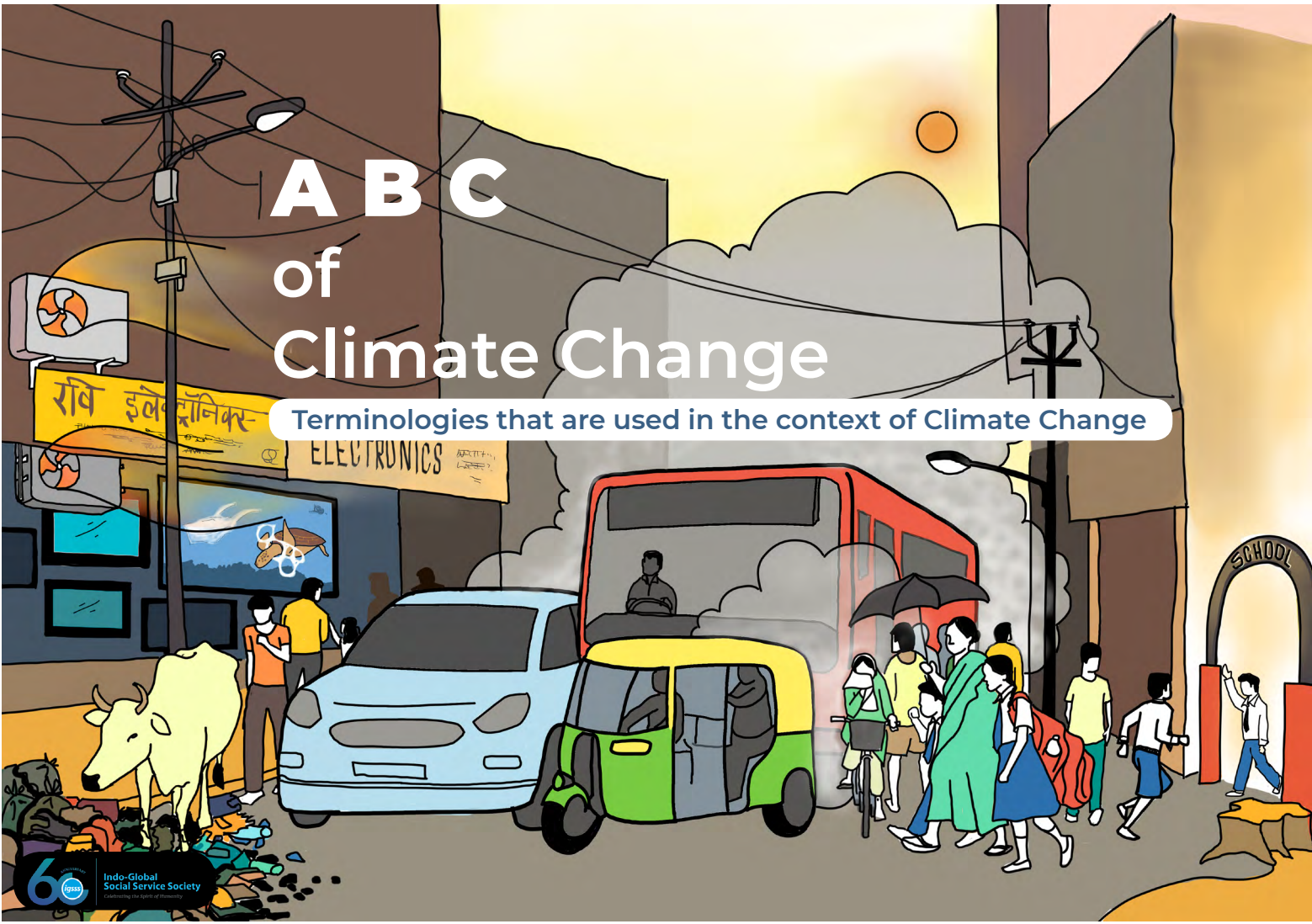


ABC of Climate Change

Terminologies that are used in the context of Climate Change



CREDITS

Concept by:
Aravind Unni

Author:
Adrian Dcruz

Creative Inputs
Gesha Schoeneberg, Soumya Dutta, R. Sreedhar

Design and Illustrations
Ravi K. Kawre & Kabeer Arora

March 2021

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Citation:

Published and Commissioned by: Indo Global Social Service Society



ACKNOWLEDGEMENT

This training module was made by the UPR team after consultations with climate change experts and scientists who were kind enough to provide us their valuable insights, important data points and concise and simple explanations for complicated climate change terminologies and processes. We would like to thank Gesa Schoeneberg (S.Scientist Urban Development United Nations University - Institute for Environment and Human Security), Mr Soumya Dutta (Advisory Board member - UN Climate Technology Centre and Network and Founder of India-Climate-Justice) and Mr R Sreedhar (Environics India) for their valuable inputs.

