

Climate change world and your role

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Earth's climate is always changing. In the past, it has gone through warmer and cooler periods which last for thousands of years. This long term pattern of weather conditions (temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds) prevailing in an area is the Climate change which is the most furious issue of the present world. Climate change is change in the earth's overall climate or a long term change in the weather pattern of a region for a considerable period of time eg: change in the earth's global temperature, or its typical precipitation pattern. It can also be any significant long-term change in the expected patterns of average weather of a region across a considerable period of time. The changing



climate can be due to natural and anthropogenic activities. Natural causes include changes in earth's orbit, sunspot activity; ocean changes and volcanic eruptions. Recently earth's climate has been warming alarmingly which is mainly due to human activities like burning of coal, oil and natural gas which can lead to severe impacts

across the globe.

Global Warming: A Global Warning

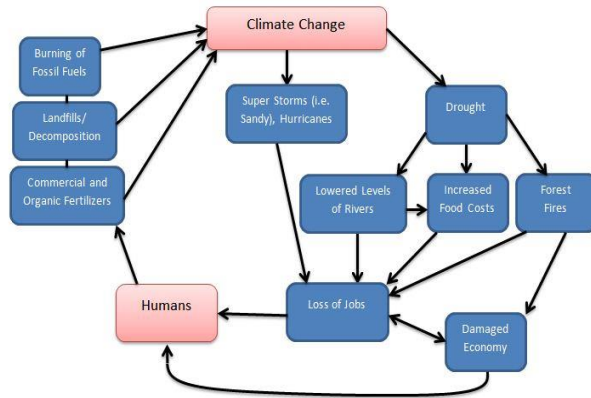
Global warming, also referred to as climate change, is the observed century-scale rise in the average temperature of the Earth's climate system and its related effects. A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs and other pollutants. Multiple lines of scientific evidence show that the climate system is warming. Many of the observed changes since the 1950s are unprecedented in the instrumental temperature record which extends back to the mid-19th century, and in paleoclimate proxy records covering thousands of years. The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report concluded that "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century. The largest human influence has been the emission of greenhouse gases such as carbon dioxide, methane and nitrous oxide. Climate model projections summarized in the report indicated that during the 21st century, the

global surface temperature is likely to rise a further 0.3 to 1.7 °C (0.5 to 3.1 °F) in the lowest emissions scenario, and 2.6 to 4.8 °C (4.7 to 8.6 °F) in the highest emissions scenario.

Causes of Climate Change

1. Natural factors - Changes in the sun's energy or slow changes in the earth's orbit around the sun; continental drift, volcanoes, ocean currents, the earth's tilt, and comets / meteorites.

2. Human activities - burning fossil fuels, livestock and paddy farming, land use and wetland changes, pipeline losses and covered/ vented landfill emissions, agricultural activities, including the use of fertilizers, cutting down forests, infrastructure developments, etc





What are the evidences / consequences of Climate Change?

a. Higher temperature - Greenhouse gases trap more heat in the Earth's atmosphere, causing average temperature rise across the world.

b. Sea level rise- As water gets warmer, it takes up more space. Melting glaciers and ice sheets adds more water to the oceans.

c. Warmer oceans - As the temperature of the atmosphere rises, oceans absorb heat and become warmer.

d. Habitat destruction - Considerable reduction in area under mangroves /seagrass /coral reefs resulted in depleting fish breeding grounds, and increase in coral bleaching events lead to loss of coral reefs and coral dwelling fishes.

e. Droughts-As temperatures rise, more moisture evaporates from land and water, leaving less water behind resulting in extended period of water scarcity across multiple uses.

f. Sinking islands and floods - Rising sea level will erode beaches, damage coastal wetlands, and sweeps away certain islands threatening coastlines, buildings and the settlements located along them.

g. Extreme weather - As the top layer of the ocean gets warmer, cyclones and other tropical storms get their energy and grow stronger resulting in faster winds and heavier rain.

