



Prize Winner

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Climate Change; The Way Forward?

Category: Science Writing

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Climate Change; The Way Forward?

1 Introduction

Climate change is admittedly one of the most concerning of the twenty-first century. Climate change refers to longer term trends, including changes in weather patterns, temperature, precipitation, wind patterns, and other aspects of climate. With expanding populations, advancing technologies and expanding industries, there is growing need for non-renewable energy resources. As evident from Figure 1, about 48% more energy by 2040 is projected compared to today. With growing energy need, more resources will be consumed.

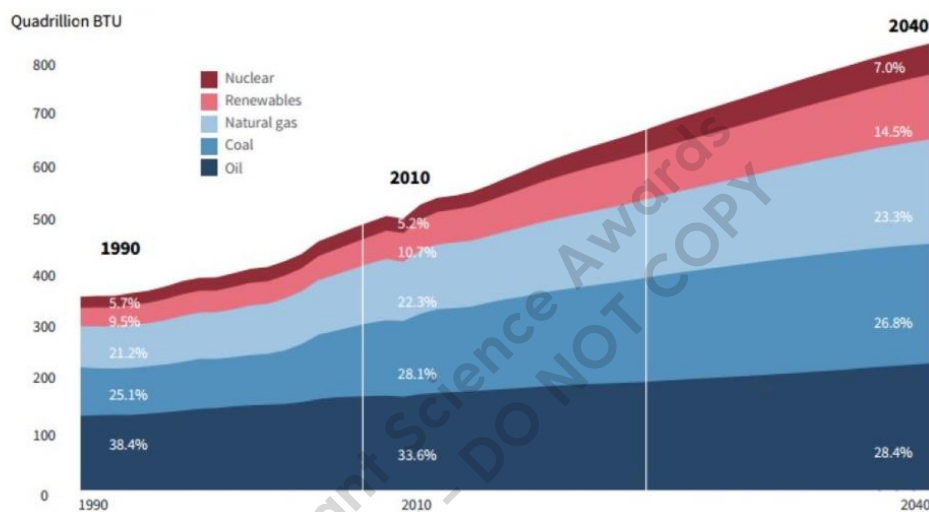


Figure 1: Global Energy demand (EIA, 2015)

Fossil fuels still account for about 85 percent of all world energy, as shown in Figure 2. The increasing demand for energy will lead to a substantial increase in greenhouse gases, based on the current usage of fossil fuels.

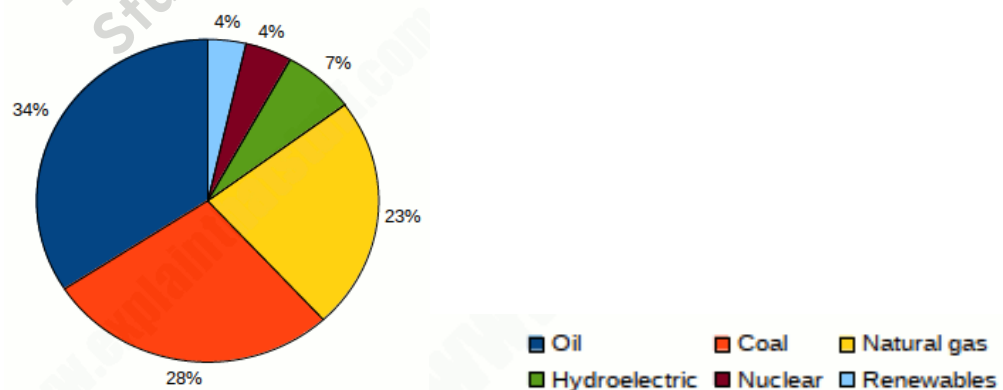


Figure 2: Global Energy consumption by Energy Source

(<https://www.explainthatstuff.com/energy.html>)

Scientists believe there is dramatic rise in greenhouse gases causing temperatures to increase at a dangerous pace. Figure 3 shows how the global temperature is affected by the concentrations of carbon dioxide (CO₂). There is compelling evidence with the temperature rise, warming oceans, sea level rise, and extreme events showing that the climate change poses great threat to the environment and animals and for humans as shown in Figure 4.

