



GREEN INSIGHTS

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Newsletter on "Environment Literacy - Eco-labelling and Eco-friendly Products"



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Environment Literacy - Eco-labelling and Eco-friendly Products

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The decade between 2010 and 2019 was the warmest decade recorded in history. Currently climate change is affecting the global community in every nation across the world. It has a drastic impact over the lives and livelihood of the people living in vulnerable conditions. Globally one can observe more intense and more frequent occurrences of Natural Disasters such as wildfires, droughts, hurricanes, floods etc which can be attributed to human induced activities.

The world emits around 50 billion tones carbon dioxide equivalents each year. According to an IPCC report, Human-induced warming reached approximately 1°C (likely between 0.8°C and 1.2°C) above pre-industrial levels in 2017, increasing at 0.2°C (likely between 0.1°C and 0.3°C) per decade. To prevent severe climate change we need to rapidly reduce global greenhouse gas emissions. Our current lifestyles and the choices that we make has a profound impact on our planet.

Due to the growing population, the demand is at all-time high. This is directly proportional to the depletion of natural resources and causing environmental pollution. Time and again countries around the globe have come together to tackle the menace of climate change. The COP 26 was such event where the countries worldwide came together to make an enhanced commitment in mitigating climate change. This could be achieved only if the world limits the global warming to 1.5°C, by adapting sustainable means of consumption, production and development.

This issue presents the sources of GHG emissions and its negative impact on the environment. It also reflects the efforts undertaken by the United Nations in tackling climate change.

Climate Change and its Causes



Weather and climate is differentiated on a time scale. Climate is measured over a long period of time whereas weather is measured on day to day basis. Climate is the average weather in a place over many years. Climate can be divided into different types such as Tropical, Dry, Continental, Temperate, Polar etc. Climate change is the alteration in these weather patterns such as long term shifts in temperatures, precipitation averages and wind

patterns etc. It could be referred to a particular location or a planet as a whole. Climate change causes weather patterns to be less predictable and unexpected such as more intense and frequent downpours, snowfalls, hurricanes etc. This has a gruesome effect on farming and agricultural activities. The rapidly growing climate change is caused by increase in greenhouse gases majorly due to anthropogenic activities.

