Preface

Imagine yourself walking through a peaceful and glorious park, with trees as green as emerald and grass glistening like razor blades with the softness of cashmere. You pass by a lovely pond; the refreshing water looks as smooth as glass. A light breeze feels across your body and the temperature is immensely appropriate for a calm spring afternoon. Our world really and truly is a beautiful thing; a very fragile beautiful thing. Over the years our world has been gradually yet significantly changing. In the midst of other global issues like homelessness, poverty and world pandemics, global warming is one of the largest threats to the planet's civilizations today. Global warming refers to the overall increase of the earth's atmospheric temperature. The changes in temperature will therefore cause changes in the earth's overall average climate. The main cause of this climate change has been linked to the scientifically proven greenhouse gas effect. In general terms, the greenhouse gas effect refers to the trapping of greenhouse gases in our atmosphere, which therefore increases the average global climate (Global).

Significance/Legitimacy

"All across the world, in every kind of environment and region known to man, increasingly dangerous weather patterns and devastating storms are

> abruptly putting an end to the long-running debate over whether or not climate change is real. Not only is it real, it's here, and its effects are giving rise to a frighteningly new global phenomenon: the man-made natural disaster" (Obama).

The man-made natural disaster is one of the most appropriate statements ever used when referring to global warming. Global warming is one of, if not the largest threat, known to the people, economy and ecosystems in our world today. The growing concern regarding this issue has taken centre stage in environmental and political debates almost all over the world in the last decade (Science). This particular issue is causing many drastic and significant changes throughout the world. Over the years and in the very near future the sea levels are and will continue to slowly rise. This aspect of global warming is widely known as the largest danger to our society and environment. Already, to date, the sea levels have risen approximately 10-20 centimetres (Lovgran). Jonathan Overpeck, director of the Institute for the Study of Planet Earth at the University of Arizona in Tucson states that "The consequences would be catastrophic, even with a small sea level rise, we're going to destroy whole nations and their cultures that have existed for thousands of years" (Lovgran). Overpeck and his team of researchers have developed a system and it hypothesizes that a one-metre rise in sea levels would flood several cities along the US and Canadian eastern seaboard. As well, a six-metre sea level increase would cause the submersion of the majority of Florida (Lovgran). The impact has already left irremovable scars in countries like Bangladesh. Already 13 million

people have lost their homes, and that number will only increase as the years go on (Lovgran). The fact that the sea levels are rising will affect other aspects of our environment as well.

With the temperature of the earth's surface gradually rising the temperature of the planet's bodies of water does as well. The rising water temperature has collectively caused the destruction of over 50% of the world's coral reefs. This is becoming more and more of an issue each and every day (Coral). The coral reefs are considered to be the rainforests of the oceans, and much like the rainforests on land, the coral reefs are slowly and significantly diminishing. Corals are extremely important to an ocean's ecosystem because of its high amounts of biodiversity and its large storage banks of food and medicine. They also protect the coasts from wave erosion (Coral). Many of the coral reefs around the world have significantly diminished to mere rubble. This fact has caused devastation to the various marine plants and animals that depended on the reef for food and shelter. As a direct result, the diversity of fish and other marine life has dropped by over 50% in some areas (Markey). The destruction of the reefs is all associated with a process called bleaching. Bleaching is caused by the increase of the overall sea temperature. With the higher temperatures the corals are forced to stop producing their food producing algae (Markey). One of the most affected reefs is near the Seychelles Islands off the northern coasts of Madagascar in Africa. In 1998, Nicholas Graham, a tropical marine biologist at England's University of Newcastle upon Tyne conducted a case study on this particular area. He explained that, "The outlook for

recovery is quite bleak for the Seychelles, over 16 percent of the world's reefs were lost in that one year." Some scientists believe that the world's coral reefs may disappear as early as 2050 at the earliest. The overall value of the world's reefs is estimated at approximately $30 billion USD, therefore parts of the world's economy may be immensely affected by the loss of the coral reefs. "We have created conditions on Earth unlike anything most species alive today have experienced in their evolutionary history. Corals are feeling the effects of our actions and it is now or never if we want to safeguard these marine creatures and the livelihoods that depend on them," said Bob Steneck of the University of Maine. Steneck believes that there can be only three scenarios. The best-case scenario is that green house gas emissions are stabilized and that the coral reefs may repair and many will stay intact. The next best scenario is that the climate will only increase by 3.6 degrees Celsius. This will in turn diminish the coral reef and all marine life by another 50%. Finally the worst-case scenario would be that the average climate would increase by 5.4 degrees Celsius and essentially over half the sea life will disappear and the water qualities will diminish (Weise). Coral expert scientist Chris Langdon concluded that, "There's a chance that they'll be able to adjust their physiology, but when it comes to ocean acidification it's crystal clear that it's caused by humans burning fossil fuels" (Weise).