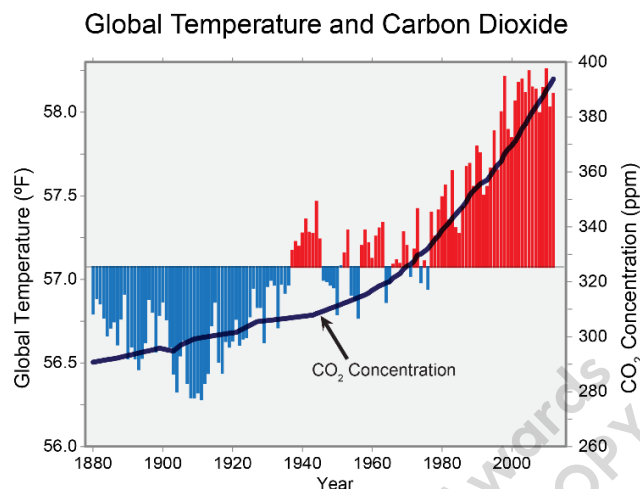


Figure 3: Global Temperature and Carbon Dioxide Concentration (EPA, 2014)



Figure 4: Climate Change Risks, Extreme Events and Related Impacts (WMO, 2019)

Addressing climate change will need changing the way we behave, shifting the way we make and consume energy. We need to explore technologies, behaviours, and policies that will lead to reduce carbon emissions, less waste and smarter use of our resources. This report reviews mitigation and adaptation as a two-pronged approach to address the issue of climate change.

2. The way forward

To face this great challenge of climate change two-pronged approach adaptation and mitigation could be the possible solution. **Adaptation**, where people respond to a changing environment, and **Mitigation**, where efforts are made to reduce greenhouse gas emissions.

