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Science Writing – Climate Change; The Way Forward?

Climate change is a topic debated widely among scientists in current times. Climate change is classified as the change in weather patterns, happening over an extended period of time (Australian Academy of Science 2020). Usually over at least three decades. There are many differing views on this topic, its causes and the impact it has on our Earth as a whole. This essay will explore these topics and discuss what is being done around the world in relation to the slowing of climate change.

Most scientists agree that climate change is real. However, the point of disagreement is how much humans have contributed to the warming of our planet. Using satellites and other instruments, much information has been found regarding the Earth's atmosphere, climate and oceans. The data collected indicates that the earth's temperature is increasing. As is already known, greenhouse gases such as carbon dioxide (CO_2) and methane trap heat in our atmosphere. (NASA Climate Kids n.d.) When solar energy from the sun reaches the Earth, some of it is reflected back into space. The rest is absorbed by the Earth, heating oceans and land. When the heat is eventually radiated from the Earth, back towards outer space, these greenhouse gases trap some of the remaining heat, causing the planet to be warm enough to sustain life. As an increasing amount of greenhouse gases are being contained in the atmosphere, more heat radiating towards outer space is being trapped, increasing the Earth's temperature. (Australian Government, Department of Agriculture, Water and The Environment n.d.) These gases exist for a long time and do not respond to temperature changes. The image below shows the make-up of the main greenhouse gases, carbon dioxide, methane, nitrous oxide and "feedback" gas, water vapour.

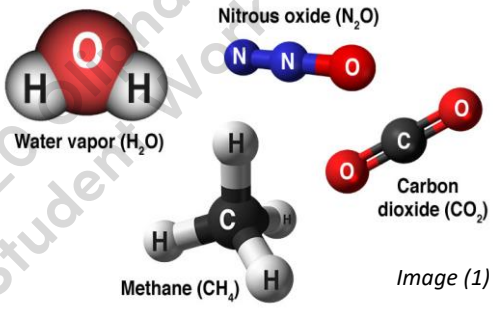

Image (1)

Humans are changing the natural concentration of gases inside the Earth's atmosphere. The burning of substances like oil and coal produces carbon dioxide, a chemical compound made up of two oxygen atoms and one carbon atom. These substances are being burnt to produce electricity and power vehicles among other things. Human industrial activities have increased the levels of carbon dioxide from 280 parts per million to 412 parts per million in the last one hundred and fifty years. The below image displays the increase in temperature over the Earth in the past 50 years.

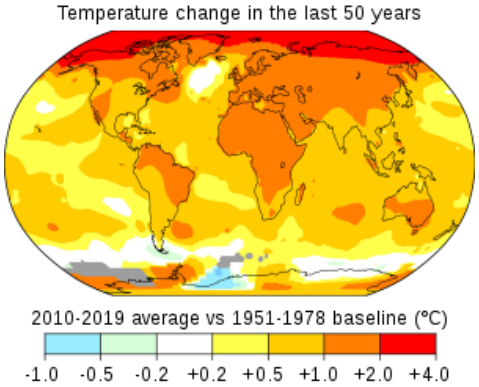

Image (2)

Scientists predict that the climate change caused by this will have some significant side effects. Increasing temperatures will cause oceans to expand, rising sea levels. Glaciers and ice caps may partially melt, also increasing sea levels. Climates will change, some becoming wetter and others dryer. Other impacts of climate change have already been observed, such as coral bleaching and the increasing severity of heatwaves. These warming temperatures are also expected to impact natural ecosystems such as tropical rainforests, coastal wetlands and tropical savannahs. (Australian Academy of Science 2020)

Current governments have told the world they are in the race to stop climate change, but what are they actually doing to slow it? Most of the world's countries entered the Paris Agreement, a multi-national accord to stop climate change. This particular agreement has commitments from each country. Regardless of this, most countries have set targets to reduce their carbon dioxide emissions. By how much, is dependent on the country's current emissions. In an ideal world, each country would aim to reach net zero emissions, but a range of scientific and economic factors make that target unreasonable. Countries such as Peru and Singapore have put in place legislation to attempt to help with the situation and in terms of money, different countries have invested varying amounts of money to stop climate change (L, Brinson 2012) This money is used to create new, more renewable infrastructure, conduct research and develop new technologies to meet our increasing energy needs. The general process of technological change happens in four stages. Common ways to describe these stages are discovery, innovation, adoption and diffusion. Meaning, the creation of a prototype, the creation of a commercial idea, the initial use of the technology, and the widespread distribution of the technology. This process applies to technology relating to climate change.

Current research projects focussing on climate change are varying. So are new technological advancements. Vehicles cause one third of the air pollution that produces smog in the United States, and electric vehicles can assist in decreasing that statistic. Electric and hybrid vehicles have come into play recently. However, they are expensive. Producing electricity by burning fossil fuels is the major contributor of the greenhouse gas carbon dioxide. One of the main factors stopping industries from using renewable energy options such as solar panels and wind turbines is cost, although this technology has been improved and made more efficient. A recent article (M, Davis 2019) confirms that large corporations such as Disney have adopted a more efficient and renewable source of energy. Disney has set up a solar facility over 100 hectares, expected to power two of their four Florida

theme parks. Other organisations such as Harvard and Carbon Engineering have begun projects to reduce emissions and slow climate change themselves.

But what can, we as individuals, schools, workplaces and families do to slow climate change? How can we create a better future for ourselves and for future generations? Plant a tree. Trees all help to remove carbon dioxide (CO_2) from the air. Grow your own fruit and vegetables if you can. This will stop fossil-fuel burning trucks from emitting CO_2 into the air. When choosing a new car, consider an electric, hybrid or energy efficient car and install solar panels on the roof of your home. These panels will convert the heat energy from the sun into electrical energy that can be used to power parts of the house. Or maybe contemplate a “green career” such as environmental research. These acts, whether they be simple or complex, contribute to the slowing of climate change. Every one of us uses the Earth’s resources and therefore has a responsibility to do what we can to reduce global warming. So, do what you can to save life on our Earth!

In summary, climate change is classified as the change in weather patterns, happening over an extended period of time. Humans are worsening climate change through the use of fossil-fuels, releasing greenhouse gases into the atmosphere. Governments across the globe are implementing programs and legislation to assist in the slowing of climate change and many corporations are conducting research and developing technology. However, individuals can help slow climate change as well. Plant a tree, grow a garden, choose an energy efficient car. Install solar panels and consider choosing a “green career”. Take the steps to save our planet today, so we can all have a tomorrow.

Written by Vanessa Rapuano (1116 words)

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