	List I	List II
	A. Montreal Protocol	Ozone Depletion
	B. Rio Summit	Environment and sustainable development
	C. Kyoto protocol	Reduce the emission of Green House Gases
	D. Paris Agreement	Climate change mitigation and adaptation

98) Nationally Determined Contributions of EU countries aim at a reduction in Green house Gas emissions by the year 2030 (in the reference to 1990 levels) to the extent of 40%.

99) World's leading geothermal power (in MW) producers
USA > Indonesia > New Zealand > Iceland

100) Diarrhoea which is a water borne disease may be caused by virus, bacteria and protozoa

101) Most of the atmospheric NO₂ is produced due to photochemical reactions in the atmosphere.

- _/_/_
- 102) United Nations Environmental Program (UNEP) was the result of deliberations held during Human Environmental Conference at Stockholm in 1972.
- 103) Tamil Nadu has the maximum installed wind power as per MNRE's latest report
MNRE - The Ministry of New and Renewable Energy
- 104) The air pollutant NO_x is a combination of Nitrogen dioxide and Nitric Oxide
- 105) Article 48A of the Indian Constitution directs the states to ensure protection and improvement of Environment.
- 106) Goal-7 of MDG is about ensuring Environmental Sustainability.
- 107) Acc. to SDG Report (2020), the top-rated ranked country on the basis of the SDG Index is Sweden.
- 108) Under Paris Agreement, it was decided to limit the increase in global average temperature to well below 2°C.
- 109) Chromium and Iron contamination is found in wastewater of some industries.
- 110) 'Blue baby syndrome' in infants is mainly caused by presence of Nitrate in water

111) Gasohol - a mixture of gasoline and ethanol

112) Oxides of Nitrogen, Volatile Organic Compounds, Sunlight are essential for the formation of photochemical smog.

113) Sequence of occurrence of various atmospheric layers from earth's surface -

Troposphere, Stratosphere, Mesosphere, Thermosphere.

114) U-235 isotope of Uranium is fissile material and can be used for nuclear reactions.

115) The in-situ passive soil remediation process is the easiest to implement and the least expensive. It relies upon several natural processes to destroy the contaminants.

116) Summer smog is primarily associated with photochemical formation of ozone and other pollutants.

117) Article 51-A(g) of the Indian Constitution talks about our duty to protect the environment

118) Anaerobic digestion of sewage sludge is -
• An effective process for organic solids
• This process generates methane as an endproduct
• Digested sludge is reduced in volume and easily dewatered.

119)	List I - MDG	List II - Aim
	A. Goal 1	Eradicate extreme poverty & hunger
	B. Goal 2	Achieve universal primary education
	C. Goal 3	Promote gender equality and empower women
	D. Goal 4	Reduce child mortality

120)	List I - Hazardous waste	List II - Features
	A. Ignitable	Able to sustain combustion
	B. Corrosive	Destroy containers
	C. Reactive	Very unstable
	D. Toxic	Causes serious health issues.

121) Geothermal power plants provide electricity consistently running 24/7.

122) Types of hydropower plants.

Large - Above 10-30 MW
Small - 1 MW to 10-30 MW
Mini - 100 KW to 1 MW
Micro - 1 KW to 100 KW

123) Schistosomiasis, also known as snail fever, bilharzia, and Katayama fever, is a disease caused by parasitic flatworms called schistosomes. The urinary tract or the intestines may be infected. Symptoms include abdominal pain, diarrhea, bloody stool, or blood in the urine.

Table 9.4 Permissible Sound Levels

Area	Day (dB)	Night (dB)
Industrial	75	65
Commercial	65	55
Residential	50	45
Silence zones	50	40

Table 9.5 Typical Average Decibel Levels

Source	dBA
Threshold of hearing	0
Quiet whisper	30
Normal conversation	60
Loud singing	75
Automobile	80
Jet plane	130

5. **District Level Committees (DLCs):** This committee deals with the use of genetically modified organisms/hazardous microorganisms and its applications in environment.
6. **Institutional Biosafety Committee (IBSC):** It is established under the institution engaged in GMO research to oversee such research and to interface with the RCGM in regulating it.