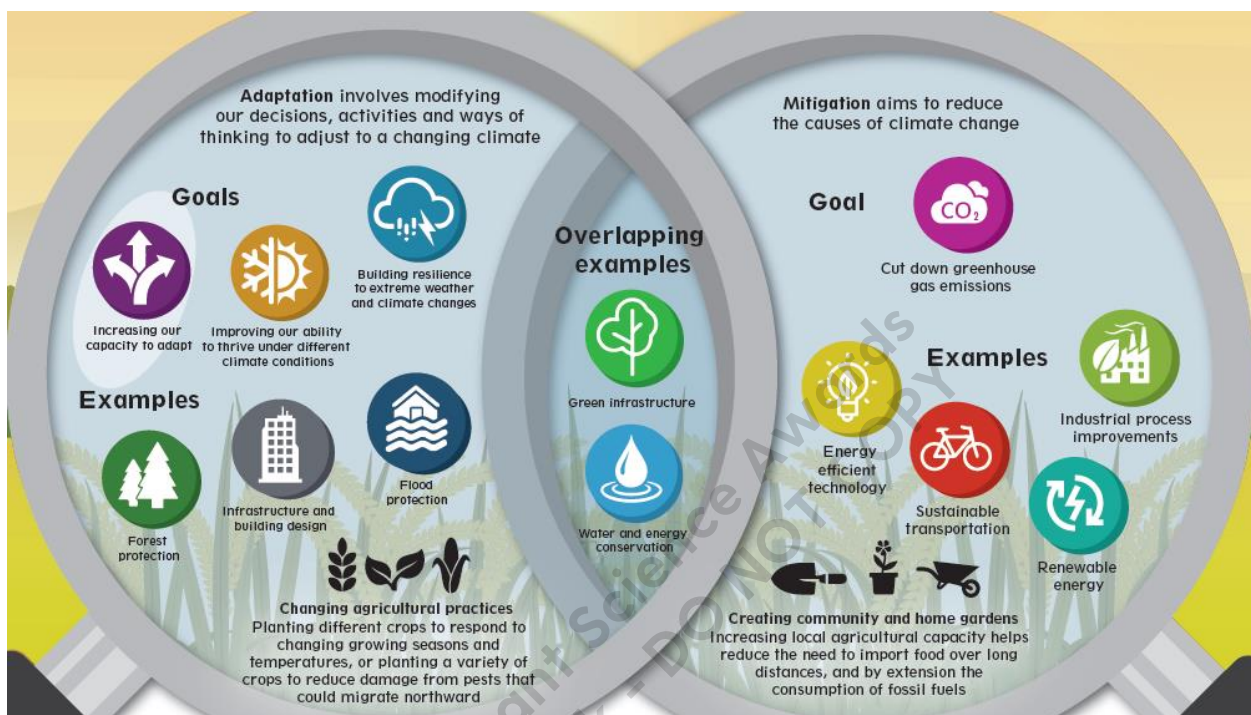


Figure 5: Adaptation and Mitigation

(<https://energy.techno-science.ca/en/climate-101-climate-change-mitigation-and-adaptation.php>)

2.1 Mitigation

Some of the mitigation measures that can be taken to reduce emissions are:

- Practice Energy efficiency
- Greater use of renewable energy
- improved cropland and livestock management
- Efficient means of transport implementation: electric public transport
- better waste management
- reducing land clearing and deforestation
- Carbon tax and emissions markets

One of the important way for mitigation is use of renewable energy resources such as solar, wind, water and biomass as these are sustainable and good for the environment. “Scientists are also working on ways to sustainably produce hydrogen to feed zero-emission fuel cells for transportation and electricity. Other efforts are aimed at building better batteries to store renewable energy; engineering a smarter electric grid; and capturing carbon dioxide from power plants and other sources with the goal of storing

it underground or turning it into valuable products such as gasoline” Says Christina Nunez, 2019. California academics at The Solutions Project recently found that, with cost-competitive renewable energy, the world could run entirely on electricity from renewable resources by the year 2050.

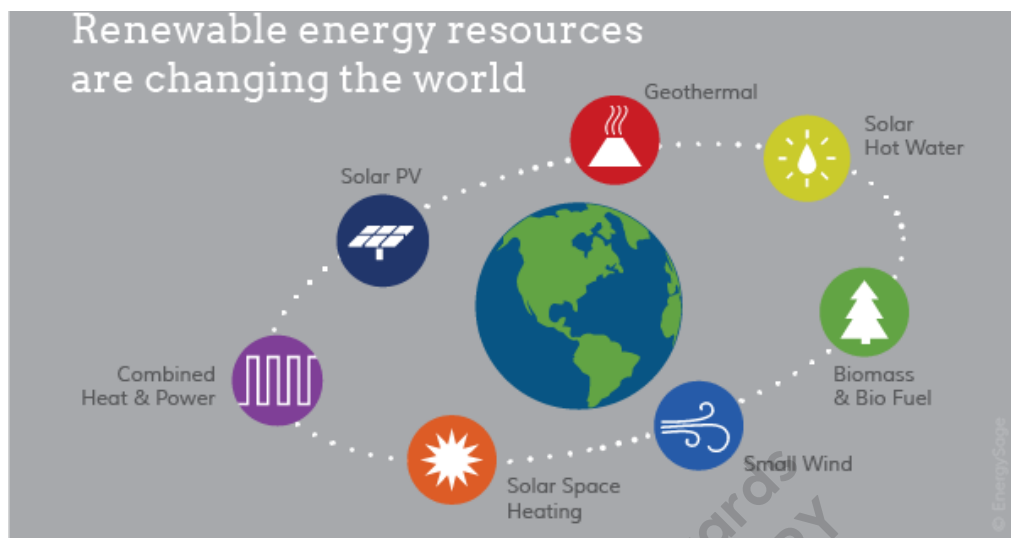


Figure 6: Renewable Resources

(<https://news.energysage.com/examples-of-renewable-resources-and-alternative-energy/>)