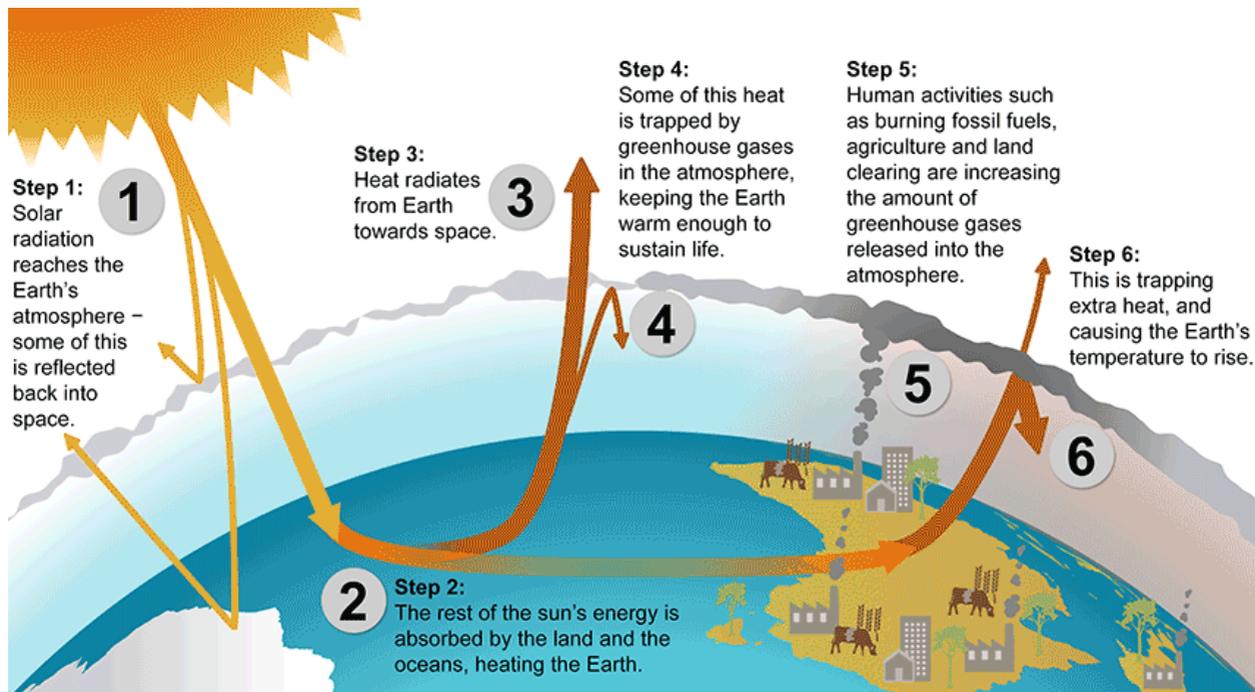


Image source: <https://www.environment.gov.au/climate-change/climate-science-data/climate-science/greenhouse-effect>

Earth has its own reflectivity which returns most of the radiations back to the space. This is called Albedo Effect, which helps the planet to cool. The Greenhouse gas emissions can lower the Albedo effect by trapping more of the infrared radiations and allowing less of the energy to bounce back to the atmosphere and thereby increasing the temperature. The Earth has a natural greenhouse effect due to trace amounts of water vapour (H₂O), carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) in the atmosphere. The enhanced greenhouse effect refers to the additional radiation from increased concentrations of greenhouse gases induced by human activities. The main greenhouse gases whose concentrations are rising are carbon dioxide, methane, nitrous oxide, Chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs). Here are few reasons for the increase in concentrations of these Greenhouse gases.

1. Burning coal, oil & gas:

Coal has the most serious, long term and global impact on Climate Change. Chemically, coal is mostly carbon, which, when burned, reacts with oxygen in the air to produce carbon dioxide. This heat-trapping gas when released into the atmosphere, works like a blanket, warming the earth above normal limits. Burning of fossil fuels for multiple uses in industrial processes, manufacturing units and transportation results in release of greenhouse gases which again increases the earth's temperature.

2. Cutting down of trees (Deforestation):

Trees & Plants absorb carbon dioxide from the atmosphere to grow. In this way, large amount of carbon dioxide is stored as carbon in leaves, branches, trunks, roots etc. This biological carbon cycle helps in sequestering or removal of CO₂ from the atmosphere. When forests are cleared or burnt, stored carbon is released into the atmosphere, mainly as carbon dioxide.

3. Fertilizers containing nitrogen:

One of the main nutrients that plants need to grow is nitrogen. But plants can't take in nitrogen from the air the way they can absorb carbon dioxide or oxygen. Human-made fertilizers have greatly boosted crop production, letting farmers grow more food on less land. But this uptick in fertilizer use has come at a cost: planet-warming greenhouse gas emissions. Much of the applied fertilizer runs off into waterways, or gets broken down by microbes in the soil, releasing the potent greenhouse gas nitrous oxide into the atmosphere.

4. Fluorinated gases:

Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

5. Increasing livestock farming:

Raising livestock and many agricultural practices generates greenhouse gas emissions that harms the environment. The decay of organic waste also contributes the same. Livestock, especially ruminants such as cattle, produce methane (CH₄) as part of their normal digestive processes. This process is called enteric fermentation, and it represents over a quarter of the emissions from the Agriculture economic sector. The way in which manure from livestock is managed also contributes to CH₄ and N₂O emissions. Different manure treatment, storage methods and decay of organic waste also contribute to the greenhouse gases are production. Smaller sources of agricultural emissions include CO₂ from liming and urea application, CH₄ from rice cultivation, and burning crop residues, which produces CH₄ and N₂O.