INDIA'S NATIONAL ACTION PLAN ON CLIMATE CHANGE (NAPCC)

In this chapter, we discussed about the phenomenon of climate change, sustainable development goals among other things. NAPCC is also a plan that is sensitive to climate change. Following are the main principles of NAPCC.

1. The use of new technologies for inclusive and sustainable development.
2. Its implementation includes local governments, public private partnerships and civil society action.
3. The main focus is on promoting understanding of climate change, adaptation and mitigation, energy efficiency and natural resource conservation.
4. Linked with national growth.
5. Devising efficient and cost effective strategies for demand side management.
6. Welcoming international cooperation approach for research, development and technology transfers which are specifically under UNFCCC.

Keeping all these in view, there is a need for directional shift in development pathway. There are eight national missions which form the core of the National Action Plan.



Figure 9.20

National Solar Mission

The National Solar Mission has adopted 3-phase approach to promote ecologically sustainable growth while meeting India's energy security challenge. The period from 2017-22 is termed as its Phase 3.

The main objectives are to establish India as a global leader in solar energy with quicker disposition of policies. India wants to create an enabling policy framework for the deployment of 100,000 MW of solar power by 2022. To create favourable conditions for

solar manufacturing capability, particularly, solar thermal for indigenous production and market leadership. Its specific aspects have been discussed under solar power also in this chapter.

National Mission for Enhanced Energy Efficiency (NMEEE)

NMEEE has been envisaged to foster innovative and sustainable business models to the energy efficiency sector.

National Mission for a Green India

The Electricity Act, 2001 provides for legal mandate for Bureau of Energy Efficiency (BEE) for Union government and some other agencies in State governments. BEE makes a market based mechanism to encourage savings in such areas.

NMEEE also seeks to strengthen the market for energy efficiency by creating conducive regulatory and policy regime.

National Mission on Sustainable Habitat (NMSH)

NMSH seeks to promote sustainability of habitats through improvements in energy efficiency in buildings, urban planning, improved management of solid and liquid waste, modal shift towards public transport and conservation through appropriate changes in legal and regulatory framework, we can specifically talk about 'Energy Conservation Building Code'.

It also seeks to improve resilience of infrastructure, community based disaster management and measures for improving advance warning systems for extreme weather events.

National Water Mission (NWM)

This intends to ensure integrated water resource management for conservation of water, minimization of wastage and equitable distribution both across and within states.

There is a need to develop a framework for optimum water use through increase in water use efficiency by 20% through regulatory mechanisms with differential entitlements and pricing by taking the National Water Policy (NWP) into consideration. It is required that considerable share of water needs of urban areas is met through recycling of waste water.

There is a need to meet the mitigating water requirements of coastal cities through the adoption of new and appropriate technologies, such as low-temperature desalination technologies allowing the use of ocean water.

There is a need to revisit NWP to ensure basin-level management strategies to deal with variability in rainfall and river flows due to climate change. The optimization of efficiency of existing irrigation systems is also required.

National Mission for Sustaining the Himalayan Ecosystem (NMSHE)

The main objective is to develop a sustainable national capacity to continuously assess the health status of the Himalayan ecosystem and it is important for its perennial rivers and mountain ecosystems also. It also assists the states in their implementation of actions selected for sustainable development. Here, the community based approach is required.

There is a need to increase the forest/tree cover on 5 million hectares (ha) of forest/non-forest lands and improved quality of forest cover on another 5 million ha of non-forest/forest lands (a total of 10 million ha). The improved ecosystem services provides for biodiversity, hydrological services and carbon sequestration from the 10 million ha of forest/ non-forest lands as mentioned above.

There can be enhanced annual CO₂ sequestration by 50 to 60 million tons in the year 2020. Then there is a scope for increased forest-based livelihood income of about 3 million households living in and around the forests.

National Mission on Seabuckthorn

Sea buckthorn plant is popularly known as leh berries, it is also known as 'Wonder plant' and 'Ladakh gold'. It has the following properties.