Hurricanes Ivan and Katrina are both prime examples of what our world is coming to in the near future. The concept is very clear and almost impossible to cover up. With the warmer ocean temperature, more water will evaporate creating larger storms and

greater volumes of precipitation. "As the world warms, we expect more and more intense tropical hurricanes and cyclones," said James McCarthy, a professor of biological oceanography at Harvard University. The disturbing aspect to it all is the fact that slowly the climate continues to get warmer and warmer, and therefore the storms will only get stronger and stronger. James McCarthy also explains that, “Global warming is creating conditions that are more favourable for hurricanes to develop and be more severe." The fact of the matter is that more uncommonly severe storms are hitting mainland areas all over the world at a staggering rate. "Weather records are being set all the time now. We're in an era of unprecedented extreme weather events” (Leahy).

The issue of vast flash and perhaps permanent flooding has become a major factor within the issue of global warming. With the temperature rising due to the greenhouse effect, storms have been intensifying, flooding has become a regular occurrence and the homeless rates have been going up steadily. Unfortunately, this is already happening due to global warming. From 1995 to 2005 the global homeless rate has notably doubled from 500 million to approximately one billion (Chang).

Global warming will, at some point in time, affect every single individual on this planet. Global warming currently is, and will continue to be, the largest threat to our civilization for many decades to come. With the loss of our marine life and fresh water, the massive destruction from flooding and increased severity in storms, global warming characterizes the meaning of a global issue.

Background

Our world's climate has always had a history of constant change. A prudent example of this is the various ice ages that our world has experienced. It is estimated that 15,000-30,000 years ago our world was covered by massively large ice sheets (History). This ice age is believed to be the cause of the many glaciers around the world. The glaciers, however, are in deep trouble, and the concern is getting larger and larger every day. The initial concept of global warming developed as far back as 1824. French mathematician Jean Baptiste Joseph Fourier claimed that the earth's surface temperatures were increasing. He was the first to explain the theory and he believed that the earth's atmosphere was trapping in the sun's solar rays. Fourier's theory can be classified today as the greenhouse effect (History). At the same time a Nobel Laureate scientist by the name of Svante Arrhenius correlated the theory of green house effects to the burning of fossil fuels.

In the 1960's, many people around the world believed Milatulin Milankovitch who was a Serbian geophysicist. His theory related climate change to the orbital changes of the earth. The threats of global warming began to become a threat in the mid 1950's when climatologist G.C. Callendar warned that greenhouse gases would create an everlasting affect on the world's atmosphere. Cellendar's evidence led to further investigation and with that new mathematical methods were created to keep valuable and accurate records on the world's climate. This gave scientists and climatologists a better

understanding of the earth's climate. With this new and improved research the belief that human activity was drastically affecting the earth's climate became more and more common. Along with all the research the first passionate warnings began to arise with the use of fossil fuels due to its high utilization levels. Mixed reactions began to leak into the media. Many felt this new concept of global warming would result in a new ice age. Others believed that the melting of the polar ice caps would occur causing massive worldwide floods.

In 1992, the first benchmark in our civilization's fight against global warming began. The United Nations Framework Convention on Climate Change formed the infamous Kyoto protocol. Since then 174 countries have joined the international treaty that was formed to diminish greenhouse gases significantly by 2012.

David Suzuki

David Suzuki has become one of the most well known environmentalists in our world today. Suzuki's deep scientific history and his ability to tell things as they are has allowed him to travel the world and express his concerns of the vanishing species, melting glaciers, and choking atmosphere. His love for the environment and Mother Nature inspired him to create and star in a television program that was aired in over 50 different countries. The program was called the "The Nature of Things" and it was a

series of documentaries about the one thing he loved the most, nature. David Suzuki was one of the first to raise extensive concern regarding the excessive emission of greenhouse gases. At the age of 70, Suzuki still travels around the world raising awareness to the best of his ability (McKibben).

In 1990 David Suzuki co-founded the 'well known' David Suzuki Foundation (Cullis). This foundation is based on the main general principle of working with science and education to protect the diversity of nature and our quality of life, now and for the near future (Mission). The foundation also operates on a very specific pillar system. The main five pillars or goals are:

- Building a sustainable economy.
- Promoting global conservation.
- Conserving our oceans.
- Protecting human health.
- Solving global warming.

David Suzuki has a very interesting viewpoint and opinion on global warming.