We would also like to thank the basti communities that our organisation works with, their drive and passion to learn about and fight against climate change inspires us all. Lastly, we would like to thank all our city and state teams of the Urban Poverty Reduction Team at IGSSS for their inexhaustible energy.

- Aravind, Proshin and Adrian of the UPR Team, IGSSS

INTRODUCTION TO CLIMATE CHANGE AND URBAN SPACES

What is climate change?

Climate change is a change in the pattern of weather, oceans, land surfaces and ice sheets, occurring over a time period of decades or longer. In today's context, climate change refers to the changes in the climate happening due to the increased burning of fossil fuels and the resulting increase in average global temperatures. This is known as Global Warming.

How does climate change affect us and our future?

Climate change, if left unchecked, will result in many problems. Every aspect of our lives can be directly affected by climate change. A rise in overall global temperatures due to the increased burning of fossil fuels can result in more natural disasters like floods, wildfires, cyclones and excessive rains which will damage our homes and workplaces. Extreme heatwaves in the coming years can hamper the workforce's ability to work outdoors resulting in more lost days of work and decreased economic activity. Our reliance on electricity will also grow, resulting in higher bills and more power outages, as urban residents will need to stay cool in the midst of high temperatures. Higher temperatures will also increase the number of water borne diseases such as malaria, chikungunya and dengue. Extreme weather events such as droughts will also raise the prices of food. Since higher temperatures will result in the extinction of many species who cross pollinate, the variety of food will also decrease. Unpredictable patterns of rainfall will result in the depletion of groundwater in urban areas which will severely restrict access to drinking water.

In summary, climate change affects each and every basic aspect of our lives in urban spaces. This will severely affect the future generations as well.

What is the relationship between Climate Change and urban areas?

Cities are a key contributor to climate change, as urban activities are major sources of greenhouse gas emissions. Estimates suggest that cities are responsible for 75 percent of global carbon dioxide emissions, with transport and buildings being among the largest contributors. Cities increase the surface temperature of the land with the usage of building material and the lack of vegetation and tree cover. Heat released from vehicles, buildings, industrial plants directly change the surface temperature of the urban land.

Urban areas are badly affected by air and water pollution which increases medical problems. Urban areas are directly affected by climate extremes such as floods, droughts, heatwaves as these extreme events will increase with the rise in average temperatures.

What basic issues should we know about climate change?

Climate change will result in the spread of more diseases, and also more complex viruses. Global warming is quickly destroying the natural habitat of wild animals. This forces the wild animals (like bats) into closer proximity with humans making it easier for the animal viruses (zoological viruses) to cross over into humans

Increased heat from global warming in the atmosphere will spread more tropical diseases, epidemics or pandemics to northern and southern areas as well as higher altitudes where they have never been before—and where most of the population has no immunity.

Around 22.5 million people were displaced by climate or weather-related disasters between 2008 and

2015, according to the UN Refugee Agency (UNHCR). Climate change is also a factor in conflicts driving people from their homes. The UNHCR says that natural resources such as drinking water are likely to become more scarce and food security will become an even bigger concern in future because some crops and livestock won't survive in parts of the world if conditions become too hot and dry, or cold and wet.

We all contribute to climate change by:

- Use of fossil fuels like coal and petrol
- Cutting down trees to meet our demand for more land
- Generation of non-degradable waste material - plastics
- Indiscriminate use of fertilisers, pesticides in agriculture

We can all try and mitigate the effects of climate change by:

- Reducing our use of non-renewable sources of energy (coal, petrol, diesel)
- Increased use of renewable sources like solar and wind energy
- Save trees and grow more trees in urban areas
- Avoid excess usage of harmful materials like plastics

GLOSSARY OF TERMS

A

Adaptation

Any plans, actions and measures to reduce the vulnerability of natural and human systems against actual or expected Climate Change effects.

