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Climate Change; The Way Forward

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Acknowledgement

I would like to thank my parents for helping me for finding appropriate research materials, improve my writing (refencing, spellings) and formatting the document.

Summary

I observed how climate change has an impact on us, so I decided to research and write on climate change as a serious issue on the Earth. This report includes some of the information and thoughts of how climate change challenges us and how we could face it.

Venuki

Content

Chapter one -Introduction

Chapter two - Climate change and its causes

Chapter three -Impacts of climate change

Chapter four - How should we react to climate change?

Chapter five - Conclusion

References

List of Images

Image 1 https://askopinion.com/how-serious-is-climate-change

Image 2 https://marketbusinessnews.com/financial-glossary/climate-change/

Image 3 https://cliparting.com/free-weather-clip-art-21236/

Image 4 https://www.pinterest.com.au/pin/248049891956912552/

Image 5 https://www.nrdc.org/experts/rob-moore/new-ipcc-report-sea-level-rise- challenges-are-growing

Image 6 https://www.goodfood.com.au/drinks/wine/how-climate-change-is-affecting-the-australian-wine-industry-20190415-h1dia0

Image 7 https://www.bloomberg.com/features/2020-australia-drought-water-crisis/

Image 8 https://phys.org/news/2018-04-global-great-barrier-reef.html

Image 9 https://www.insights.uca.org.au/bushfires-and-mental-health-support/

Image 10 https://www.dreamstime.com/illustration/stop-climate-change-sign.html

Image 11 https://www.communityecologyinstitute.org/climate-action.html

List of Figures

Figure 1 https://www.globalchange.gov/browse/multimedia/global-temperature- and-carbon-dioxide

Figure 2 Drawn by Venuki's parents

Figure 3 Drawn by Venuki's parents

Figure 4 Drawn by Venuki's parents

1. Introduction

'Climate change is one of the largest long-term, global challenges humans have ever faced in the history of civilization.' (Climate Council 2013, p. 2).

Image 1: climate change

The whole world has been subjected by the negative consequences of climate change. The extreme weather events have been increased during the past years and sea level rise, biodiversity loss, unfertile land has also been increasing (World Bank 2016). Australia has had environmental and economic threats because of climate change over a massive range of areas like farming, water security, coastal residents and infrastructure (Australian Academy of Science 2014). The increase in extreme weather events like floods, bushfires, long droughts which is directly connected with the global temperature variation. Scientists observe that the existing impacts of climate change in natural environments are directly linked with the increase of global temperature. For example, high temperature and extreme weather events like floods, long droughts, bush fire and El-Nino are inseparable (Department of Agriculture, Water and the Environment 2020).