> "I feel at times very angry that people aren't getting the message, I guess what's frustrating to me is the evidence coming from the sign of the community for over 4 years has been so powerful and so compelling and we're now not listening but I can't give in, and nor should you give in to the frustration because I've got grandchildren, and I'll be honest with

you, the only reason why I'm still in this game, and I'm an old man, I don't want to do all this, but I don't ever want to hear my grandchildren say that grandpa could have done more and that's the only reason why I'm in it. And the only problem is that I can see as a scientist with absolute clarity is what is going on. I feel like we're in a giant car heading at a brick wall at 100km/h and everybody in the car is arguing about where they want to sit. Now it doesn't matter who is driving, because somebody has to say for God sakes put the brakes on and turn the wheel because we're going to hit the wall. Those of us that are saying that are silenced and locked in the trunk and that's frustrating. It's going to be a lot easier to put the brakes on and turn the wheel than to hit the wall and pick up the pieces. But I can tell you, we're going faster and the distance between the wall is getting a lot shorter" (Climate).

Role of Control

With every problem or issue there is a solution or a way to fix it. The only problem with global warming is that this solution is going to take convincing support from over 200 countries around the world. Essentially the solution is in everyone's

hands. We the people are the control. However, you don't need to look far down the road to see that global cooperation is an extremely large, overwhelming and almost impossible task.

An important aspect to the solution of global warming is the concept of political debate and involvement. Individually, we all have our own obligations to help solve the issue of climate change. However a much larger obligation is held by the "ostrich-like" political parties. Scientific concern over global warming has been around since the 1970's. The general concern at this time was the amount of carbon dioxide within the atmosphere and it was at this time that it began to be measured. In 1979 the World Meteorological Organization (WMO) held the first ever World Climate Conference in Geneva, Switzerland. This conference issued and stressed a call to governments all over the world to "prevent and prepare for the negative impacts of human induced climate change". The calls and urgency for international cooperation to avoid a climate crisis was increasing (Godrej 86).

In 1990 the newly formed Intergovernmental Panel on Climate Change (IPCC) was formed by the United Nations. With resounding evidence from over 2,000 scientists, environmentalists and climatologists during a large scale study confirmed that indeed human induced global warming was occurring all over the planet. Unfortunately even by this time political lines were already being drawn. The various industrially developed countries across the planet that bring in billions of dollars each year from the many oil and coal industries simply ignored the entire idea of climate change with fears that it

would be affected negatively by any changes that could be suggested. It is also interesting to point out that the more industrially developed countries across the planet are the largest energy consumers (Godrej 87).

As much as the world does not like to hear it, it seems as if the planets economy is immensely more important than the planet itself. A prime example of this concept would be the prime superpower, the United States of America. Almost immediately after taking power of the US administration, George W Bush collectively with his republican party, withdrew the US from the Kyoto protocol.

> "U.S. withdrawal from the Kyoto Protocol is an extreme disappointment. The United States' action to reduce greenhouse gas emissions is essential to international efforts to prevent dangerous global warming. Nevertheless, the treaty will be beneficial and start the world moving in the right direction," said Kert Davies, Director of Green peace's U.S. Global Warming Campaign. "President Bush is wrong when he says reducing greenhouse gas emissions will hurt the U.S. economy. Bush ignores the economic benefits of U.S. leadership on 21st century energy technology," Davies continued to explain. (US)

Currently, the US is the largest contributor to our planet's greenhouse gas emissions. The United States has contributed the most to global warming by virtue of their greenhouse gas emissions and burning of fossil fuels. (See Appendix #1) If the

planet collectively is going to get anywhere close to solving this issue, the USA will simply have to get back on board.

Religious Aspects

Religion has always had a great impact on almost every single human being in this world. Global warming and climate change, despite being accredited by many different environmentalists, scientists, and climatologists, is being ridiculed as a type of scam or conspiracy. Reverend Graham Dow, Bishop of Carlisle, believes that the result of climate change is God's judgement on society. He uses the massive floods that hit New Orleans in 2005 as a result of the devastating Hurricane Katrina as a direct example. He goes on to explain that the global warming is not the cause of the many floods, storms and rising sea levels around the world. Dow believes that the recent legislation of gay rights around the world is really to blame to the current weather anomalies. He states that,

> "This is a strong and definite judgment because the world has been arrogant in going its own way. We are reaping the consequences of our moral degradation, as well as the environmental damage that we have caused. We are in serious moral trouble because every type of lifestyle is now regarded as legitimate. In the Bible, institutional power is referred

> to it as the beast, which sets itself up to control people and their morals. Our government has been playing the role of God in saying that people are free to act as they want. He feels that the introduction or recently approved gay laws undermines the Bible's main idea of marriage" (Dow).

He also expressed his sympathies to all those who have lose their homes during the tragic weather phenomena. However he explains the concept that global warming is the main result of the people's lack of care for the planet and that the environmental catastrophes are a strict warning over how we behave to our environment and the Bible.