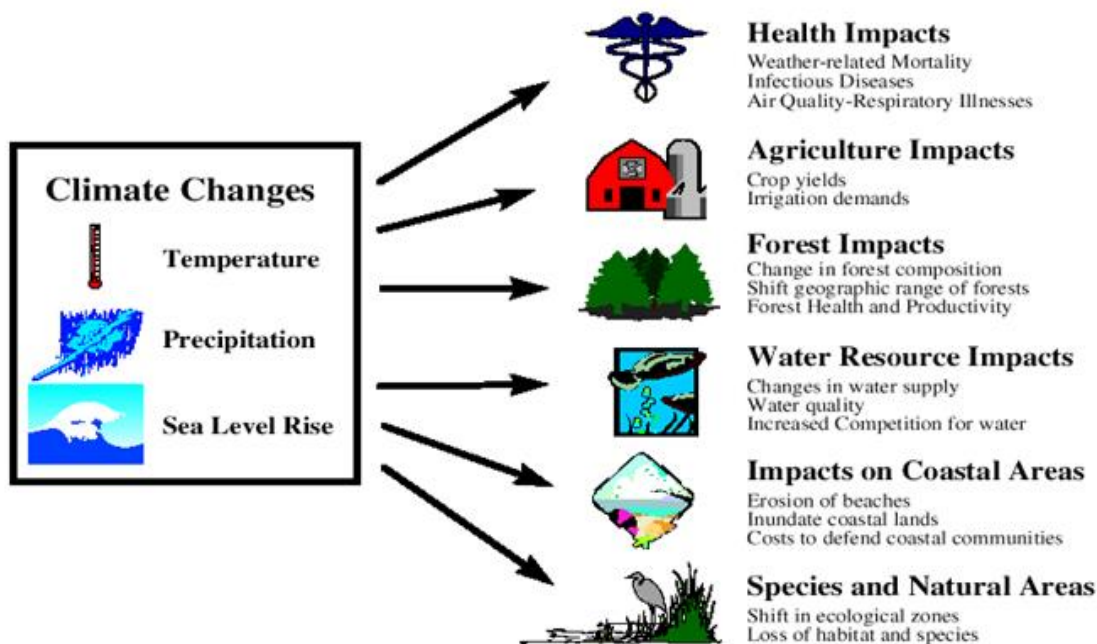
h. Species extinction - The changing weather and vegetation patterns across the globe, forces the species to migrate to new, cooler areas in order to survive which might ultimately lead to extinction.

i. Climate refugees - Climate refugees are people who must leave their homes and communities because of the effects of climate change and global warming.

Impacts of Climate Change

Climate change affects our lives through impacts on a number of different social, cultural, and natural resources. The impacts will be most on people who live in areas that are vulnerable to coastal storms drought and sea level rise or people who live in poverty, older adults, and immigrant communities. Similarly, livelihoods and activities that are closely linked to weather and climate such as agriculture, mining, forestry, commerce, outdoor tourism etc, and will face considerable challenges from climate change.





How does climate change impact fisheries and fishers?

Fisheries Phenology and distribution: Changes in timing of ecological events (drastic shift in spawning season of major fishes, maturity attained at lower size than in the past), movement of fishes to deeper waters, higher latitudes etc. Species composition, fish stocks abundance and availability fluctuate seasonally leading to peak and lean fishing seasons

Catch: The catch has decreased drastically over the years but the effort has increased fairly

Fishers

Demography and Social standards: Displacement of family members, disguised unemployment, labour migration, the young generation has a tendency to move out of fishing. Food security issues

Infrastructure sensitivity: Extreme weather events cause damage to the communities on shore through flooding, erosion, and storm damage and the fisher household are highly prone to disaster dwellings and the property loss.

Income Effect: Loss in fishing days due to extreme weather events, Seasonality in employment, and minimal alternate livelihood options. Increased fuel cost / fishing efforts consequent to changing fishing ground affects the income levels of fishers.

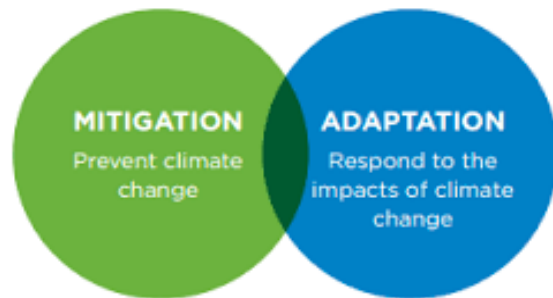
What can we do on climate change?????