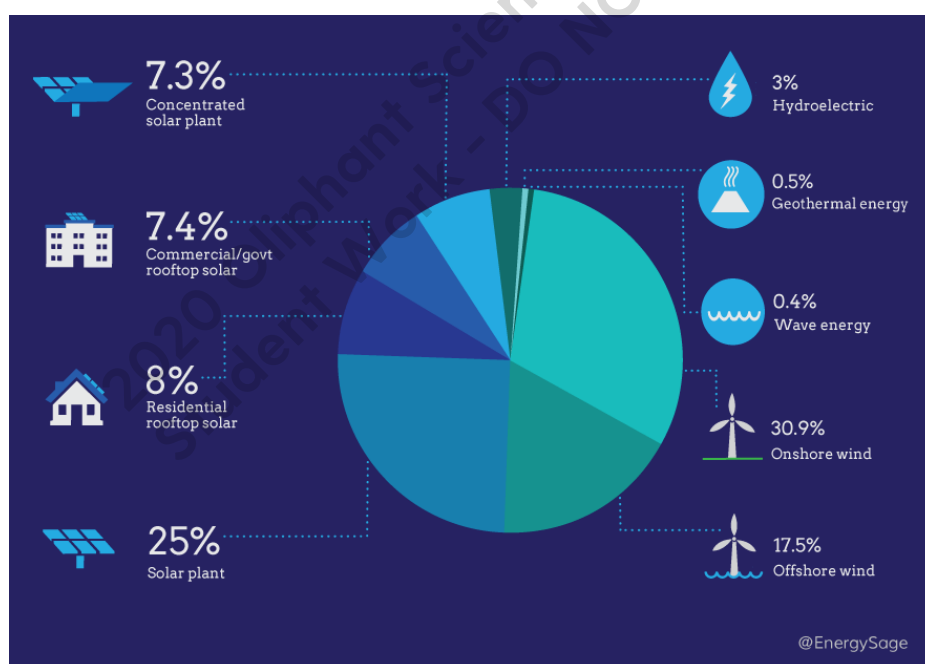


Figure 7: 2050 Projected Renewable Energy Mix

(<https://news.energysage.com/examples-of-renewable-resources-and-alternative-energy/>)

All that waste that put in bins goes to landfill. When waste breaks down, it releases harmful gases. We need to efficiently use our resources and help to reduce emissions by following approach of recycle, reduce and reuse waste as shown in Figure 8 and Figure 9.

RECYCLING AND COMPOSTING HELPS SAVE NATURAL RESOURCES.

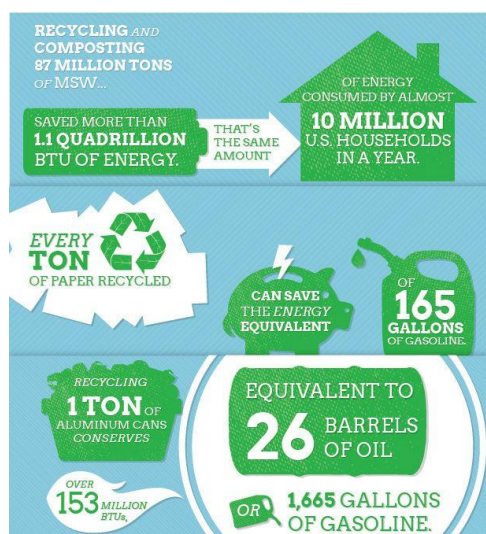


Figure 8: Recycling and composting (<https://www.teachstarter.com/au>)