Afforestation

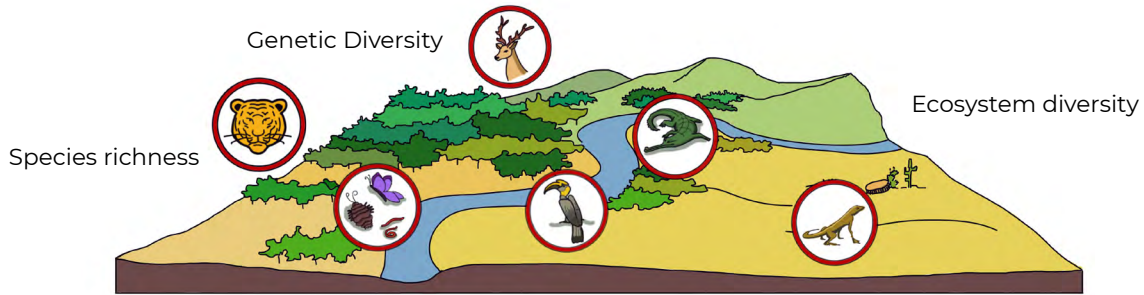
Planting of new forests on lands that have not contained forests previously. through planting, seeding of natural seed sources is known as afforestation.



B

Biodiversity

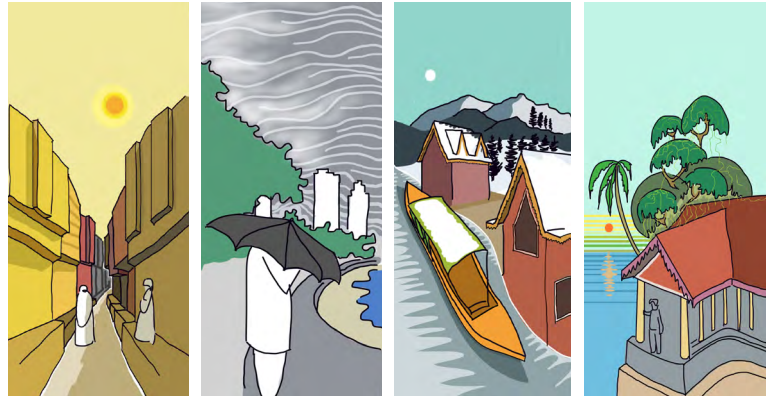
The presence of many different genes (genetic diversity), species and ecosystems (communities) in a particular area is known as biodiversity.



C

Climate

Climate is defined as the “average weather” in a particular area over a period of time ranging from decades to thousands or millions of years. The basic period of measurement is 30 years, as defined by the World Meteorological Organization.



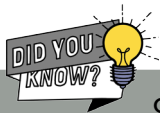
Climate Change

A change of climate which happens directly or indirectly because of human activity that changes the global atmosphere

D

Disaster

A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.



CLIMATE CHANGE CAUSES MORE FLOODS AND CYCLONES IN URBAN AREAS EVERY YEAR

Cities in India will be more prone to excess flooding in the coming years because of global warming. As the climate will get warmer by almost 2° Celsius, rains will increase by 25%. If cities keep building more concrete roads and buildings, this excess rain will not be absorbed and will cause excessive flooding every year. When rainwater is not absorbed by the ground, the underground water dries up. Therefore excessive urbanisation will cause flooding and also cause great scarcity of drinking water. Floods such as the one in Uttarakhand in 2013 shall become a normal reality almost every year if the average temperature rises by 2°.

E

Ecosystem

Living communities and the non-living environment interacting as a community of all plants and animals and their physical environment functioning together as an interdependent unit is known as ecosystem.



Emissions

In the climate change context, emissions refer to the release of greenhouse gases and polluting aerosols into the atmosphere over a specified area and period of time.

F

Food Insecurity

A situation when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life is known as food insecurity.

Fossil Fuels

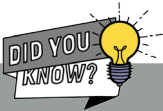
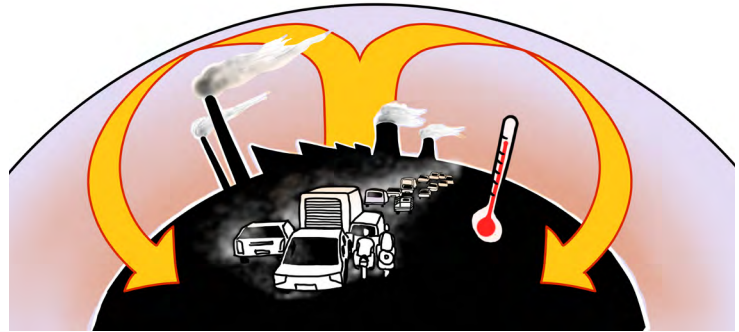
Carbon-based fuels that come from fossil carbon deposits are called fossil fuels. Examples of fossil fuels are coal, oil and natural gas.



