ASSIGNMENT

Date: __/__/20 (2 Consequences, transition, solution & conclusion)

The third consequence of climate change is health crisis across the globe. Climate change poses a serious threat to human's physical as well as mental health. Extreme weather events like heat waves, floods, droughts, storms, wildfires result into heat strokes, infectious diseases' spread, malnutrition, respiratory diseases and mental health issues. Firstly, heatwave is a period of time such as a few weeks when the weather is much hotter than usual. Most of the times, heatwave leads to heat stroke, a medical emergency ~~where~~ in which an individual's body temperature rises to the extent that it becomes fatal if not promptly treated. According to United Nations Development Programme, nearly 50,000 lives were lost in Europe in 2023 due to extreme heat. Secondly, infectious diseases are the diseases caused by infectious agents - bacteria, viruses, parasites - that enter, survive and multiply in human's body to initiate certain systems. Vector-borne disease account for more than 17% of all infectious diseases. These are human illnesses caused by microorganisms, carried by vectors. To explain that, dengue is the viral infection transmitted by a vector called Aedes mosquito. In 2024, dengue fever with 14.2 million reported cases worldwide, surged to the largest

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global outbreak ever recorded. According to World Health organization, this surge was due to the changing temperatures because of climate change. The prolonged increase in temperatures lengthens dengue's virus transmission season and temperature below 18°C limits transmission. Lastly, malnutrition especially undernutrition is causing deaths of children due to food insecurity. Respiratory diseases as a result of air pollution is also a leading cause of death worldwide. World Health Organization give the annual number of 6·7 million deaths worldwide owing to respiratory diseases caused by air pollution. Hence, the serious consequences of climate change on health of humans cannot be avoided without taking proper steps as they inflict mental trauma equally as of physical trauma.

The fourth consequence of climate change is the risk it poses to critical infrastructure. Critical infrastructure refers to the systems and facilities that are vital for the functioning of society and economy. It includes transport system including roads, railways, air and maritime transport; information and communication technology including cables, data centres and telephone exchanges and basic

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utilities including water supply systems, electricity and gas networks. The transport system moves people and goods across cities and countries to connect societies and foster trade-economy. The World Economic Forum in its report says that majority of the worldwide trade occurs through ships and seaports, which are vulnerable to storms, hurricanes and rising sea-levels. Likewise, airports especially in countries by the North Sea (U.K., Norway, Germany) were found to be at greater risk of flooding in an assessment by Joint Research Centre. Meanwhile, the land-based transport such as through roads and rails, which help in inter-regional transport of goods between seaports and airports are also on risk by floods, storms and droughts resulting in wild fires. Similarly, damage resulting to communication assets by floods and storms can cause loss of voice communication or inability to process financial transactions. Lastly, water, electricity and gas supply is also disturbed due to climate change. Water supply system comprises of dams, reservoirs, treatment plants, pumping stations and pipelines can be affected by drought or power outages to run pumps. The intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report states that increased temperatures resulting in

increased resistance of power lines with reduced effeciency force power operators to do outages. Otherwise, the short circuits and resultant damage can cause danger to human life. The National Disaster Management Authority in its 2025 report, highlights that Pakistan, one of top five South Asian countries affected by floods, faces loss of life, property and infrastructure annually. So, the critical infrastructure and the world economy associated to it, both are under threat of climate change.

So far this essay has highlighted the causes and consequences of climate change. Now, some adaptation strategies and mitigation measures to address climate change will be suggested.