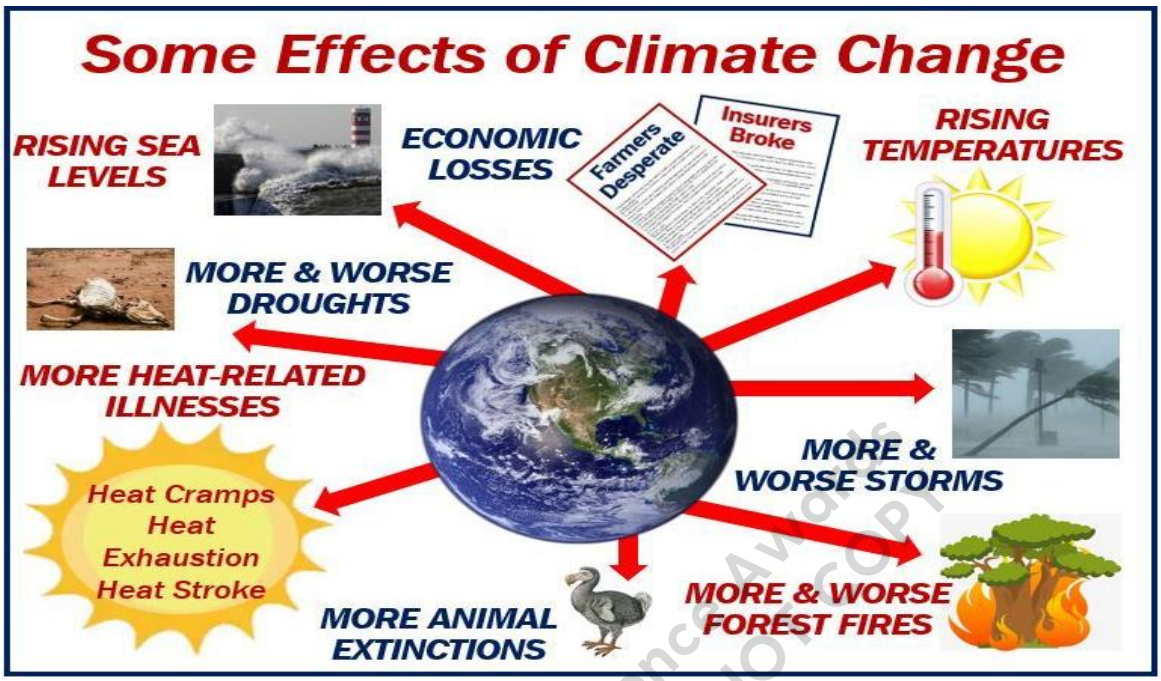

Image 2: impacts of climate change

2. Climate change and its causes

Weather and climate

Weather we talk about what we could see and feel in daily basis.

Eg: Today is a rainy day
Today weather is fine.
It is sunny.

Image 3

Climate is an average of weather conditions over a period of 30 years or more.

'**Climate change** is any change in the climate, lasting for several decades or longer, including changes in temperature, rainfall or wind patterns' (www.climatecouncil.org.au).

Greenhouse gas shields the Earth like a blanket and blocks all the heat near Earth's atmosphere. This is called the '**greenhouse effect'**. This warms up the Earth, as a natural process that keeps the Earth warm.

People have emitted more Carbon dioxide (CO_2) which acts as the primary greenhouse gas by burning fossil fuels. Over the past century, the concentration of CO_2 in the atmosphere has been increased very rapidly. Also, people have started deforestation which minimizes the transferring of these gases into oxygen. Due to the growth of greenhouse gases concentrations, this heating mechanism has boosted up-wards and ends up into climate change.