Source:

- 1 <https://public.wmo.int/en/our-mandate/focus-areas/environment/greenhouse%20gases>
- 2 <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>
- 3 <https://www.ucsusa.org/resources/coal-power-impacts>
- 4 <https://www.climatecouncil.org.au/deforestation/>
- 5 <https://www.downtoearth.org.in/factsheet/how-livestock-farming-affects-the-environment-64218>
- 6 <https://climate.mit.edu/explainers/fertilizer-and-climate-change>
- 7 <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#agriculture>
- 8 <https://unsplash.com/photos/kbTp7dBzHyY>
- 9 https://unsplash.com/photos/SH_oYiwg224

Climate Change Repercussions



Global climate change is already showing observable changes. Glaciers are melting, ice on rivers and lakes are breaking earlier, sea level is rising, average rainfall or snowfall has disrupted, trees are flowering sooner etc. Here are some obvious climate changes happening globally.

Warming Ocean & Sea Level rise

As the temperature of the Earth rises, water in the ocean soaks up energy (heat) and distributes it evenly across the planet. The ocean also absorbs carbon dioxide from Earth's atmosphere. The additional heat and carbon dioxide in the ocean can change the environment for the many plants and animals that live there. The top few meters of the ocean store as much heat as Earth's entire atmosphere. So, as the planet warms, it's the ocean that gets most of the extra energy. More than 90% of the global warming is going into the ocean. But if the ocean gets too warm, then the plants and animals that live there can get sick or even die. Too much carbon dioxide in the ocean causes a problem called ocean acidification. Water expands as it gets warmer. So, warm water takes up more room in our oceans, and this leads to higher sea levels.



Melting Glaciers & shrinking ice sheets

Ice acts like a protective layer over the earth as it reflects back the excess heat and keeps the planet cooler. Melting of sea ice does not directly change the sea level but it poses a great threat to the animals such as walrus and polar bears. It also causes darker patches on the ocean surface, which otherwise kept the poles cooler. About 10% of land area on Earth is covered with glacial ice. Almost 90% is in Antarctica, while the remaining 10% is in the Greenland ice cap. Anthropogenic activities such as industrial revolution, release of carbon dioxide and greenhouse gases has increased the earth's global temperature resulting into melting of glaciers. Glaciers are formed on land, so when there is a significant run off, it increases the sea water level. The Greenland and Antarctic ice sheets are the largest contributors of global sea level rise. Right now, the Greenland ice sheet is disappearing four times faster than in 2003 and already contributes 20% of current sea level rise.

Melting of sea ice and glaciers have slowed the ocean currents and caused changes in the weather patterns. These drastic changes have put in danger and altered marine and aquatic lives, coastal communities, fishery industries and many people's livelihood.



Image Source: <https://unsplash.com/photos/TFSu8P5dw>

Extreme Events

The Indian state Kerala, has been facing the havoc wrath of heavy floods for the past three consecutive years. For the past two decades, Arabian Sea is showing a rise in surface temperature. The temperature has increased from 1.2 degree Celsius to 1.4 degree Celsius, which has attributed to more cyclonic circulations. Global warming and dumping of plastic waste into the sea has resulted in the increase of temperature on sea surface.



Earlier in January, Spain experienced an exceptional and most likely historic event of snowstorms that resulted into an estimated loss/damage of 1.4 billion euros (\$1.6bn). China also faced worst sand storm in a decade worsening its air pollution and quality levels across the country amidst the coronavirus pandemic. Canada witnessed a record shattering heat wave causing many deaths. Germany faced devastating floods in its low lying areas, which was one of the worst natural disaster in the past 60 years. Greece, Italy and Turkey reported severe wild fires scorching on forests and many area. US recorded one of the strongest hurricane Ida resulting devastating damage and loss of lives.



History of global temperatures

According to NOAA's 2020 Annual Climate Report the combined land and ocean temperature has increased at an average rate of 0.13 degrees Fahrenheit (0.08 degrees Celsius) per decade since 1880; however, the average rate of increase since 1981 (0.18°C / 0.32°F) has been more than twice that rate.