1. It has numerous medicinal and nutritional properties, and it also helps in soil conservation and nitrogen fixation.
2. It is hardy, drought-resistant and tolerant to extreme temperatures from -43°C to +40°C.
3. The plant has an extensive root system which can fix atmospheric nitrogen making it ideal for controlling soil erosion and preventing desertification.

The MoEF and DRDO have launched a major national initiative for sea buckthorn cultivation in the **high-altitude, cold desert ecosystems**. The initiative is one of many conservation measures for fragile high-altitude ecosystems.

This initiative is a part of Sub-Mission on Cold Desert Ecosystems under the Green India Mission, which is a part of the National Action Plan on Climate Change.

National Mission for Sustainable Agriculture (NMSA)

There are many adaptation and mitigation linked issues as listed below.

- Improved crop seeds, livestock and fish culture
- Water efficiency
- Pest management
- Improved farm practices
- Nutrient management
- Agricultural insurance
- Credit support
- Markets
- Access to information
- Livelihood diversification

If we look at World Trade Organisation, there are many agriculture based issues and the other issues have been sorted out to a great deal.

The National Mission on Strategic Knowledge for Climate Change (NMSKCC)

There is a need for formation of knowledge networks among the existing knowledge institutions engaged in research and development relating to climate science.

There is a need to establish some global technology watch groups with institutional capacities to carry out research on risk minimized technology selection for developmental choices.

There is a need to develop national capacity for modelling the regional impact of climate change on different ecological zones within the country for different seasons and living standards.

The establishment of research networks and encouraging research in the areas of climate change impacts on important socio-economic sectors, like agriculture, health, natural ecosystems, biodiversity, coastal zones, etc., are required.

National Bio-Energy Mission

The Union government is in the process of preparing a national bioenergy mission to boost power generation from biomass, a renewable energy source abundantly available in India.

This national mission will aim at improving energy efficiency in traditional biomass consuming industries that seek to develop a bio-energy city project and provide logistics support to biomass processing units.

It also proposes a GIS-based National Biomass Resource Atlas to map potential biomass regions in the country. According to the estimates, biomass from agro and agro-industrial residue can potentially generate 25,000 MW of power in India.



- 1. The Factories Act, 1948:** This Act aims at providing information on hazardous processes taking place inside the factory to its workers, local residents and government officials.
- 2. The Insecticides Act, 1968:** It aims to regulate import, manufacture, sale, transport, distribution and the use of insecticides to prevent risk to human and animal life.
- 3. The Water (Prevention and Control of Pollution) Act, 1974:** This act defines what water pollution is and determines its penalties.

(Continued)

- 4. The Air (Prosecution and Control of Pollution) Act, 1981:** This act controls and regulates emissions from automobiles and industrial plants.
- 5. The Forest Conservation Act, 1980:** It mainly prohibits the State governments from declaring any reserve forest as non-reserve without approval of the central authority.
- 6. The Wildlife Protection Act, 1972:** It aims to provide necessary protection against serious threat to wildlife (both animals and birds) by the expansion and advancement of agriculture, industry and urbanization. The Indian Board of Wildlife was set up in 1952. Various projects have been launched for the protection of endangered species, such as lions (1972), tigers (1973), crocodiles (1974) and brown antlered deer (1981). India became a party to the Convention of International Trade in Endangered Species of Fauna and Flora (CITES) in 1976. India also started a national component of United Nations Educational, Scientific and Cultural Organization's (UNESCO) Man and Biosphere (MAB) programme in 1971.
- 7. The Environment Protection Act, 1986:** It lays down the standards for emission and discharge of pollutants, restricting areas for certain industries and laying down the safeguards for prevention of industrial accidents.
- 8. Mashelkar Committee Recommendations:** The Auto Fuel Policy suggested by the expert committee headed by Dr. R. A. Mashelkar includes recommendations on auto fuel's quality, vehicular emission norms and its related issues for the country as a whole. It also recommended the introduction of low-sulphur diesel, unleaded petrol and low-benzene gasoline in a phased manner along with the promotion of alternative fuels such as compressed natural gas (CNG).