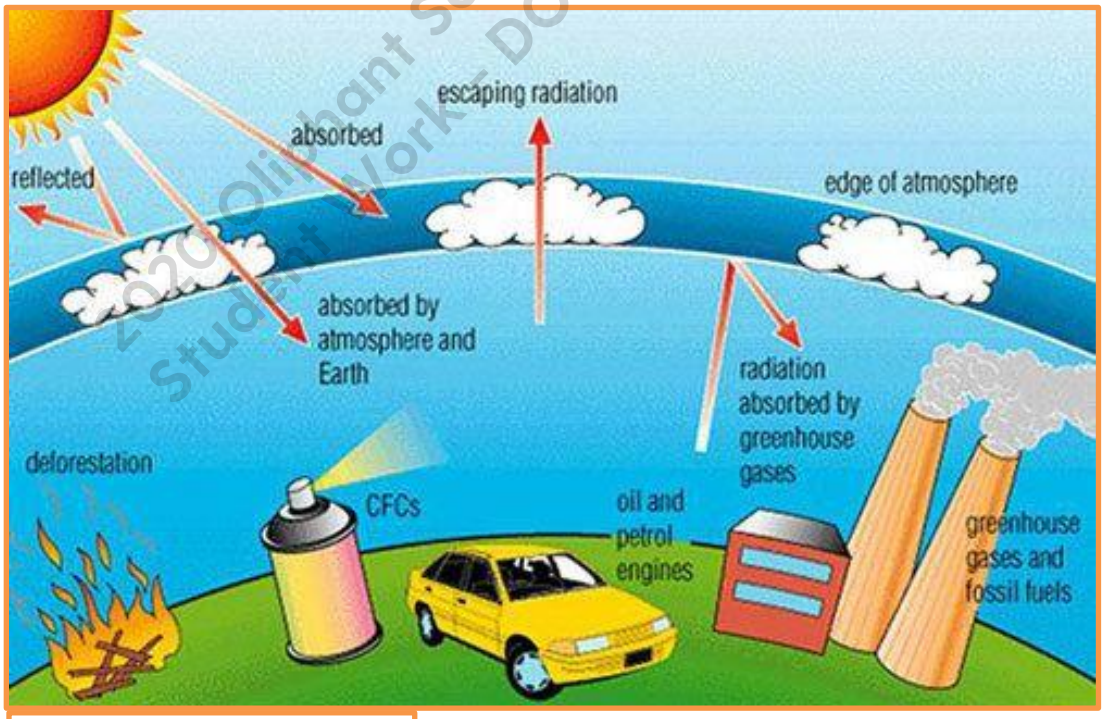

Image 4: Greenhouse effect

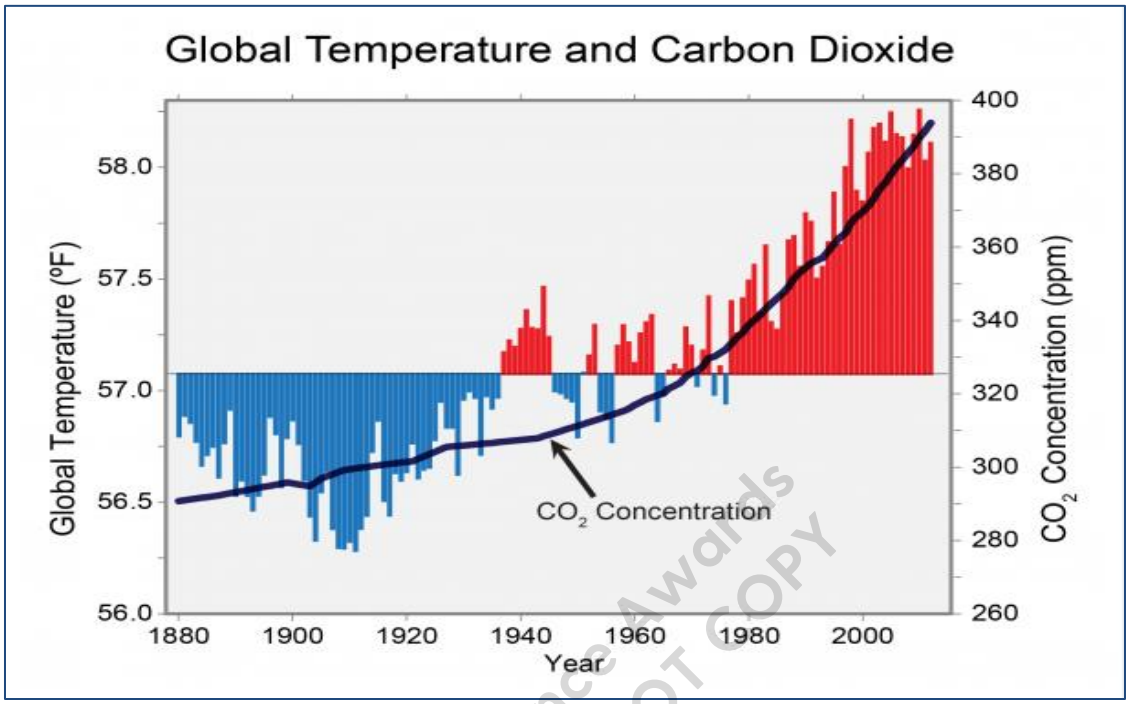

Figure 1: CO_2 and global temperature variation over the time

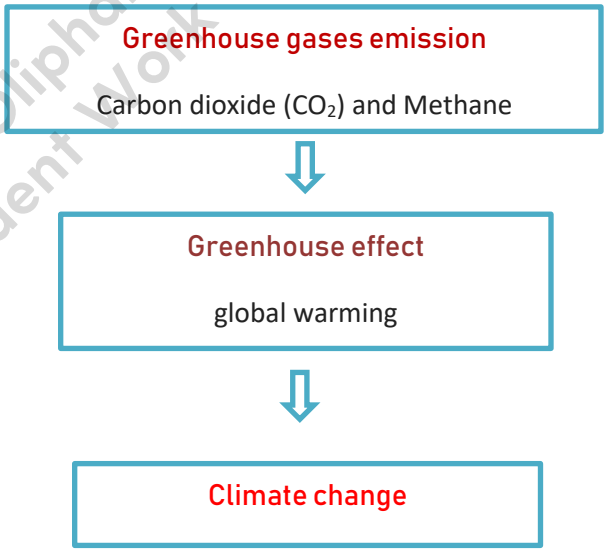

Figure 2: Climate change and human activities

3. Impacts of Climate change

The impacts of climate change are uncontrollable. It is a global crisis. I will discuss how climate change is going all around the Australian context.

According to the Department of Agriculture water and the environment, Australia faces many environmental issues from climate change.