The major thing that can be done about climate change is to support education efforts that help individuals and societies make informed decisions about climate change. Climate science must be integrated as practical knowledge into society so that understanding the complex physical and biological interconnections are relevant to decision-making in social, economic, political, cultural, and educational systems.



The two most important strategies for addressing climate change:

- Mitigation- the globally responsible thing to do by limiting the amount of climate change which occurs, primarily by reducing greenhouse gas concentrations.
- Adaptation – the locally responsible thing to do by changing the way as a society live in response to the changing climate



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Differential roles you can play against Climate change

As an individual

- Get informed Reduce your waste/ don't buy it unless you really need it/Buy in bulk [to reduce excess packaging]/ Opt for reusable bags instead of plastic bags/Choose products that have less packaging Recycle and buy recycled products. Reuse, repair or donate Carry cloth bags when shopping
- Use a refillable travel mug or water bottle Give your time instead of material gifts, or donate to a charity in the recipient's name
- Be energy efficient/ efficient use of home appliances/ Choose renewable power/ Adopt energy-saving habits/ Pull chargers from the wall and turn off computers/ Switch off your electronic appliances at the plug point than on remote
- Judicious usage of water / Make every drop count
- Walk or ride your cycle instead of taking a car for a short distance/ If you must ride, carpool (if many people have to go to same destination, instead of using many vehicles use a common vehicle)
- Change your attitude –think and act wisely
- Reuse-Support and Donate Go out for a couple of hours every day instead of watching T.V and Computer and be healthy
- Plant trees Switch off the street light, when there is a need of them/inform authorities Use paper judiciously



- Use both sides of paper before recycling
- Request for e-statements
- Use and pass on textbooks – Juniors Get involved/ plan and participate in eco-friendly activities

As a Household

Going green or being **eco-friendly** can seem intimidating and beyond reach but reducing your carbon footprint doesn't need to involve a radical lifestyle overhaul. There are many simple and affordable ways almost anyone can contribute to helping the environment. As the popular saying goes charity begins at home.

1. Food consumption

- ♣ **Reducing food waste** would mitigate climate change.
 - Store food in right places
 - Shop smart and realistically
 - Avoid clutter in your fridge and freezer
 - While cooking , don't over serve food
 - Donate food to destitute and needy before you throw away excess food
 - Improve shelf life- canning and pickling
 - Compost food scraps rather than discarding scraps
- ♣ Buy locally produced **organic food**.
- ♣ **Reduce the consumption of meat** - rationing meat consumption could ensure health and reduce your impact on the planet.
- ♣ **Prevent the consumption of junk food** this will improve your health as well as reduce the impact on environment
- ♣ **A low carbon diet** is a way of reducing impact by choosing food that causes much less pollution.

2. Water conservation

It takes lots of energy to pump, treat, and heat water, so saving water reduces greenhouse gas emissions.

- ♣ **Reuse** the water after washing utensils to water your garden
- ♣ **Reduce** the use of water by turning off the tap while brushing teeth
- ♣ **Rain water harvesting** is the best way to conserve water
- ♣ Avoid unnecessary flushing the toilets. Dispose off the waste into the bin instead of toilets.
- ♣ You can use washing machine to wash clothes that does not consume much water
- ♣ **Fix your leaks**
- ♣ Using pipes made of sturdy material. Using plastic PVC/CPVC water pipes in home which is ISI-approved ones are sturdier and will ensure more efficient flow of water.



3. Energy efficiency

- ♣ Change habits to conserve energy, like **turning off the lights** while leaving room.
- ♣ **Unplug** all the appliances that you aren't using regularly - even chargers continue to use electricity when they aren't charging. Also, make sure you're not leaving appliances on standby.
- ♣ **Replace** incandescent light bulbs with compact fluorescent or LED ones.
- ♣ Use light coloured curtains and make use of the **natural sunlight** as much as possible
- ♣ **Save yourself ironing time.** Iron all your clothes at one time.
- ♣ Labels: **The Energy Star** label can be seen on many household appliances, home electronics and other products which use minimal energy.
- ♣ Chose **Energy-Efficient** kitchen appliances
- ♣ Reduce air conditioning usage in the summer.
- ♣ Use of green energy- Installing **solar panels** on your house could lead to one third of electricity bills.
- ♣ When using a washing machine ensure there is a full load and **turn down** the temperature.
- ♣ **Refrigerators account for about 20% of household electricity use.** Ensure optimum temperature for its efficient use