> "People no longer see natural disasters as an act of God, however, we are now reaping what we have sown. If we live in a profligate way then there are going to be consequences. We have a responsibility in this and God is exposing us to the truth of what we have done" (Dow).

This is just one specific example as to how religion correlates with this specific world issue. Jerry Falwell, one of the most famous religious preachers, describes global warming as, "Satan's attempt to redirect the church's primary focus from evangelism to environmentalism." In this statement Falwell describes the belief of global warming as a strand of religious spirituality. In his many years as a preacher this debate consumed the majority of his last remaining years. His passionate warnings continuously described global warming as a "conspiracy orchestrated by Satan, liberals, and The Weather

Channel." Most religious theories are all generally based on the same foundations, and that is the concept that global warming is a cruel punishment from God. There is no reason to scrutinize their religious beliefs due to the fact that this is their interpretation of the scientific facts. The head of the Catholic Church, Pope Benedict XVI has been expressing his own views on the issue of climate change. He stresses that any action on global warming must be made based on legitimate and firm evidence and not based on dubious ideology (Caldwell). Interestingly enough, the Pope believes that the fears over man-made emissions causing the warming are nothing more than a scare or hoax.

> "Humanity today is rightly concerned about the ecological balance of tomorrow. It is important for assessments in this regard to be carried out prudently, in dialogue with experts and people of wisdom, uninhibited by ideological pressure to draw hasty conclusions, and above all with the aim of reaching agreement on a model of sustainable development capable of ensuring the well-being of all while respecting environmental balances. If the protection of the environment involves costs, they should be justly distributed, taking due account of the different levels of development of various countries and the need for solidarity with future generations" (Caldwell).

To conclude, religion and its part in this issue is not a solution nor is it a cause. One fact however, that is concrete is that this matter may act as a barrier towards solutions in the near future.

Case Study #1 – Bangladesh

In Bangladesh a large problem is arising with the increasing water levels. The production of rice is essentially what the country of Bangladesh is known and famous for. However, as of late that has been changing. Crops in most areas are declining and drinking water is becoming scarce. Gradually the rising sea levels are forcing saltwater from the Bay of Bengal into the lowland, delta region of south-western Bangladesh. It then moves into the mangrove forests of the Sundarbans which is an area crisscrossed by countless rivers and canals. Salt from the sea is slowly seeping and running into the groundwater, contaminating drinking water and fields. Things are only getting worse as the situation continues to spread farther north. Mohon Mondal, a local environmentalist states that, "Global warming is already a reality here, you can taste the sea salt even though we are far away from the coast." Since the downfall of rice and vegetable crops a new yet costly industry has taken centre stage, salt water shrimp (Gebaurer).

The farming of salt-water shrimp has become very popular with the poor and desperate farmers. This new industry has completely crippled the beauty and landscape of the region. Mondal also stated, "This region used to be very green, with palms and other trees growing all over the place. Now it's a stinking fish factory for Europe and the US." This in turn has affected the locals. Food has become very hard to come by as of lately. Rice has always been easily produced and obtained by the locals. Now the most available food is shrimp, and since the American and European markets are in charge, the

shrimp is far too expensive for the poor locals. Famine and poverty is becoming increasingly more common due to the decrease of agriculture in Bangladesh. According to climate studies, average rainfall in Bangladesh will and already has change drastically. The IPCC predicts that by 2050, rice production will decrease by another ten percent and wheat production by about 33% (Gebaurer). This will therefore increase the risk of famine. As well, because of melting glaciers in the Himalayas, experts foresee a dramatic decrease in potable water supplies in many parts of Bangladesh and Asia. As well by 2035 the Himalayan glaciers might completely disappear. The worst case scenario would mean the largest rivers in northern India may only flow seasonally. This includes rivers like the Ganges, Indus and Brahmaputra (Gebaurer).

Another issue also correlates with the rising sea levels. Flooding has become a great issue in Bangladesh. Approximately 10 million people live in areas less than one metre above sea level. The Intergovernmental panel on Climate change in the area has found that Bangladesh will lose about one fifth of its area if the sea level rises by just one metre. They have also found that the sea level is expected to rise by approximately 18 to 59 centimetres by the year 2100. This statistic does not include the melting of the glaciers in Greenland (Gebaurer).

Rising temperatures are also becoming a catalyst for the spread of disease and poor water quality. Doctors and scientists in Bangladesh fear a Cholera outbreak in the very near future, and predictions also point to a future increase in dysentery victims in

South and Southeast Asia. This includes Bangladesh (Gebaurer).