The policy is modelled on the pattern of Euro norms of European Union. Emission norms were introduced such as Bharat I, II, III and IV for different vehicles with different schedules for its implementation across India. Bharat III norms were introduced for all new passenger cars across India and Bharat IV norms were introduced in 12 major cities. With effect from February 2000, lead has been phased out of automobile fuel.

The Union Ministry of Transport is going to implement Bharat Stage V and Bharat Stage VI emissions standards to 2019 and 2021, respectively. They mainly aim at reducing sulphur levels in the air.

- 9. National Green Tribunal (NGT):** The tribunal was established on 18 October 2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases related to environmental protection and conservation of forests and other natural resources. It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multidisciplinary issues.
- 10. Environment Impact Assessment (EIA):** It is a widely recognized study to assess the environmental impact of development projects. It is basically the cost-benefit analysis in context of the environment. Environmental risk assessment (ERA) is a fact-finding stage where EIA indicates the potential hazards. In India, the Department of Environment and National Council of Environmental Planning (NCEP) have adopted a preliminary procedure to prepare EIA.
- 11. Precautionary principle:** The precautionary principle is a moral and political principle, which aims to prevent any action that can cause damage to the public or society at large. For example, the Supreme Court of India ordered the shifting of industries outside Delhi a few years back. In the Earth Summit held at Rio de Janeiro in 1992, a precautionary approach was codified for the first time at a global level, to protect the environment in the form of Principle 15 of Agenda 21. It emphasizes that every state should apply the principle according to its capabilities and lack of full scientific knowledge should not be used as a reason for not taking action. This is necessary to check the possibility of any irreversible damage to the environment. There are two popular terms associated with precautionary principle.
 - (a) Polluter Pays Principle (PPP):** This idea first originated in the Organization for Economic Cooperation and Development where pollution control costs are to be financed by the polluter alone.
 - (b) Beneficiary Pays Principle (BPP):** It suggests that funding for environmental improvement should be obtained from its beneficiaries. This method of financing would generate larger revenue for the government as the rich are willing and capable of paying more for environmental enrichment. Imposing carbon tax is an example.
- 12. ISO 14000:** After the success of ISO 9000 Quality Management System, which focuses on continual improvement of the processes and quality of goods and services, International Standards Organisation (ISO) introduced ISO 14000 series of Environmental Management System in 1996. It specifically deals with environmental aspects of processes in products and services.

- 13. Emissions trading:** It is an administrative approach to deal with the issue of pollution control by providing financial incentives for achieving reduction in carbon emission. An organization earns one carbon credit if it is able to avoid emission of one ton of carbon dioxide or its equivalent. The carbon credits thus earned can be sold to other companies for whom it is mandatory to cut carbon emissions. It is also termed as cap and trade.
- 14. Carbon trading:** The idea of carbon trading is a part of Kyoto Protocol, which was signed in 1997 and came into force in 2002.

Few Important International Conventions on Environment and Biodiversity

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973: The objective is to control international commercial trade in endangered species or products derived from them.

Carbon space refers to the amount of carbon that can be released into the atmosphere by 2100 so that the rise in global temperature can be capped at 2 degree Celsius. It is set at 1,000 gigatonnes of carbon dioxide equivalent (GtCO₂eq).

Basel Convention, 1989: The main aim is to minimize transboundary movement of hazardous wastes.

UN Framework Convention on Climate Change (UNFCCC), 1992: The main aims are to stabilize emission of greenhouse gases and to check reasons for global warming and climate change.

Convention on Biological Diversity (CBD), 1992: The main aims are conservation of biodiversity, sustainable use of biological resources and equitable sharing of benefits.

Nagoya Protocol: It is a supplementary agreement to the Convention on Biological Diversity. The Nagoya Protocol on Access and Benefit Sharing (ABS) was adopted on 29 October 2010 in Nagoya, Japan.

Stockholm Convention: It was adopted in 2001 and enforced in 2004. It deals with reducing and eliminating the production and use of persistent organic pollutants.

Ramsar Convention: It was signed in Iranian city of Ramsar in 1971 and enforced in 1975. It deals with conservation and use of wetlands.