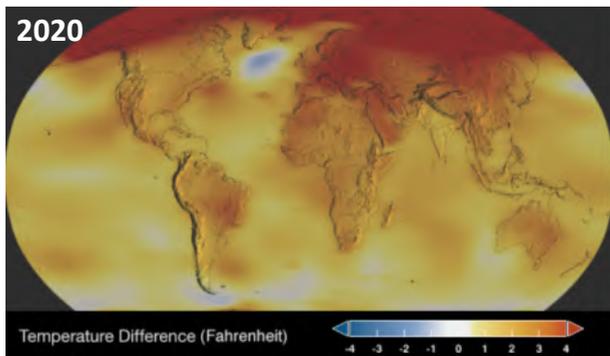
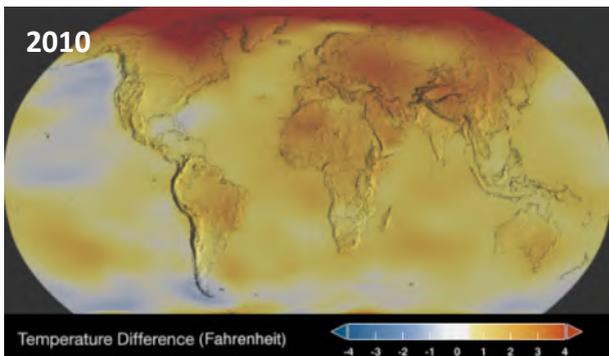
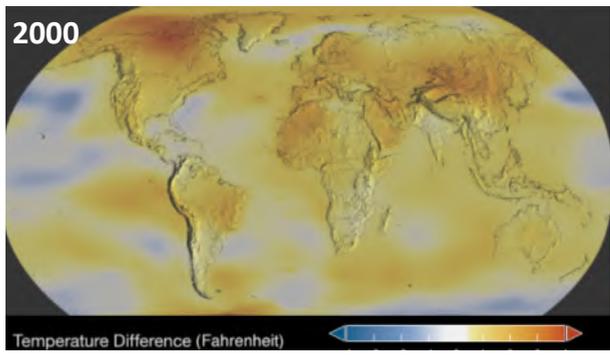
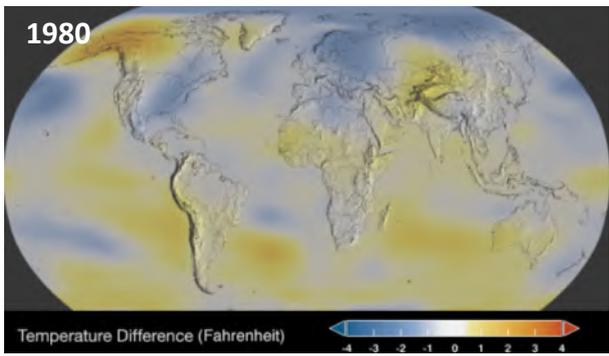
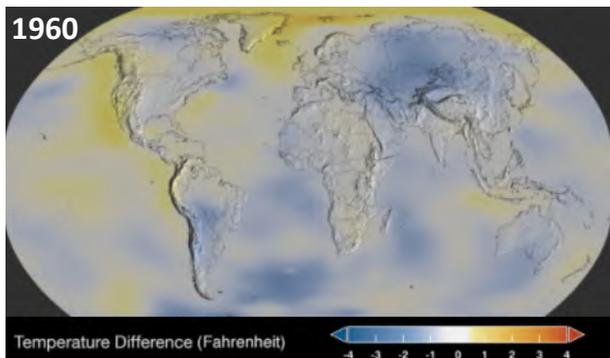
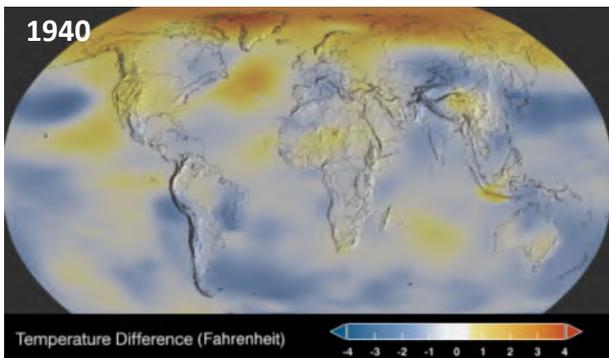
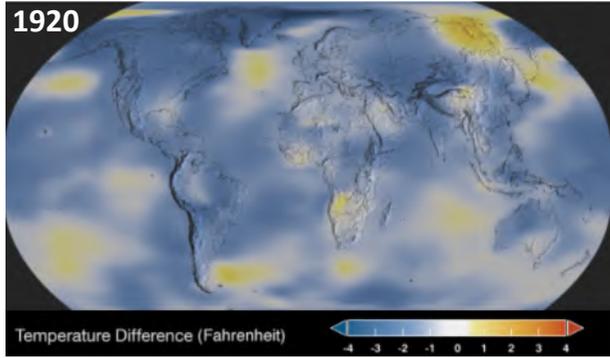
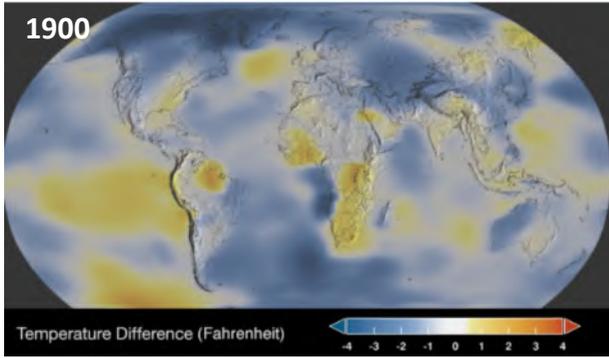
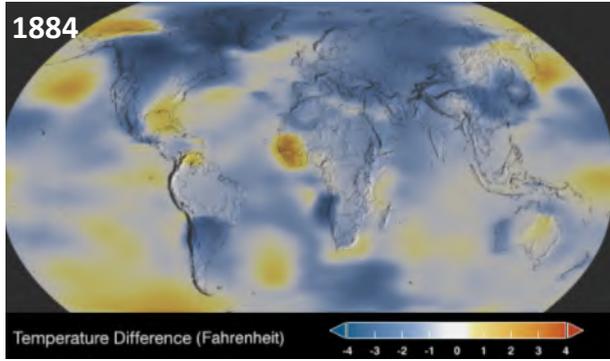