Case Study #2 – Madagascar

The great coral reefs found near the islands of Seychelles off the coast of Madagascar has become a victim to the global warming killer. It is estimated that this coral reef is one of the most affected in the world today. Coral reefs have been considered as the rainforests of the ocean. Coral reefs are very unique marine animals that are directly related to jellyfish and anemones. It is enriched with extreme biodiversity which serves as a bank of special genetic resources. Corals reefs provide a lot of very important things for our planet. There are some extreme significance and key facts that correlate with the reefs (Coral). These include:

- Coral reefs are the oldest living ecosystem on the planet (Coral).
- Corals are by far the largest living structure on the planet (Coral).
- Even though the corals only take up 1% of the planet's surface area, approximately 25% of all marine life calls the corals home (Coral).
- It is estimated that over 500 million people rely on the corals for food (Coral).

- Corals still to date provide extremely important natural barriers that greatly protect the planets many shorelines from the vast eroding forces from the sea (Coral).
- The economy benefits from the corals. It is estimated that $375 million is collected in goods and services (Coral).

The coral reefs found off the coast of Madagascar are considered as the finest in the world. However, as of 2005 some major concerns lingered in the minds of group researchers from the University of Newcastle. They discovered a massive change with the reefs. They discovered that many of the reefs had been badly damaged and were now unable to repair themselves and more importantly re-seed (Weise). The majority of the reefs tragically were essentially rubble covered in a very distinct type of algae. Since the corals provide food and shelter to much of the ocean's marine life it was soon discovered that four different fish species are already believed to be locally extinct. The fish affected were a type of butterfly fish, two types of wrasses and a type of damsel fish. In addition to that, six species have been declared endangered. The species of fish in questions are a type of file fish, three types of butterfly fish and two damsel fish (Weise). It is believed that their decline began approximately back in the year 1998. Research also found an alarming statistic. Researchers have estimated that fish species diversity has dropped by over 50% in the more damaged areas. This statistic has already resulted in a more fragile and a more unstable ecosystem (Science). More complications were popping up like weeds. For example, the algae levels were way too high. This is a result of the decline

of the amount of herbivorous fish. As a direct result issues within the marine food chain will arise and will only amplify as time goes on and global warming continues down its devastating path. Lead researcher Nick Graham of Newcastle University's School of Marine Science and Technology, said:

> "We have shown there has been very little recovery in the reef system of the inner Seychelles islands for several years. Reefs can sometimes recover after disturbances, but we have shown that after severe bleaching events, collapse in the physical structure of the reef results in profound impacts on other organisms in the ecosystem and greatly impedes the likelihood of recovery. Unfortunately it may be too late to save many of these reefs but this research shows the importance of countries tackling greenhouse gas emissions and trying to reduce global warming and its effect on some of the world's finest and most diverse wildlife" (Science).

All of these great anomalies are being caused by the increased temperature of the ocean (Science). This increase in temperature is directly correlated with the issue of global warming. It is estimated that if no actions are made to improve climate change the ocean temperatures will only continue to rise and by 2050 almost 70% of all coral reefs on the planet will be damaged and un-repairable. Currently to date, there have been no local projects in Madagascar to improve the situation (Science).

Case Study #3 – Antarctica

Antarctica is one of the only areas on the planet that has yet to be heavily disturbed by humans. It is ironic that the area on the planet with the least human contact is arguable being affected the most by the man made natural phenomena (Roy Britt).

A new study has disturbingly discovered that a significant chunk of the Antarctic glaciers have receded over the past 50 years (Roy Britt). The team of researchers from the British Antarctic Survey in Cambridge also discovered that the overall temperature on Antarctic has risen be approximately 2.5 Celsius. "The widespread retreat of the glaciers on the Antarctic Peninsula over the last 50 years was largely caused by climate change," said David Vaughan of the British Antarctic Survey in Cambridge. "Are humans responsible? We can't say for sure, but we are one step closer to answering this important question" (Roy Britt).

Glacial retreat is known to be a very complex phenomenon that often involves the distinct thinning of the glacier. As glaciers melt, they will usually move toward the sea more quickly. This will cause the melting. Where a glacier meets the sea, an ice shelf can hold it back. However when the ice shelf breaks off it's a different story. The process is like adding an ice cube to a glass of cold water. These ice shelves are increasing the world's water levels significantly.

"Natural climate variability and global warming were actually working together and they've sent the Arctic into a new state for the climate that has much less sea ice," said James Overland, an oceanographer at the U.S. National Oceanic and Atmospheric Administration. "There's very little chance for the climate to return to the conditions of 20 years ago" (Zarbareko).

Significant changes in air pressure that go along with depleted stratospheric ozone area are generally responsible for an increase in the westerly winds that whip around the Southern Ocean; these winds are usually just north of Antarctica (Zabarenko). These winds have isolated the majority of the southern continent from some of the impact of global warming. The exception is the Antarctic Peninsula, which reaches northward toward South America. There, effects of warming have been dramatic, he said, because the winds that protect the rest of Antarctica do not insulate the peninsula. The biggest problem is certainly the loss of the sea ice shelf's that are now raising the sea levels around the world, causing mass flooding. Along with the intense flooding, a fresh water battle can potentially occur as well (Zabarenko).