Coast: Australians are affected by the sea level rising. Many people living within 50 km of the coastline are threatened in various ways. Some experiences coastal floods that can damage infrastructures. Also, these assets are at risk from other hazards: ocean acidification, warmer sea surface temperatures, bushfires, extreme wind speeds and the increase in frequency and the intensity of heat waves.

Image 5: Identified sea level rising

Image 6: drought affects wine industry

Agriculture, forestry and fisheries are very sensitive to extreme weather and climate conditions. The crops seasons have been changed. The mortality of trees has been increased. Droughts occur frequently; therefore, crop harvest is decreasing. High temperature and frequent heat events put farm animals at risk of heat stress. Livestock production and reproductive rate are also in danger.

Water resources

Australia's rainfall varies yearly and influenced by climatic phenomena (for example: southern Australian rainfall has been reduced by 11% for the last decades, since 1900). Ground water recharge and supplies are affected by sea water intrusion. Freshwater availability also reduces.

Image 7: Dried Darling river

Image 8: Great barrier reefs are transforming

Natural ecosystems

The existence of innate species is affected by high temperature. Accordingly, the resilience of species is challenged; destruction of biodiversity is enhanced. Especially, coral bleaching on the Western Australian and Great Barrier Reefs are closely connected with rising temperature.

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Human health is affected by environment factors such as temperature, water quality and air. Heatwaves have become the greatest, natural hazard of loss of lives over the past century. More frequent and extreme weather events (rising temperature, drought, bush fire) are putting at high risk of human health by injury, diseases, death, and disturbance to health services.

Image 9: mental health support for bushfire victims

4. How should we react to climate change?

Image 10

'Impacts of climate change will vary regionally but, aggregated and discounted to the present, they are very likely to impose net annual costs which will increase over time as global temperatures increase'.

- Intergovernmental Panel on Climate Change Assessment Report 2007

- We must all try to reduce greenhouse gases and try to stabilize the amount of greenhouse gases in the atmosphere. This is called as **'climate change mitigation'**.

- We must also adapt to global changes created by climate change. This is called as **'climate change adaptation'**.