Source:

- 1 <https://www.downtoearth.org.in/news/climate-change/delayed-monsoon-withdrawal-why-that-should-bother-us-79595>
- 2 <https://www.aljazeera.com/news/2021/11/1/recapping-the-most-major-weather-events-of-2021>
- 3 <https://www.aljazeera.com/news/2021/10/26/india-climate-change-migration-poverty-extreme-weather>
- 4 <https://science.thewire.in/environment/india-suffered-87-billion-average-annual-loss-from-extreme-weather-events-un/>
- 5 <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>
- 6 <https://climate.nasa.gov/vital-signs/global-temperature/>
- 7 <https://i.natgeo.com/n/e40ded81-41a8-49c6-856d-4346d2909a1e/06-global-warming-gallery.jpg>
- 8 <https://www.hindustantimes.com/india-news/extreme-weather-events-in-kerala-linked-to-climate-crisis-experts-101634668375094.html>
- 9 <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>
- 10 <http://www.chinadaily.com.cn/a/202103/15/WS604ebb09a31024ad0baaf208.html>
- 11 <https://www.worldwildlife.org/pages/why-are-glaciers-and-sea-ice-melting>

TIME SERIES: 1884 to 2020

The time series shows the average variation of global surface temperatures. Dark blue indicates areas cooler than average. Dark red indicates areas warmer than average. Though warming has not been uniform across the planet, the upward trend in the globally averaged temperature shows that more areas are warming than cooling.