G

Global Warming

The gradual increase in global surface temperature caused by the trapping of heat waves within the atmosphere due to man-made emissions is known as global warming.



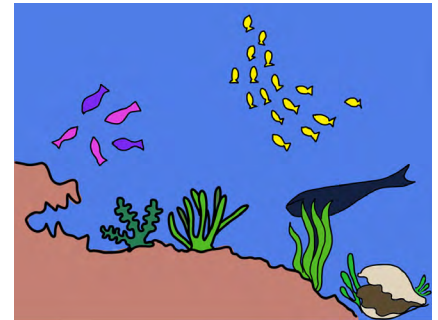
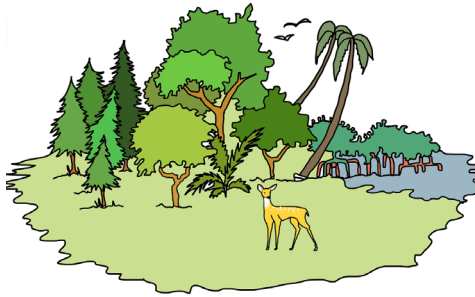
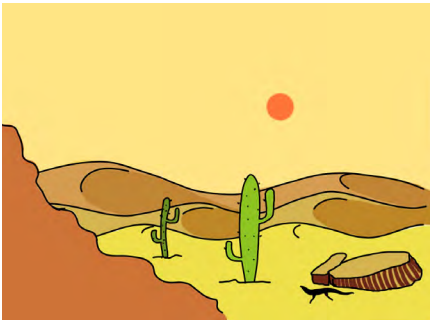
EMISSIONS FROM 1 CAR IN 1 YEAR IS ABSORBED BY 45 TREES

It is estimated that an average car owning family drives 10,000 kilometres in one year. The emissions released from one car over a period of one year is equal to the co2 absorbed by 45 fully grown adult trees. The solution to reduce air pollution and to create environment friendly cities is therefore not only limited to planting of trees, but to consider other solutions such as green public transport, electric vehicles and other transport based solutions. Otherwise, even planting of 1 crore trees will not nearly be enough.

H

Habitat

The particular environment or place where an organism or species tend to live; a smaller portion of the total environment is known as habitat.

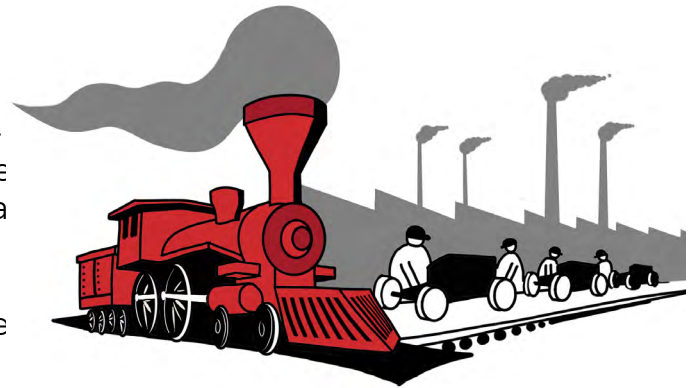


Infectious Diseases

Infectious diseases, also known as communicable diseases or transmissible diseases comprise clinically evident illness (i.e. characteristic medical signs and/or symptoms of disease) resulting from the infection, presence and growth of pathogenic biological agents in an individual host organism

Industrial Revolution

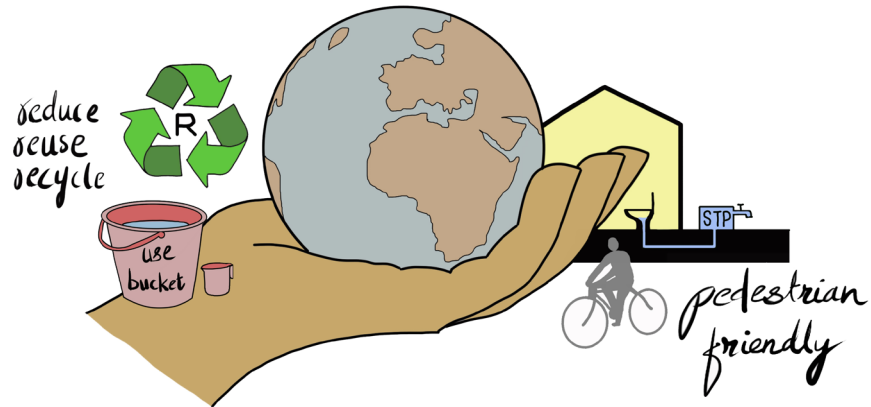
A period of rapid industrial growth with far-reaching social and economic consequence beginning in the 18th century. The industrial revolution marks the beginning of a strong increase in the use of fossil fuels like coal following the invention of the steam engine and hence emission of carbon dioxide.