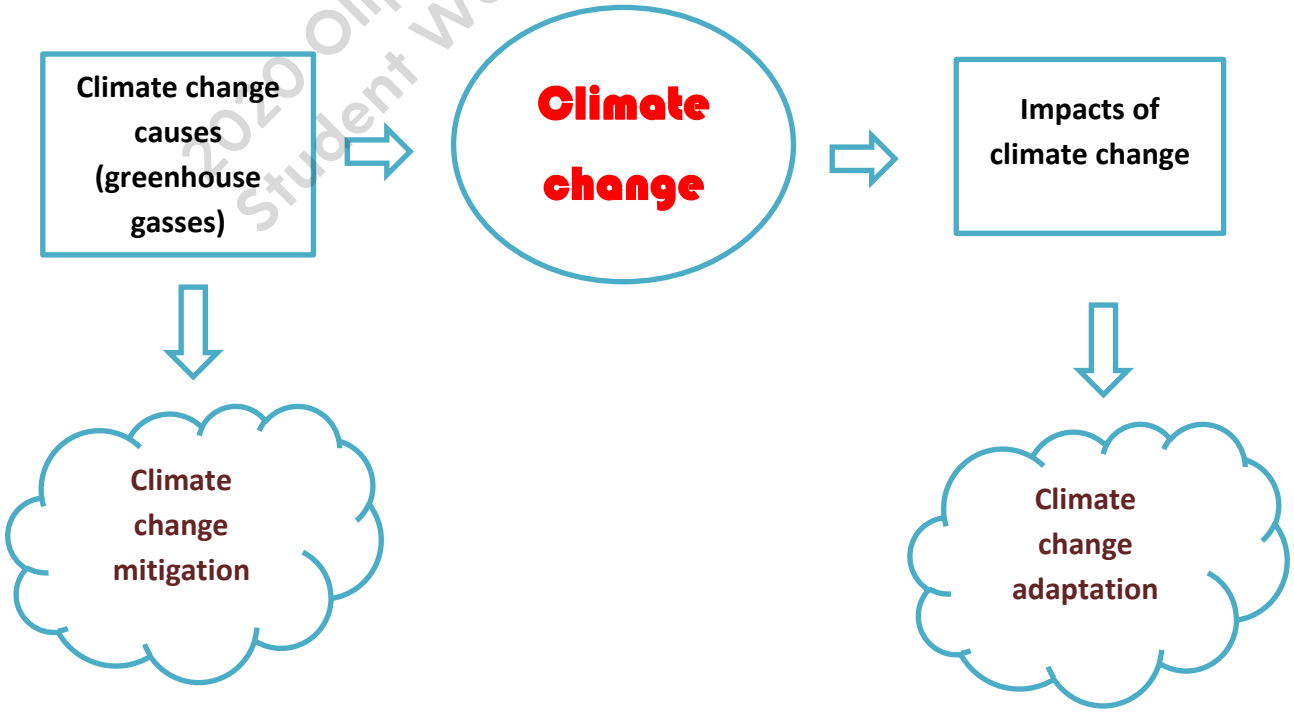

Figure 3: climate change adaptation and mitigation

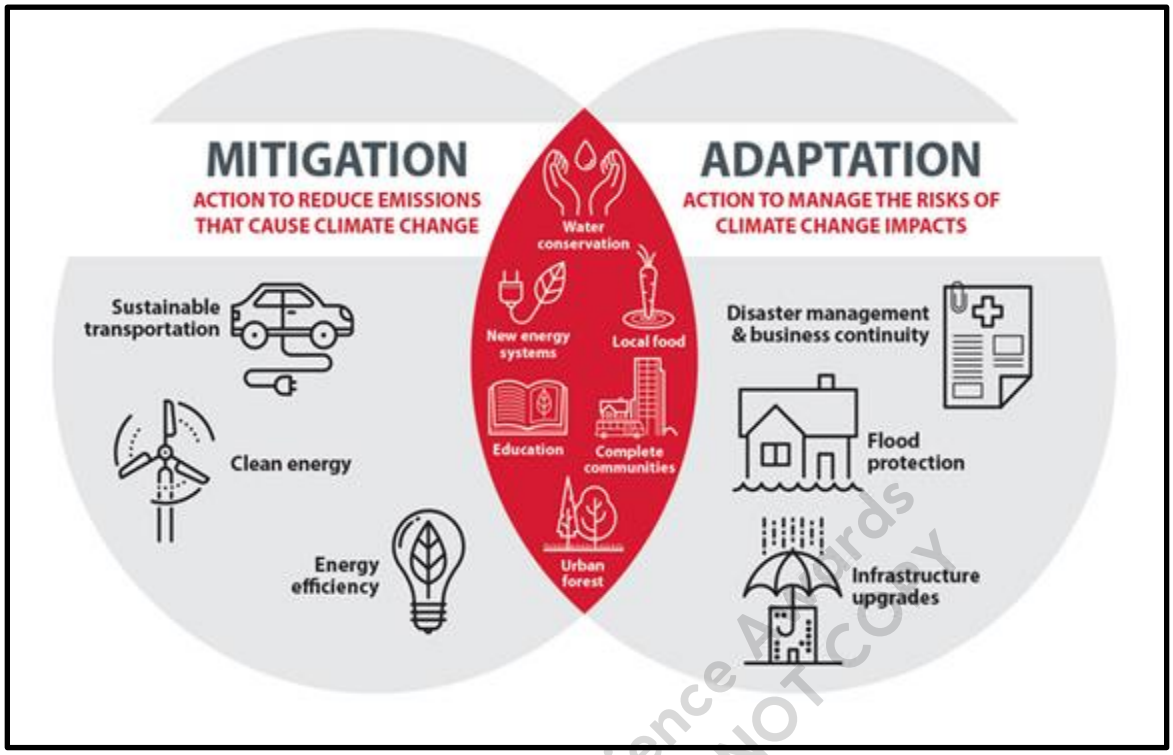

Image 11: climate change adaptation and mitigation activities

5.Conclusion

Decisions made today will have lasting consequences for future generations. We must respond to climate change to stop. We must 'mitigate' and 'adapt' to stop climate change.

This is how to mitigate:	***This is how to adapt:***
• Renewable energy (wind and solar) • Energy efficiency • Sustainable transport (electric public transport, bicycle, shared cars) • Advanced agricultural practices (cropland, livestock, waste management) • Reduce deforestation	• Secured infrastructures and facilities • Reforestation • Change cultivation pattern and varieties • More research and development

Figure 4: Way to mitigate and adapt

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