Source: <https://climate.nasa.gov/vital-signs/global-temperature/>

GOAL 13: CLIMATE ACTION

The **Sustainable Development Goals (SDGs) or Global Goals** are a collection of 17 interlinked global goals designed to be a “blueprint to achieve a better and more sustainable future for all”. The SDGs were set up in 2015 by the United Nations General Assembly (UN-GA) and are intended to be achieved by the year 2030. They are included in a UN-GA Resolution called the **Agenda 2030**. Sustainable Development Goal 13 (SDG 13 or Goal 13) is about climate action. There are 5 targets in total, all of which cover a wide range of issues surrounding climate action. The first three targets are “output targets”.

13.1 Target: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Indicators: 13.1.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

13.1.2: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030

13.1.3: Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

13.2 Target: Integrate climate change measures into national policies, strategies and planning

13.2.1: Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change

13.2.2: Total greenhouse gas emissions per year

13.3 Target: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

13.3.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national



education policies; (b) curricula; (c) teacher education; and (d) student assessment

13.3.2: Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions.

The remaining two targets are “means of achieving” targets:

13.a Target: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

13.b Target: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities * Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

Source: <https://sdgs.un.org/goals/goal13>

Conventions on Climate Change



United Nations Framework Convention on Climate Change (UNFCCC) entered into force on 21 March 1994. The 197 countries that have ratified the Convention are called Parties to the Convention (COPs).

Preventing “dangerous” human interference with the climate system is the ultimate aim of the UNFCCC.



United Nations
Framework Convention on
Climate Change

The UNFCCC is a “Rio Convention”, one of two opened for signature at the “Rio Earth Summit” in 1992. Its sister Rio Conventions are the UN Convention on Biological Diversity and the Convention to Combat Desertification. The three are intrinsically linked. The United Nations in its pivotal movement to fight against climate change is bringing the COPs of the globe together.

The Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change that brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. For the first time in history, every country agreed



to work together to limit global warming to well below 2 degrees and aim for 1.5 degrees. Implementation of the Paris Agreement requires economic and social transformation. The Paris Agreement works on a 5- year cycle of increasingly ambitious climate action carried out by countries. The 26th session of the Conference of the Parties (COP 26) to the UNFCCC was originally scheduled to take place from 9-19 November 2020, in Glasgow, UK, but was postponed to 1-12 November 2021 due to COVID – 19. Here, the countries submitted their plans for climate action known as nationally determined contributions (NDCs). The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve.

The Paris Agreement also set out ambitious goals on adaptation and recognizing the countries that are already experiencing the impacts of a changing climate and providing the needed financial, technical and capacity building support.

a) Finance

The Paris Agreement reaffirms that developed countries should take the lead in providing financial assistance to countries that are less endowed and more vulnerable, while for the first time also encouraging voluntary contributions by other Parties. Climate finance is needed for mitigation, because large-scale investments are required to significantly reduce emissions. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate.

b) Technology

The Paris Agreement speaks of the vision of fully realizing technology development and transfer for both improving resilience to climate change and reducing GHG emissions. It establishes a technology framework to provide overarching guidance to the well-functioning Technology Mechanism. The mechanism is accelerating technology development and transfer through its policy and implementation arms.

C) Capacity-Building

Not all developing countries have sufficient capacities to deal with many of the challenges brought by climate change. As a result, the Paris Agreement places great emphasis on climate-related capacity-building for developing countries and requests all developed countries to enhance support for capacity-building actions in developing countries.

Around 70% of the world's economy is now committed to reaching net zero emissions, up from 30% when the UK took over as incoming COP Presidency. More than 80 countries have formally updated their NDCs, and all G7 countries have announced new NDC targets that put them on the path to net zero emissions by 2050. Accounting for around half the global economy, all the countries that make up the G7 have updated their 2030 targets to put them on a pathway to net zero by 2050.

On the first day of the Leaders' Summit at COP26, India committed to a net zero emissions target by 2070 with a mid-term goal of installing 500 gigawatts of renewable capacity by 2030. India is the second-biggest coal consumer in the world and meets almost 70% of its electricity from coal. It is also fourth biggest emitter of carbon dioxide after China, the US and the EU. But its huge population means its emissions per capita are much lower than other major world economies. Brazil and Vietnam also committed to net zero emissions by 2050. China has announced plans for carbon neutrality by 2060, while the US and EU aim to hit net zero by 2050. At least 110 countries pledged to end and reverse deforestation and land degradation by 2030.