J

Judicious Usage

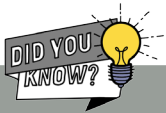
Usage of a resource without wastage and preserving resources for future community use



K

Kyoto Protocol

An international treaty adopted in December 1997 in Kyoto, Japan, at the Third Session of the Conference of the Parties (COP3) to the UNFCCC. It contains legally binding commitments to reduce their greenhouse gas emissions by at least 18% below 1990 levels in the period from 2013 to 2020. Government of India has also agreed to this international commitment.



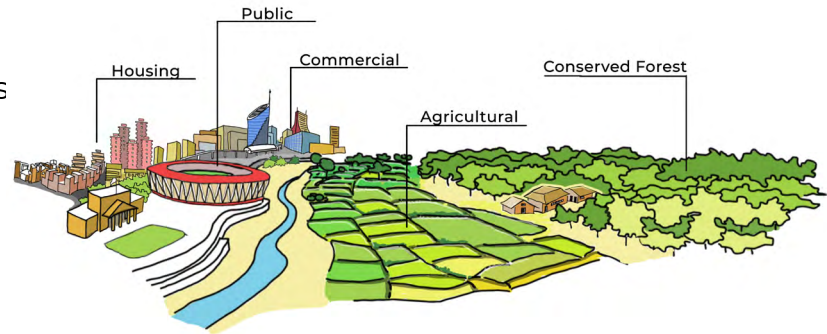
CLIMATE CHANGE SEVERELY DECREASES ECONOMIC GROWTH

The rise in average temperatures in cities due to climate change will increase the number of severe heatwaves. Heatwaves will result in more lost working hours because the workforce will not be able to work outdoors. The number of lost working hours will increase by 20% by 2050. This will severely affect the GDP growth of the country, by almost 4%.

L

Land Use

The social and economic purposes for which land is managed (e.g. grazing, timber extraction, mining, housing, conservation).



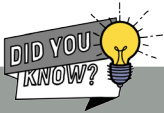
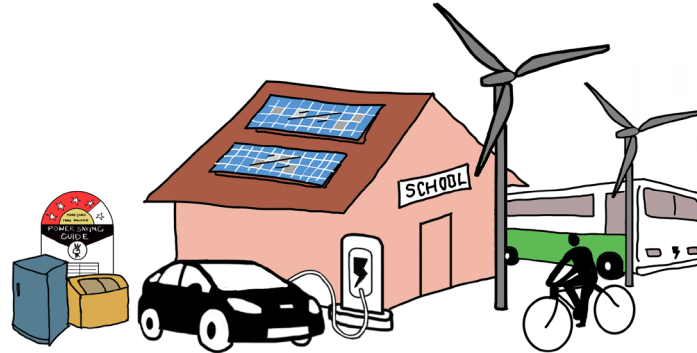
Land Use Change

A change in the use or management of land by humans, which may lead to a change in land cover. Land cover and land-use change may have an impact on the reflection of heat waves, evaporation, transpiration, absorption of greenhouse gases or other properties of the climate system, and may thus have an impact on climate locally and globally.

M

Mitigation

A human intervention to reduce the effects of climate change by reducing greenhouse gas emissions or enhance the absorption of greenhouse gases.



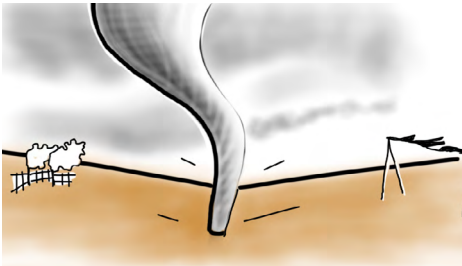
URBAN AREAS ARE MUCH MORE HOTTER THAN RURAL AREAS

Cities are becoming hotter because of the excessive use of concrete for buildings and asphalt on roads which absorbs heat. Small streets also trap in heat and does not let it move. Cities with less number of trees and vegetation when surrounded by areas with high vegetation will experience terrible heatwaves in the coming years. This is called urban heat island.