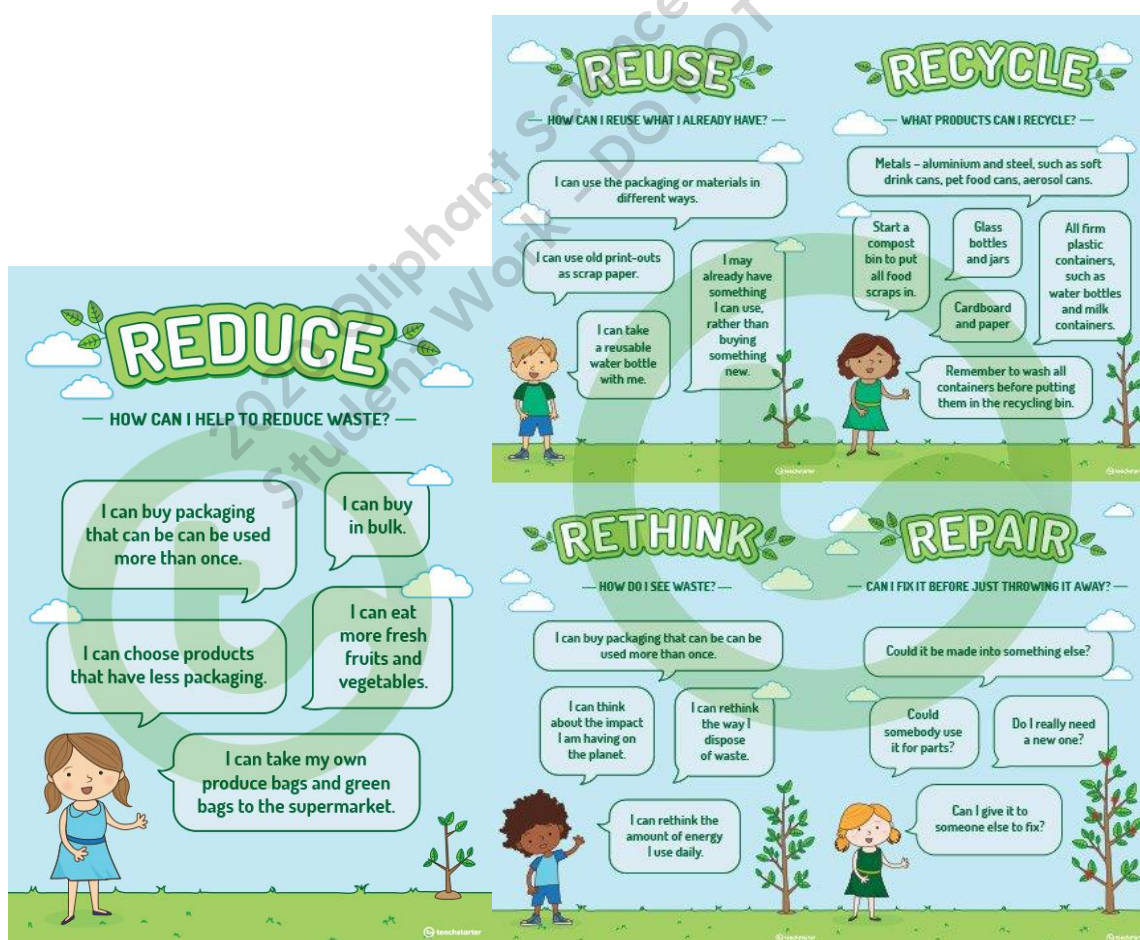


Figure 9: Reducing Waste (<https://www.teachstarter.com/au>)

2.2 Adaptation

In order to adapt the climate change, we need to make adjustments in our decisions and activities to moderate harm and taking advantage of new opportunities. Some of the adaptation measures are:

(<https://www.activesustainability.com>):

- More secure facility locations and infrastructures
- Landscape restoration (natural landscape) and reforestation
- Flexible and diverse cultivation to be prepared for natural catastrophes
- Research and development on possible catastrophes, temperature behaviour, etc.
- Preventive and precautionary measures (evacuation plans, health issues, etc.)

3. Conclusion

To address the pressing issue of climate change we need to be energy efficient, reduce waste, slow deforestation, and shift to cleaner energy sources. Also, we should plan for water scarcity, build more resilient cities and communities. The actions we take today will help us reduce risks as well as enjoy significant future climate benefits. This will also ensure sustainability for future generations.

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13. My parents have helped me to edit the writing and formatting in this report