International Organizations

The United Nations (UN) plays a key role in the fight against climate change all over the world. The UN is an international organization whose goals are to facilitate cooperation in international law, international security, economic development, social progress and human rights issues. The UN was founded in 1945 and replaced the League of Nations (Kyoto). Within the UN a special organization completely devoted to stopping climate change was formed. The special organization is called the United Nations Environmental Program (UNEP). Its mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. The UNEP acts as an advocate, educator, catalyst, and facilitator promoting the wise use of the planet's natural assets for sustainable developments and improvements. UNEP also works with various partners from all over the world. These partners include various international organizations, national governments, non-governmental organizations, businesses, industries, the media and other civil services (Kyoto). UNEP is also making many strides to help the planet better understand the public's education, insight and initiative towards climate change by:

- Assesses global, regional, and national environmental conditions and trends.
- Develops international agreements and national environmental instruments.

- Strengthens institutions for the wise management of the environment.
- Integrates economic development and environmental protection.
- Facilitates the transfer of knowledge and technology for sustainable development.
- Encourages new partnerships and mind-sets within civil societies and private sectors.

Various non-governmental organizations (NGO's) are working collectively to solve the issue of climate change. These NGO's are almost always totally independent from an organised government. As well, NGO's are generally all non-profit organizations. Funding is typically provided from various private sources. Today there is an estimated 29,000 international NGO's found all around the world. Some NGO's are committed entirely to the issue of global warming and climate change. Some examples of NGO's that have shown interest in this serious issue are:

- **Climate Solutions** is an organization completely devoted to accelerating practical and profitable solutions to global warming by galvanizing leadership, growing investment and bridging divides. This organization originates in Olympia, Washington and was formed in 1998. Immediately after the formation some very bold arguments and statements were made to the US government regarding the issue of climate change such as; what do the US people have to do with this issue and how they can help relieve the situation (Company). Currently, the organization runs under four pillars. These pillars are the organizations plans and methods of action. The four pillars are; to be a part of the solution, to teach

climate change solutions, to provide support to the next generation to act for climate change prevention, and to make your voice heard within the issue. To date, Climate Solutions has already made various solutions that will in turn help the environment. Regionally, they have made movements within the state government to make green improvements. As well, they have also organised and conducted state wide "power off" festivals which in turn saved a vast amount of electricity. Overall, this particular NGO has been making immense strides to prevent climate change locally and, at times, at the national level in Washington DC.

Various other foundations and institutions across the world have also been set up to try and help solve the problem and preserve what is left of the dying planet.

- **Greenpeace International**: This institution is an independent global campaigning organization that promotes preservation of the environment while helping to maintaining peace around the world. Greenpeace promotes their causes by; catalyzing an energy revolution, defending the oceans, protecting the ancient forests, working for disarmament and peace, creating a toxic free environment, and campaigning for a sustainable agriculture (Issues).

- **The Carbon Neutral Company**: This institute works with other institutes from across the globe to aid with the reduction of green gas emissions. Carbon Neutral is one of the only offset providers. They are known for their quality advice

regarding how to reduce greenhouse emissions (Carbon).

- **Kyoto Protocol**: About ten years ago the United Nations Framework Convention on Climate Change worked collectively and began to discuss the measures needed to stop global warming. The Kyoto protocol was a treaty formed by the UNFCCC and it is based on the idea of international cooperation to stop global warming. As of November of 2007 over 174 countries were on board to reduce their country's greenhouse gas emissions. Countries that join this treaty are therefore committed to reducing at least five of the country's major greenhouse gas emissions (Kyoto).

- **Global Warming Solutions Incorporated**: GWS Inc. is a major company that researches and develops the commercialization of various technologies that assist in mitigating global warming and its devastating effects on the planet. The company focuses on three major aspects in their fight against climate change. These three aspects are; clean energy, carbon control and water purification (Company).

Climate Change in Canada

Global warming is currently and will in the future affect Canada in many ways. The following are the factors in which climate change affects Canada.

- The production of food across Canada is expected to be hit fairly hard in a significantly negative way. It is expected that newer and more costly methods of production will be put into practice in the near future. This will affect the Canadian economy in a great way. Farmers will lose their jobs and the exportation of goods to other countries will plummet (The Science).
- Along with the economic plummet, an increase in overall temperatures will also cause a vast increase of thundershowers, torrential rain, and the possibility of frequent tornado activity (The Science).
- The increase in temperatures will increase the frequency of forest fires, droughts and heat waves which will in turn desperately affect the health and well being of Canadians (The Science).
- Higher air temperatures and climate will remove the insulation of the vegetation cover and lead to the melting of the permafrost in the arctic. Unfortunately, that would result in more landslides and create massive problems for pipeline, road and bridge maintenance (The Science).