N

Natural Hazard

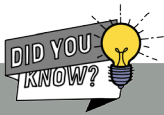
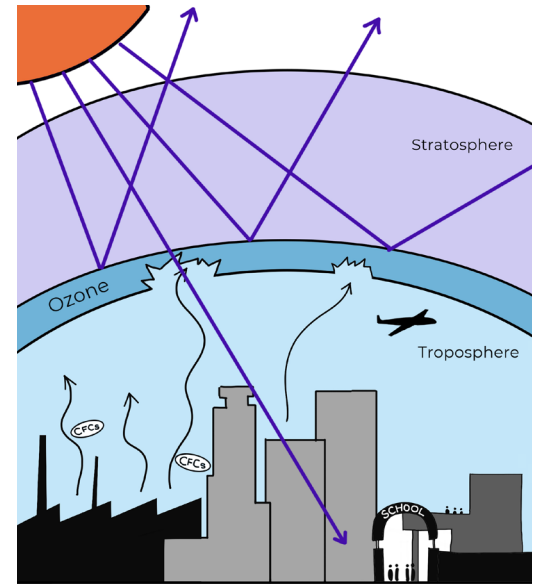
Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage is known as natural hazard.





Ozone Layer

A thin layer of the Earth's atmosphere that absorbs almost all of the sun's harmful ultraviolet light



CLIMATE CHANGE CAUSES AN INCREASE IN EPIDEMICS & PANDEMICS

The rise in average temperatures in cities due to climate change will result in the increase in water-borne diseases such as cholera, typhoid, malaria, chikungunya and dengue. The effectiveness of these diseases will also grow due to the higher temperatures and urban flooding, causing many lives to be lost in the coming years.

P

Pollution

Pollution is the introduction of impurity into a natural environment that causes instability, disorder, harm or discomfort to the ecosystem



Prevention

The concept and intention to completely avoid potential bad impacts by taking action in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake.

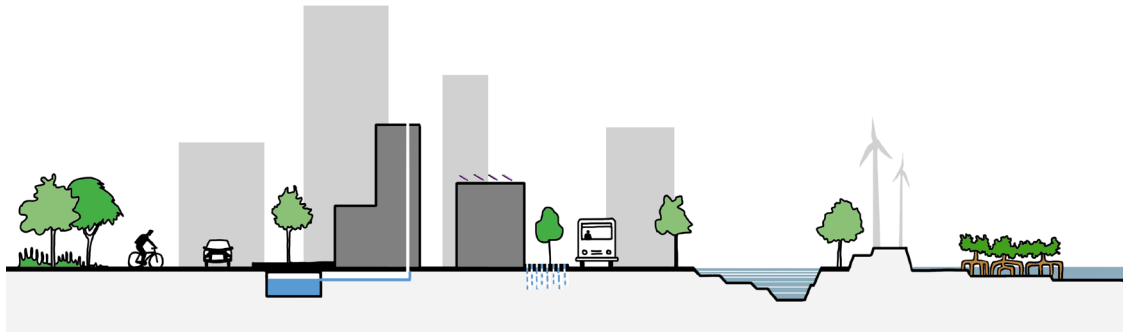
R

Renewable Energy

Energy from a source that is not depleted when used, such as wind or solar power.

Resilience

The capacity of a system, community or society exposed to hazards, to adapt by resisting or changing in order to reach and maintain an acceptable level of safety is known as resilience.



S

Social vulnerability

The inability of people, organisations, and societies to withstand bad impacts from multiple areas to which they are exposed due to their own characteristics within social interactions, institutions and systems of cultural values.

SDG 13

The Sustainable Development Goal number 13 is called CLIMATE ACTION. This goal was released by the UN to combat the effects of climate change and to invest in low carbon development in the whole world but especially in developing countries like India.



Sustainable Livelihood

A livelihood is sustainable when it can cope with and recover from external factors and shocks, and maintain or enhance its capabilities now and in the future.

