

## Causes of global warming / climate change.

Rapid industrialisation and increase of the greenhouse gases in the atmosphere resulted into rising temperatures around the globe.

Greenhouse gases such as carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), water vapour  $\text{H}_2\text{O}$  and nitrous oxide  $\text{N}_2\text{O}$  traps heat from sun.

Generation of electricity and heat by burning fossil fuels such as coal, oil and natural gas causes a large chunk of global emissions. Most electricity is still produced from fossil fuels only about a quarter comes from the wind, solar and other renewable sources. The overall electricity generation from coal



has reached to 5280 MW. The ~~is~~ coal is contributing 1320 MW while imported coal contribution in electricity generation is 3960 MW which is around 75 percent of the total electricity generation from coal in Pakistan.

Manufacturing and industry produce emissions, mostly from burning fossil fuels to produce energy for making things like cement, iron, steel, electronics, plastics, clothes and other goods.

Mining and other industrial processes also release gases.

Cutting down forests to create farms or pastures, or for other reasons, causes emissions, since trees, when they are cut, release the carbon they have been storing.



Since forests absorb carbon dioxide, destroying them also limits nature's ability to keep emissions out of the atmosphere. Increasing livestock farming. Cows and sheep produce large amounts of methane when they digest their food. Fertilizers containing nitrogen produce nitrous oxide emissions.

Population growth, along with increasing consumption, tends to increase emissions of climate-changing greenhouse gases. Rapid population growth worsens the impacts of climate change by straining resources and exposing more people to climate-related risks - especially in low-resource regions. More people require increased transportation for daily activities. Cutting population



reduces emission of greenhouse gases.

Rapid urbanization is one of the main factor which causes climate to deteriorate for living beings. Turning agricultural land into housing societies decrease fertile land which is essential for cultivation of crops. It not only impacts climate but it also impact health and economic. Pakistan is an agriculture based economy and it's cash crops such as maize, rice, wheat and cotton are beneficial in helping the economy of Pakistan. When the housing societies increases by turning fertile land it changes climate and each year the production of crops reduces in return.



Consumerism and lifestyle of people also impacts climate because e.g. when in a family of eight people use eight air conditioners and more refrigerators they not only emit heat into the environment but also release toxic gases such as CFCs into the environment. ~~which~~ Such gases from deodorants causes ozone layer to deplete and when sun rays passes through ozone depleted regions it causes climate to change. It not only raises temperature rather it causes skin cancer. Use of more vehicles for lesser number of people consumes more natural resources such as petroleum and emit more heat into environment. Smoke from vehicles produces causes air pollution which disturbs the



concentration of beneficial gases in the environment.  $\text{CO}_2$  from vehicles annually raises temperature upto  $0.3^\circ\text{C}$  which causes more water vapours to rise the air further resulting into rising temperature.

Policies that do not stop people from burning fossil fuels, cutting down forests and farming livestock is a threat to climate change. Countries having no control over people should change or formulate their policies in such a way to stop consumeristic lifestyle of people. Policies for general public to use public transport can reduce fossil fuel's consumption in an effective way. By



Use of old machinery which produces excessive heat into the environment is somehow directly proportional to inappropriate governmental policies. Government's focus must be on the use of latest technology which uses less resources and if it's environmental friendly then it can favor the climate.

Deforestation for the use of ~~paper~~ plants into making paper products is also not climate friendly. In offices or in educational institutes by using modern technology such as computers can save millions of trees. Paper waste is also a factor which causes pollution so governments in developing countries like Pakistan



must place such policies in order to tackle paper waste.

Stubble burning in Pakistan has an effective impact on climate change. Despite the risks and safety concerns burning of crop residue is an extremely common and widely acceptable practice in Pakistan, especially in the rice-wheat belt of Pakistan. Between October and January every year, out of 8.5 million tonnes of rice residue produced at least 3.6 to 5 million tons of stubble is being burnt to clear the fields for sowing wheat. Government imposed a ban of 50000 rupees in 2019 but that was not



effective in implementation because enforcement and compliance remain weak. The sharp increase in air pollution is caused by crop burning fires a meteorological phenomenon in which particulate matter and other pollutants trapped in air, mix with condensed water vapour to form smog.

### Impacts:

The impacts of climate change are interrelated. Drought can harm food production and human health. Flooding can lead to disease spread and damages ecosystems and infrastructure. Human health issues can increase mortality impact food availability, and limit worker productivity.



Our food supply depends on climate and weather conditions. Although farmers and researchers may be able to adapt some agricultural techniques and technologies or develop new ones, some changes will be difficult to manage. Increased temperature, drought and water stress, diseases and weather extremes create challenges for the farmers and ranchers who put food on our tables.

Climate change is impacting human health. Changes in weather and climate patterns are putting lives at risk. Heat is one of the most deadly phenomena. As ocean temperatures rise, hurricanes



are getting stronger and wetter, which causes direct and indirect deaths. Dry conditions lead to more wildfires, which bring many health risks. Higher incidences of flooding can lead to the spread of waterborne diseases, injuries and chemical hazards. As geographic ranges of mosquitoes and ticks expand they carry diseases to new born locations.

People with low income are at an even higher risk because of the compounding factors from climate change. For labour community it is not easy to work in harsh conditions. Animals and plants are in stress it is not easy to adapt with the changing patterns



of climate which are happening at faster pace.

Infrastructure ~~is~~ including bridges, roads, ports and electrical grids including dams were built without keeping future climate in mind. Even newer infrastructure can be vulnerable to climate change.