- Aquatic life and water supply would be in danger as well. As the glaciers retreat north because of the higher temperatures, less seasonal runoff would be the ensuing result. This would cause the fish habitats and water supplies to become at risk (The Science).

Canada is and will be deeply affected by climate change. However Canada is listed as one of many countries that are to blame. Countries have been ranked in a ranking system based on that countries greenhouse gas emission.

[See chart in Appendix B]

As you can see, Canada is ranked 8th in these world rankings. 2.3% of the world's greenhouse gases are coming from the Canadian people.

Today, various Canadian organizations have been making keen strides to solve and improve the great issue of climate change. Today Canada is still a part of the large climate change treaty, Kyoto. The Kyoto protocol was a treaty formed about 10 years ago. Countries that join this treaty are therefore committed to reducing at least five of the country's major greenhouse gas emissions (The Kyoto).

As well, Canada also introduced the clean air act in October of 2006. The bill seeks to cut emissions from 2003 levels by 45 to 65 per cent by 2050. Canada has yet to make any benchmarks in the fight against climate change (Canada's).

Solutions

Over the past few years the planet has been desperately trying to figure out the best way to solve the issue of climate change. The solution is simple, reduce the greenhouse gas emissions, and create and develop a more efficient and reliable power source. Some possible solutions and action plans include:

- **The Carbon Budget** was established and put forward by Green and suggested the idea of creating a specific budget that would determine an amount of fossil fuels that could be burnt in order to stabilize the earth's climate. Before the industrial revolution the atmospheric concentration of carbon dioxide was fairly stable and safe at a level of 280 parts per million (ppm). Today, the level is significantly higher at 360 ppm and is still growing. If levels are to stabilize and reach the budgets' initial goal, emissions will have to be cut at least 70 per cent (Godrej 122).
- **Alternative Energy** is becoming increasingly more popular around the world. The alternative energy industry has been booming as of late. The industry is now joining such industries as the fossil fuels transitional industry. The industry has been having great success in the Indian, Chinese and Eastern European markets. The goal is to globally market technologies that are not all directly connected to extractable resources (Godrej 128). The natural gas and nuclear industries are also attempting to convince the planet that their industries are a source of clean energy.

With its lower carbon dioxide emission levels, natural gas does indeed have a great role to play in the fight for decreasing emissions across the planet. Nuclear energy, on the other hand, is still in the development processes. The main issue concerning nuclear energy is the on-going concern over the safety of using highly radioactive plutonium-rich fuel (Godrej 129).

- **Solar Energy** is only now beginning to make significant waves around the world. Every single year the planet is reined over by the sun's bright lights. It is estimated that approximately 1,000 trillion barrels of oil is the equivalent to the amount of solar energy provided by the sun each year. The potential of solar energy production is another estimated 1,000 times more than the average energy being used around the world every day. The concept of using photovoltaic cells and panels to produce energy from sunlight can potentially be used to generate a vast amount of energy. Currently in Britain it is estimated that a household that uses solar panels for energy will save up to 2.5 tonnes of carbon dioxide emissions per year (Godrej 130). Recently, a Japanese manufacturing company developed a much thinner cell that in turn saves on raw materials. Today, costs for the solar panels are approximately down to less than a tenth of what they initially were about 20 years ago. Various countries around the world have set up goals to ensure that the uses of solar panels are put into effect. Germany reached their goal in late 2004 when 100,000 solar roofs were installed. The United States has also committed to install solar panels, however at a much greater scale. The United

States set a goal to install over 1,000,000 solar panelled roofs by 2010 (Godrej 130).

- **Wind Power** along with solar energy is another example of "clean energy". Traditionally, the concept of wind power is by virtue of using windmills. The propeller blades on the windmill structure catch the forces from the wind and the wheel begins to turn creating electricity. The electricity is created by a mechanically spinning generator. The technology is one of the most economical and ecological methods to create clean energy. The costs of owning and maintaining a turbine are extremely low and it can be put into areas where the average power-line cannot reach (Godrej 132).

Conclusion

The planet is changing. The planet we all know and love may be nothing more than a floating piece of matter within the next century unless the world acts in unity to prevent the end of all living things. It will not be an easy task; no natural disaster at this magnitude has ever been averted. In conclusion if our planet is going to get anywhere world unity and cooperation will be needed, significant changes in the way we live will be required and the "man-made natural disaster" will have to be stopped!