Sustainable Development

Sustainable Development is a way of using resources that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come

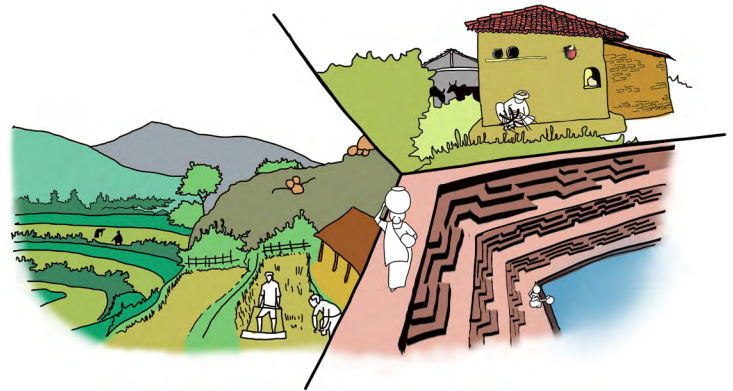
T

Tipping Point

The point at which a change in climate is significant enough to trigger a serious environmental event which may not be reversible.

Traditional Knowledge

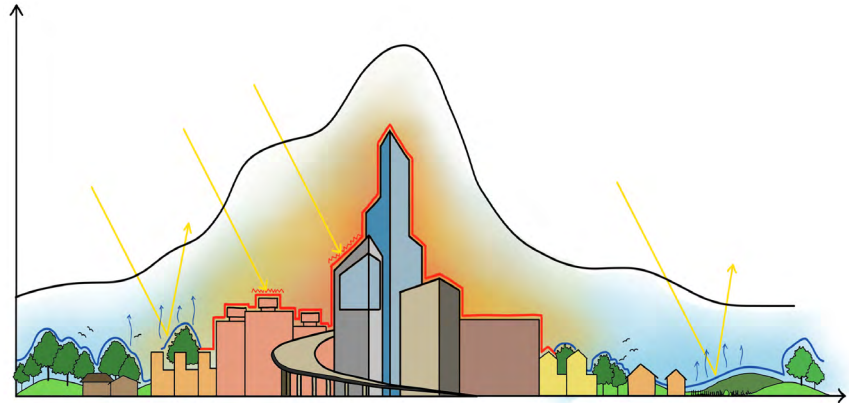
Indigenous and tribal peoples' systems of observing, recording, communicating, and preserving the environment around them. These systems have taken generations to develop, and are crucial in maintaining the well-being of the most fragile ecosystems around the world.



U

Urban Heat Island

An urban area or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities. The temperature difference is usually larger at night than during the day, and is most apparent when winds are weak.



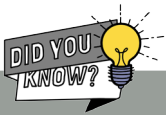
UNFCCC

The United Nations Framework Convention on Climate Change is an international agreement recognised by 189 countries (including India) that is aimed at tackling the challenge posed by climate change. All international governments have set down rules regarding greenhouse gas emissions, adaptation to greener technology and international coordination through sharing of knowledge. The Convention entered into force on 21 March 1994

V

Vulnerability

Vulnerability is a set of conditions and processes resulting from physical, social, economic, and environmental factors, which increase the likelihood that a community will negatively be affected by a climate hazard or change.



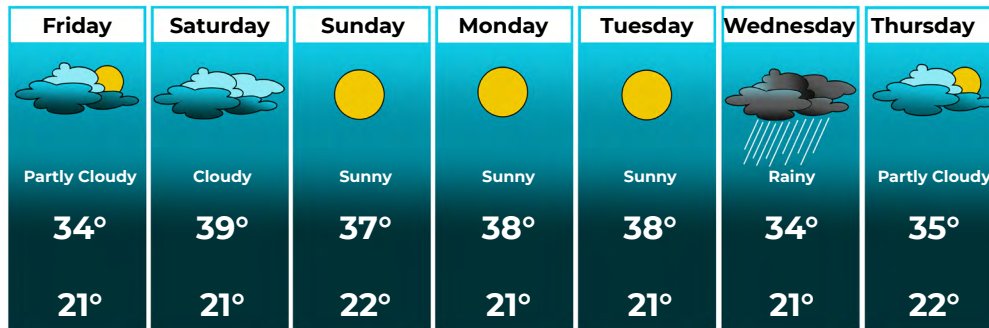
CLIMATE CHANGE CAN CAUSE POLITICAL CONFLICT

As higher and unpredictable temperatures result in more droughts and crop failure, food prices will go up and this will result in political instability in countries. Political conflicts can also be caused directly by the effects of climate change. For example, the Syrian conflict happened after the worst long-term drought and crop failures in thousands of years, resulting in 800,000 people losing their livelihoods by 2009, and 2-3 million being driven into extreme poverty. This also caused more than 1.5 million people to flee as refugees to Europe.