A Snap Shot of Main Environmental Movements in India

Chipko Movement: It was started in 1973 in Chamoli District of Uttarakhand. It entailed embracing the trees upon seeing an axe coming near the tree to cut it. Its main leader was Shri Sunderlal Bahuguna.

Appiko Movement: It was started in 1983 in the villages of Western Ghats in Uttara Kannada region of Karnataka. The main purpose was to prevent commercial felling of trees. It became a symbol for people's power for their rights of natural resources with regard to the state.

Tehri Dam Movement: This movement was spearheaded by Baba Amte against the submergence of land by construction of dams, population displacement among other environmental concerns. It started in 1970s and continued until a decade ago.

Save Silent Valley Movement: It was started in Palakkad district of Kerala in 1973 to save the Silent Valley Reserve Forest from being flooded by a hydroelectric project. The valley was declared as Silent Valley National Park in 1985.

Narmada Bachao Andolan: It was launched to protect the population from the adverse effects of Narmada Valley Project, i.e., two mega projects, such as Sardar Sarovar Project and Narmada Sagar Project in Madhya Pradesh. This interstate project involving Madhya Pradesh, Maharashtra and Gujarat has been constructed on Narmada River. Its main leader is Medha Patkar. The main issues involved are related to displacement of population and submerging of forest land.

Taj Trapezium Zone: Sulphur dioxide gas released by Mathura Oil Refinery and other industries (combined with oxygen and moisture to form sulphuric acid) caused extensive damage to Taj marbles. It corroded the marble and formed fungus also referred as 'marble cancer'. A lawyer Mahesh Chander Mehta filed a case before Supreme Court in 1984. The court ruled in 1996 to relocate and shift certain industries.

Key Institutions for Environment in India

Bombay Natural History Society, Mumbai

World Wide Fund for Nature-India, New Delhi

Centre for Science and Environment, New Delhi

CPR Environmental Education Centre, Chennai

Centre for Environment Education (CEE), Ahmedabad

The Botanical Survey of India (BSI), Kolkata

Zoological Survey of India (ZSI), Kolkata

National Environment Engineering Research Institute, Nagpur

IMPORTANT DAYS LINKED WITH ENVIRONMENT

Table 9.9 Important Days Related to Environment

Dates	Important days	Dates	Important days
January 30	World Leprosy Day	June 27	International Diabetes Day
February 2	World Wetlands Day	July 11	World Population Day
February 25	World Sustainable Energy Day	July 28	World Nature Conservation Day
March 20	World Sparrow's Day	July 29	World Tiger Day
March 21	World Forestry Day	August 6	Hiroshima Day
March 22	World Water Day	October 3	World Nature Day
April 22	World Earth Day	October 4	World Animal Day
April 25	World Malaria Day	December 2	World Pollution Prevention Day
May 31	World No Tobacco Day	December 14	World Energy Day
June 5	World Environment Day	December 29	International Biodiversity Day
June 8	World Oceans Day		

ENVIRONMENT PROTECTION ACT 1986

- The genesis of the Environment (Protection) Act, 1986 is in Article 48-A (Directive Principle of State Policy) and Article 51-A(g) (Fundamental Duty) of the Indian Constitution.
- There is a directive, given to the state as one of the **Directive Principles** of State Policy regarding the protection and improvement of the environment.

Article 48A states '*The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country*'.

- The **Environment Protection Act of 1986 (EPA)** came into force soon after the Bhopal Gas Tragedy and is considered umbrella legislation as it fills many lacunae in the existing legislations.
- **Environmental protection act 1986** is also the **Umbrella act** because it provides the framework to the central government in order to make the coordination between different state as well as the central authorities using different **act** like water **act**, etc.
- The main emphasis is given to 'Environment', defined to include water, air and land and the inter-relationships which exist among water, air and land and human beings and other living creatures, plants, microorganisms and property.
- It defines environmental pollution also. 'Hazardous substances' include any substance or preparation, which may cause harm to human beings, other living creatures, plants, microorganisms, property or the environment.