Average daily water consumption (litres)	
Cooking	5
Drinking	5
Cleaning	10
Washing utensils	10
Washing of clothes	20
Bathing	55
Toilet flushing	30

Home appliances	Watts	Power consumption kWh (unit)
CFL lamp	20	0.02
Ceiling fan	100	0.10
Cell phone charger	4	0.004
Iron box	1100	1.10
Television	100	0.1
Refrigerator	380	0.30
PC and Monitor	270	0.20
Mixer Grinder	750	0.70
Laptop	50	0.05
Washing machine	512	0.50
Air conditioner	1200	1.20
Micro wave oven	1660	1.60
Pump set (1 hp)	746	0.70
Vaccum cleaner	500	0.50



3. Transportation alternatives



- ♣ **Try to adapt.** If you decide to go by car change your decision to go by bike, if you decide to go by bike change to cycling
- ♣ **Alternatives to driving.** When possible, walk in order to avoid carbon emissions completely.
- ♣ **Walking, cycling, carpooling or use public transport** to commute.
- ♣ **Carpooling-** also known as ride-sharing -lift-sharing can save a lot on fuel consumption, wear and tear on your vehicle and all associated environmental impacts. Carpooling is beneficial on an individual level and for your community as a whole.
- ♣ **Drive a low carbon vehicle.** High mileage doesn't always mean low CO₂ emissions. All vehicles have an estimated mileage rating. Electric cars emit no CO₂ if they're charged with clean electricity.
- ♣ **More Maintenance** - Replace the air, oil and fuel filters of your vehicle according to schedule.
- ♣ **Driving style-** Speeding and unnecessary acceleration reduce mileage by up to 33%, waste gas and money and increase your carbon footprint.
- ♣ **Avoid traffic-** Being stuck in traffic wastes gas and unnecessarily emit CO₂.
- ♣ Keep your **tyres properly inflated** (just this can save 200-300 kilograms of CO₂ per year).



As a community

- ♣ Afforestation activities -carbon sink
- ♣ Sanitation programs
- ♣ Organic farming
- ♣ Proper waste management at source
- ♣ Reduce the usage of plastics
- ♣ Green fishing / responsible fisheries
- ♣ Conduct awareness programs
- ♣ Creation of climate community groups Provide leadership/partnership and support for a range of local actions



As a Society

- ♣ **Develop climate change action groups.**
 - Develop working groups to educate climate knowledge and preventive measures for climate change among the people.
 - Conduct discussions, debates and seminars related to climate change measures.
 - Develop a new group from the working groups called "Knowledge brokers" to spread climate change knowledge and preventive measures in the society.
- ♣ **Engage children and young people to take action on climate change**
 - Motivate and make them aware that they can be the best facilitators for preventing climate change.



- Get them involved in recycling and other green initiatives, rewarding them for their good work.
- Educate them to understand the issues caused by climate change.

- **Develop Women self-help groups for climate change**

- Develop area specific action plans for climate change through SHG's.
- Collaborate on related projects across other community groups and statutory organisations to build resilience for climate change.
- Make SHG's to drive climate adaptation activities, particularly focusing on vulnerable areas where they can be creative and innovative messengers.
- Provide subsidies and emoluments to SHG's for their best action plans against climate change



- **Providing alternative livelihoods**

- Combine local expectations and knowledge with external expertise to improve alternate livelihood options.



- Access, utilize and optimize climate adaptation solutions that emerge from research and case study activities to provide better livelihood options.

- **Enhance social forestry programmes**

- Afforest the forest areas that have been degraded over the years due to human activities.
- Initiate programmes like “plant a tree challenge “to invoke a sense among people to come and participate and take every occasion to plant a tree as their own responsibility.

- Conduct training programmes and awareness programmes for raising plantations by the common man so as to meet the growing demand for timber, fuel wood, fodder, etc.
- Create village forests by involving society participation, as part of a drive towards afforestation , and rehabilitating the degraded forest and common lands.



♣ **Reduce, Reuse and Recycle**

- Compost your food and yard waste reduces the amount of garbage that you send to landfills and reduces greenhouse gas emissions
- Make recycling part of your daily routine by recycling all packaging and consumer goods and aim to purchase items with minimal and recyclable packaging