W

Weather

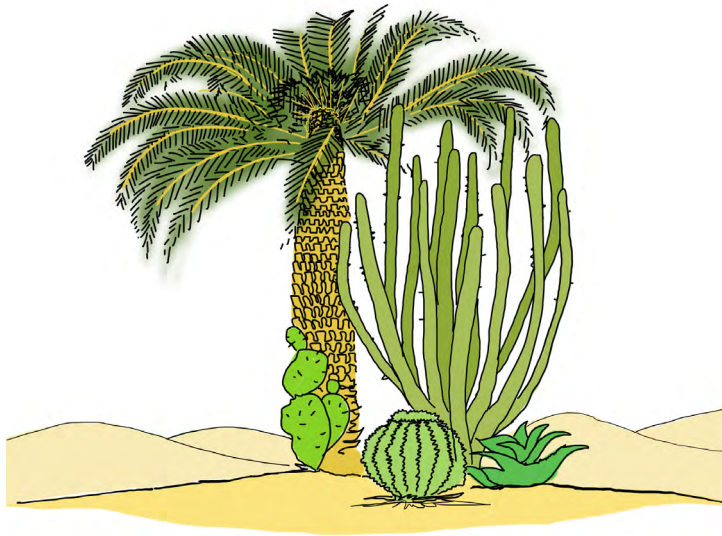
The behaviour of the atmosphere on a day-to-day basis in a relatively local area is known as weather. A description of the weather would include daily temperatures, relative humidity, sunshine, wind and rainfall.



X

Xerophyte

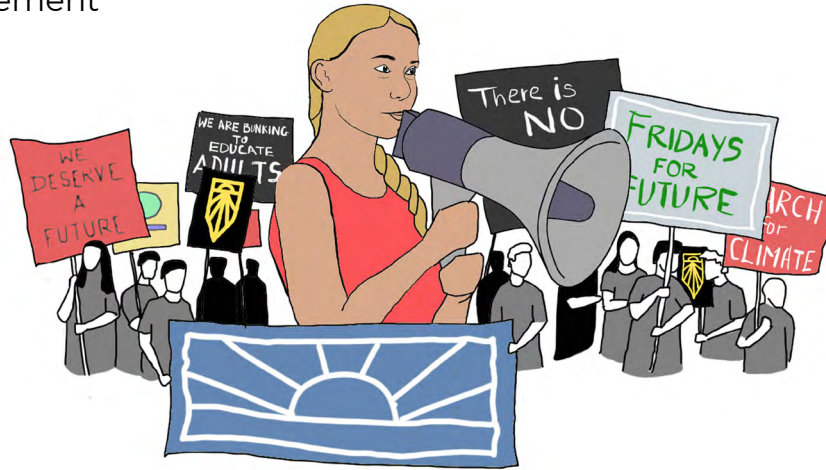
A type of plant that requires very little water to survive. It can adapt to extremely dry environments such as desert and frozen regions. Example is pineapple, cactus and mountain pine.



Y

Youth Movements

A political or social movement or agitation led by or consisting mostly of young people, usually aiming at reform or fundamental change in climate action. Climate change movements are chiefly being led by youth led organisations such as Fridays for Future and Sunrise Movement



Z

Zoning

Zoning is the practice of designating permitted uses of land based on mapped zones which separate one set of land uses from another. This is used as a land use planning device by local governments.



ABOUT IGSSS

Indo-Global Social Service Society is a non-profit organisation working with the mandate for inhuman social order used on truth, freedom, justice, freedom and equity. Established in 1960, IGSSS works for development, capacity building and enlightenment of vulnerable communities across the country for the effective participation in development.

With its presence in 25 states and one Union Territory of India, IGSSS has set its thematic focus on promoting sustainable livelihoods, energising the youth as change makers, protecting lives, livelihood and assets from the impact of hazards, advocating for the rights of CityMakers (Urban Poor Residents) and developing a cadre of leaders from the community and civil society organisations. Gender and Youth are underlying themes across all its interventions.



Indo Global Social Service Society

28, Institutional Area, Lodhi Road,

New Delhi - 110003

Email - info@igsss.net

Tele - 011-45705000

Website - www.igsss.org

Facebook - www.facebook.com/igsss

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