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Appendix #1

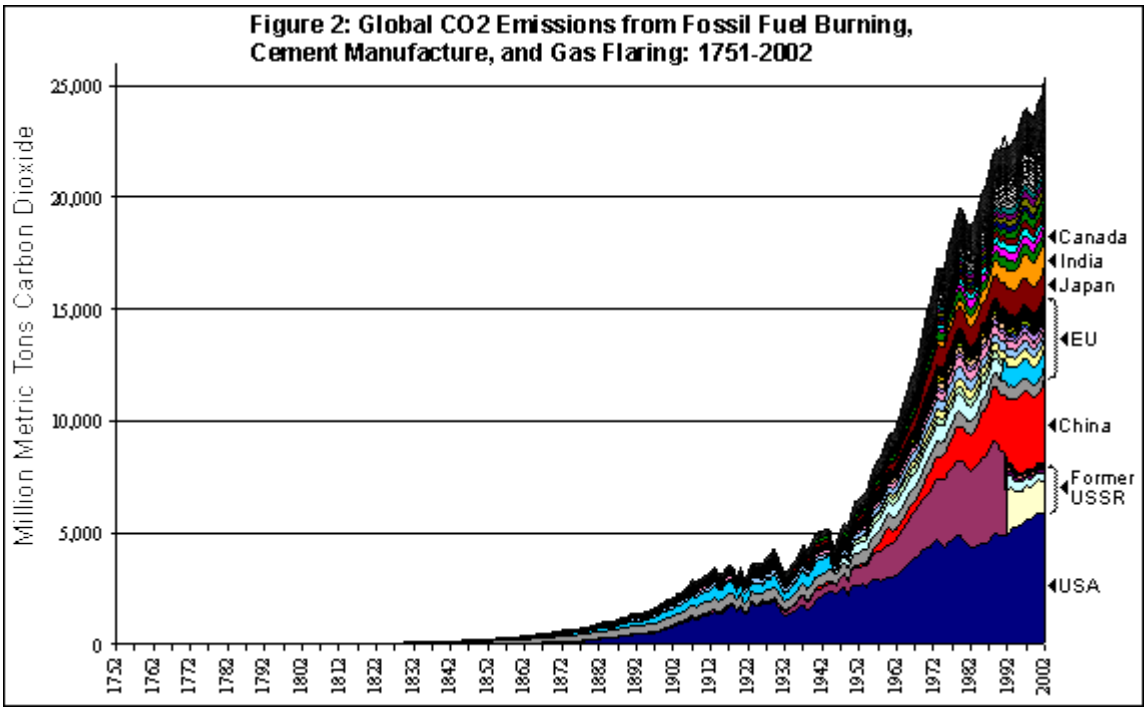
Figure 2: Global CO2 Emissions from Fossil Fuel Burning,
Cement Manufacture, and Gas Flaring: 1751-2002
Million Metric Tons Carbon Dioxide
25,000
20,000
15,000
10,000
5,000
0
1752
1762
1772
1782
1792
1802
1812
1822
1832
1842
1852
1862
1872
1882
1892
1902
1912
1922
1932
1942
1952
1962
1972
1982
1992
2002
Canada
India
Japan
EU
China
Former USSR
USA

Appendix #2

Relative Ranking of 20 Top Emitters (Plus EU-25) of Greenhouse Gases Based on 2000 Greenhouse Gas Emissions								
Country	**Annex 1**	**2000 Emissions**	**1990 Emissions**	**2000 Per Capita**	**2000 GHG Intensity**	**Emissions w/ Land-use**	**1950-2000 Cumulative Energy CO_2 Emissions**	**1950-2000 Cumulative Energy CO_2 w/land-use**
United States	Yes	1	1	7	96	1	1	1
China	No	2	2	99	68	2	3	2
European Union-25	*Yes[a]*	*[3][b]*	*[2]*	*[38]*	*[134]*	*[3]*	*[2]*	*[2]*
Russian Federation	Yes	3	3	22	29	5	2	3
India	No	4	4	146	90	6	8	14
Japan	Yes	5	6	35	143	7	5	7
Germany	Yes	6	5	26	131	8	4	6
Brazil	No	7	9	87	101	4	18	5
Canada	Yes	8	10	9	84	10	10	9
United Kingdom	Yes	9	8	34	141	11	6	8
Italy	Yes	10	12	47	149	13	12	15
Mexico	No	12	19	32	99	14	19	24
Korea (South)	No	12	19	32	99	14	19	24
France	Yes	13	11	48	156	15	9	12
Indonesia	No	14	16	123	86	3	27	4
Australia	Yes	15	15	5	65	17	15	19
Ukraine	Yes	16	7	42	141	19	7	11
Iran	No	17	21	57	50	18	22	31
South Africa	No	18	17	45	66	20	13	20
Spain	Yes	19	20	46	138	24	17	25
Poland	Yes	20	13	44	74	25	11	14

Source: (Summary)