Adaptation to climate change refers to the wide range of strategies to reduce vulnerability to climate change impacts in current scenario or in future, as enough heat is already trapped in the environment. To deal with this trapped heat and

energy, adaptation besides mitigation is necessary to plan climate action. The "adaptation cycle", a global framework by the United Nations is guiding countries on the steps to plan for adaptation. The cycle comprises of 4 components: risks and impacts assessment, plan for adaptation, implement adaptation measures and then monitor and evaluate adaptation. The strategies for adaptation include resilient infrastructure, early warning systems, drought-resistant crops and water conservation strategies. To start with, resilient infrastructure can comprise of smart flood, storm monitoring and alert systems;

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green roofs with rainwater-capturing vegetation help divert storm water and porous concrete and permeable pavements permit stormwater to soak into the ground. Early warning systems should be installed in residential as well as commercial areas. According to United Nation Environment Programme, Multi-Hazard Early Warning System (MHEWS), giving just 24 hours' notice before an impending hazard would prevent losses of $3 to $16 billion annually in developing countries as compared to the investment of US $ 800 million in (MHEWS). Next, crop switching from water-intensive crop to drought-tolerant crop also helps in adapting to climate change. The Agriculture Department Punjab revealed that in just two years, the sesame-crop area in Punjab, which is a drought-resistant crop, increased by 45% to partially replace the water-intensive rice crop. This water conservation strategy also ensures food security and economic prosperity to an agricultural country like Pakistan. To conclude, adaptation strategies are important to devise a proper climate action

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Climate change mitigation means to act in a manner to reduce or prevent greenhouse gas emissions from human activities, which is another part of climate action plan. The mitigation measures include restoring ecosystems, transition to renewable energy and effecient transport. Carbon tax and emission markets are also the actions taken to reduce greenhouse emissions. Restoring ecosystems namely forests, wetlands (water-covered soil), mangroves (trees in coastal areas) and peatlands (accumulated organic material) help these ecosystems act as natural buffers for wind and water and remove tones of CO_2 from the atmosphere. Transition to renewable energy, which is a clean energy and replenishable by nature namely wind and solar would contribute to climate mitigation as one of the most important measure. The shift in subsidies from fossil fuel to renewable energy technology would be helpful in this case. International monetary fund stated that US $ 5.9 trillion were spent alone in 2020 on fossil fuel subsidies. Effecient transport system such as public transport needs to be expanded as 13.7% of greenhouse gas emissions are merely the contribution of transport sector as per United Nations.

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Carbon tax is a government-imposed tax on greenhouse gas emissions from burning of fossil fuels. The tax is measured per ton of CO_2 equivalent emissions and has to be paid by the burning entity. Imposing carbon tax and running carbon markets are also a beneficial type of mitigation. Carbon markets are systems where carbon credits are traded. These credits represent a reduction or removal of greenhouse gas emissions from atmosphere either through reforestation or planning any other strategy. Governments, companies and even individuals buy these credits to offset their emissions. Once purchased, credits are retired and can not be used again. Hence, to avoid further release of greenhouse gas emissions to prevent climate change, mitigation measures are necessary.

In summation, climate change is a rising threat to all living and non-living things on this planet, Earth. The impacts of climate change in today's world are mainly due to the human actions and to mitigate and adapt to these impacts is also in human control. William Shakespeare's timeless quote, "It is not in the stars to hold our destiny but in ourselves", also depicts the same fact.

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The prominent causes of climate change in pre-industrial era were natural but in the ~~pre~~ industrial era since the 18th century, are human-driven. All the human actions of fossil fuels extraction and their usage in various sectors namely transport, energy, agriculture and industry lead to the emission of greenhouse gases, the principal cause of climate change. To deal with the consequences of climate change in particular with food insecurity, water and health crisis, infrastructure damage and environment degradation, a proper climate action plan is needed to be followed worldwide. The international organizations such as the United Nations under its Framework Convention on Climate change has signed various climate agreements for climate governance worldwide. The most recent of which is Paris Agreement, 2025 ~~which~~ with its central goal to hold the average global temperature well below 2°C (3.6°F) as compared to pre-industrial levels. The plans and strategies to combat climate change are many but the strict action and outcome evaluation is still called for. Robert Frost's poem's "Stopping by Woods on a Snowy Evening" last stanza is a beautiful metaphor for human

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responsibility towards this planet. He says:

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

The Earth's remaining beauty is still lovely but instead of just admiring it, humans have to take a step forward to save it from the havoc of climate change. The journey to save ~~this~~ Earth ~~planet~~ is long and tiring, but with the collective effort of inhabitants of this planet, it can be accomplished leading towards a resilient future.