The global nature of climate change calls for the widest possible international cooperation aimed at accelerating the reduction of global greenhouse gas emissions and addressing adaptation to the adverse impacts of climate change.

Source:

- 1 <https://ukcop26.org/uk-presidency/what-is-a-cop/>
- 2 <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- 3 <https://www.aa.com.tr/en/environment/cop26-in-nutshell-world-leaders-depart-glasgow-on-second-day-leaving-stage-to-negotiators/2410800>
- 4 <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- 5 <https://ukcop26.org/wp-content/uploads/2021/07/COP26-Explained.pdf>
- 6 https://www.man-es.com/images/default-source/discover/ratifying-countries-of-the-unfccc_1.jpg?sfvrsn=a4e1a4ac_4

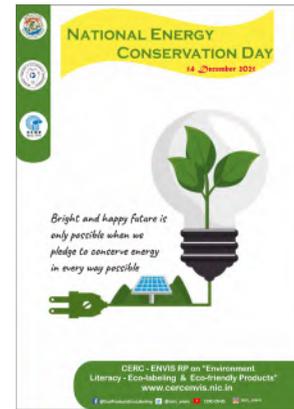
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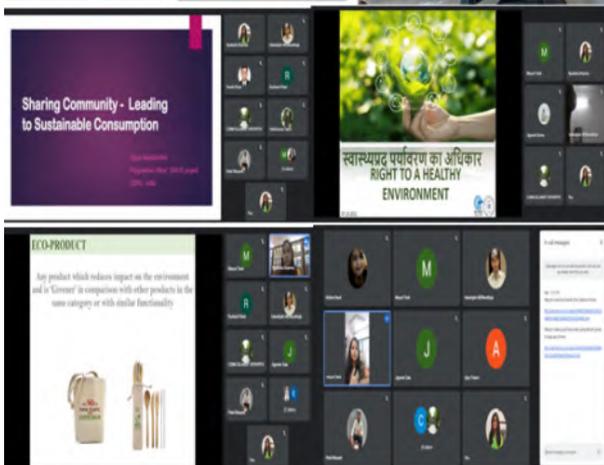
Article on Eco-friendly Diwali Celebration



Celebration of National Consumer Rights Day 2021



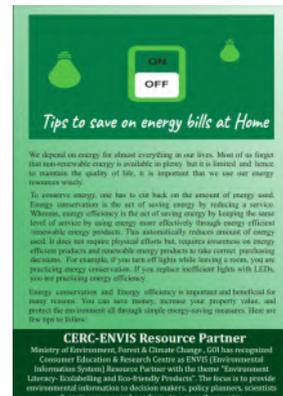
Posters on different environmental themes



CERC ENVIS RP in collaboration with Centre for Studies in Rural Management, Gujarat Vidyapith conducted a 3-day webinar series on 'Consumer Rights & Sustainable Consumption'



An awareness programme on Eco-labelling & Eco-friendly products, Sustainable Lifestyle & Consumer Rights



Brochure on 'Tips to save on energy bills' at home



Image Source: <https://www.freepik.com/vectors/tree>'>Tree vector created by brgfx - www.freepik.com

The Environmental Information System acronymed as ENVIS was implemented by the Ministry of Environment & Forests by end of 6th Five Year Plan as a Plan Scheme for environmental information collection, collation, storage, retrieval and dissemination to policy planners, decision makers, scientists and environmentalists, researchers, academicians and other stakeholders. The Ministry of Environment and Forests has identified Consumer Education and Research Centre (CERC), Ahmedabad, as one of the Resource Partners to collect and disseminate information on "Environment Literacy - Eco-labelling and Eco-friendly Products". The main objective of this ENVIS Resource Partner is to disseminate information on Eco products, International, and National Eco labeling programmes.

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