Extreme weather events that bring heavy rains, floods, wind snow or temperature changes can stress existing structures and facilities. Increased temperatures require more indoor cooling, which put stress on energy grid. Sudden heavy rainfall can lead to flooding that shuts down highways and major business areas.



Climate change impacts economy because Pakistan's economy is an agricultural based economy.

As heavy rainfalls and floods are increasing in intensity due to climate change it puts adverse effects on crops.

Yields are changing which is lesser in number as compared to two decades ago. Diseases are making crops to die as the climate changes are spreading more diseases.

Floods of 2022 vanished almost everything including infrastructure and human lives. It caused damage of around 60 billion dollars which impacted Pakistan's economy in an unexpected way.



Warming has strongly affected natural biological systems. It has degraded land by raising temperatures, drying soils and increasing wildfire risks. Species worldwide are migrating poleward to colder areas. On land, many species move to higher grounds, whereas marine species seek colder water at greater depths.

At 2 celcius of warming, around 10 percent of species on land would become critically endangered.

There are many effects of climate change on oceans. One of the main ones is an increasing in ocean temperatures. Most frequently marine heatwaves are linked to this. The rising temperatures contribute to a rise in sea levels.



Other effects include ocean acidification, sea ice decline, increased ocean stratification and reductions in oxygen levels. Changes to ocean currents including a weakening of the Atlantic meridional overturning circulation are another important effects. All these changes have knock-on effects which disturb marine ecosystems. The main cause of these changes is climate change due to human emissions of greenhouse gases. Carbon dioxide and methane are examples of greenhouse gases. This leads to ocean warming, because the ocean takes up most of the additional heat in the climate system. The ocean absorbs some of the extra carbon dioxide.



in the atmosphere. This causes the pH value of the ocean to drop. Scientists estimate that the ocean absorbs about 25 percent of all human caused CO<sub>2</sub> emissions.

Climate change can worsen water conflicts and tensions over other limited resources. Climate change also has the potential to cause large population displacement and migration, which can also lead to increased tensions.

However, factors other than climate change were judged to be substantially more important in affecting conflict over the last century. These factors include intergroup inequality and low socio-economic development. In some cases, climate change can even lead to more peaceful relationships between



Groups, as environmental problems require common policy to be developed.

Global warming has been described as a threat multiplier. Conditions in certain places make it more likely that climate change impacts conflict: ethnic exclusion, an economy dependent on agriculture, insufficient infrastructure, poor local governance and low levels of development. A spike in wheat prices following crop losses from a period of drought may have contributed to the onset of the Arab Spring protest and revolutions in 2010.

Climate change has contributed towards global economic inequality. Wealthy



Countries in colder regions have either felt little overall economic impact from climate change, or possibly benefited, whereas poor hotter countries very likely grew less than if global warming had not occurred.

Climate related issues could be curtailed by reducing population. Developing countries should formulate a policy to stop the ever growing population. More population requires more resources which are depleting with increasing climate change.

Food problem is contemporary issue as security of food is not that strong due to floods and excessive rains. Lesser population is good for the climate in every kind of way. If people are less on earth then obviously



they will use limited resources and consequently they will cause less pollution and similarly they will not put that much impact to the climate. There are other many things which people can do to keep the climate favorable for coming generations by keeping population in check.

If we make such policies like keeping fossil fuels in ground. Fossil fuels include coal, oil, and gas and the more that are extracted and burned the worse climate change will get. All countries need to move their economies away from fossil fuels as soon as possible.

If all countries focus on investing in renewable energy, changing main energy sources to clean and renewable energy is



is the best way to stop using fossil fuels. These include technologies like solar, wind, wave, tidal and geothermal power.

If everybody focus on switching to sustainable transport then it can benefit the environment in a fruitful way.

Petrol and diesel vehicles, planes, and ships use fossil fuels. Reducing car use, switching to electric vehicles and minimising plane travel will not only help stop climate change, it will reduce air pollution too.

Homes shouldn't be draughty and cold - it's a waste of money, and miserable in the winter. The government can help households heat our homes in a green way.



Such as by insulating walls and roofs and switching away from oil and gas boilers to heat pumps.

One of the best ways for individuals to help stop climate change is by reducing their meat and dairy consumption, or by going fully vegan. Businesses and food retailers can improve farming practices and provide more plant based products to help people make the shift.

The natural world is very good at cleaning up our emissions, but we need to look after it. Planting trees in the right places or giving land back to ~~nature~~ nature through rewilding schemes is a good place to start. This



is because photosynthesising plants draw down carbon dioxide as they grow, locking it away in soils. Forests are crucial in the fight against climate change, and protecting them is an important climate solution. Yet companies destroy forests to make way for animal farming, soya or palm oil plantations. Government can stop them by making them better laws.

Plastic is made from oil and the process of extracting, refining and turning oil into plastic or even polyester for clothing, is surprisingly carbon intense. It doesn't break down quickly in nature so a lot of plastic is burned which



contributes to emissions. Demand for plastic is rising so quickly that creating and disposing of plastics will account for 17% of the global carbon budget by 2050. Governments need to put restrictions on the usage of plastic.

Transport, fashion, food and other lifestyle choices all have different impacts on the climate. This is often by design, fashion, and technology companies release far more products than are realistically needed. But while reducing consumption of these products might be hard, it's most certainly worth it. Reducing overall consumption in more wealthy countries can help put less strain on the planet.



It is easy to get overwhelmed and to feel that climate change is too big to solve. But we already have the answers. Now it's our responsibility to make them happen. To work all of these solutions need strong international cooperation between governments and businesses, including the most polluting sectors.

