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### **The Pollution Crisis in Canada**

Canada is one of the most beautiful and ecologically significant places on earth. Seeing the natural beauty of this country being destroyed by the growing problem of pollution is a hard pill to swallow. Right now, we live in an era where short term financial gain is put ahead of the long-term wellbeing of the planet. Canadians value the cleanliness of the country and the beautiful outdoors but we don't seem to be able to control the habits that are fundamentally and irreversibly damaging the environment. This is a problem that will affect us, and all future generations if we don't do something about it. The main types of pollution in Canada are air pollution, ocean pollution, deforestation and waste.

Coming from a skiing background, I greatly value the freezing-cold winters and heavy snowfalls. Rising temperatures are a huge problem that threaten the future of all snow sports. This would be a huge disappointment to many people just like me. I hope to be able to share the joy I get from skiing with the next generation. Although Canada is generally thought of as a clean country, with 'green' principles at heart, the reality doesn't reflect those viewpoints. "Air pollution is linked to an estimated 15,300 premature deaths every year." (Canada, 2022). So what is causing air pollution in Canada? According to Canada.ca, "In 2020, about 24% of Canada's total greenhouse gas emissions came from the oil and gas sector, 22% from transportation, 12% from buildings and 10% from the heavy industry sector."(Canada, 2022). This results in roughly  $\frac{2}{3}$  of all air pollution coming from big industry, and  $\frac{1}{3}$  coming from residential emissions. Another huge contributor to Canadian air pollution are the oil sands. Oil sands are a sludgy

deposit of sand, clay, water, and sticky, black bitumen used to make synthetic oil from strip mining. The race to generate money from strip mining started in the early 1990's. Oil sand operations currently emit roughly 70 Megatonnes (Mt) per year in Canada. However, since then research has been done on how these oils affect our air quality when extracting it. They found that the oil from tar sands is one of the most destructive, carbon-intensive and toxic fuels on the planet. "Producing it releases three times as much greenhouse gas pollution as conventional crude oil does." (Love, 2020) Oil sands are a huge industry in Alberta and will continue to pollute our air if we don't stop. There is currently no limit on oil sand extraction, either by facility or industry-wide.

Ocean pollution is another growing problem that is a threat to the environment and to human health. Ocean pollution build up comes from a variety of sources such as industrial waste, agricultural runoff, pesticides, and human sewage. People may be exposed to, "HAB toxins from eating contaminated fish and shellfish. These toxins can cause dementia, amnesia, other neurological damage, and death." (Avakian, 2021) Today, ocean pollution is most problematic in southern parts of Canada. I interviewed Steve, a kayaking enthusiast who lives in Squamish. He told me that, "most of the pollution build-up is not just plastic, but fishing nets." (Best, 2022) Fish netting is the most dangerous waste because, "the netting can tangle around the neck of fish and other animals and strangle them to death!" (Best, 2022). Another dangerous type of waste for ocean wildlife is plastic water bottles: "The water bottle will decay over time into thousands of pieces small enough that the fish will actually mistake the plastic decay for food." (Best, 2022). I also spoke with my cousin, Dr. Bryson Robertson, who experienced the problem first hand. In 2007, Bryson, his brother, Ryan and a friend sailed around the world to bring awareness

to the problem of ocean garbage. On their journey, they conducted a study of garbage on beaches. On Fakarava, part of the Marquesas Islands, they collected waste from a 100 metre section of beach and found a total of, “84 pop bottle caps, 3 large chunks of styrofoam, and 15 random pop bottles.” (Robinson, 2007). In total they collected just under 200 pieces of plastic from that 100m stretch of beach. Dr Robertson went on to complete his Phd on the issue and to publish a dissertation on Wave Energy.

Thirdly, another factor to the global warming crisis in Canada is deforestation. Although deforestation only accounts for a small amount of greenhouse emissions in Canada, forests play a critical role in regulating greenhouse gasses in the atmosphere. Canada holds 9% of the world’s forests with the Boreal forest being the largest in the world. Along with its size, it also holds the leading amount of potential carbon emission storage anywhere in the world. “The Boreal Forest is the Earth's largest terrestrial carbon storehouse, storing 208 billion tons of carbon, or 11% of the world’s total.” (Drever, 2022) To further prove my point, these forests are a part of a natural cycle that produce rainfall. If you cut down the forest, the lack of rainfall will add to the global warming problem. A recent example of this phenomenon is happening currently in Brazil, where the Amazon Rainforest is being cut down rapidly. Scientists say, “the Amazon rainforest is estimated to harbor about 76 billion tons of carbon.” (Leuzinger, 2020) If all trees were cut down and burned, the forest’s carbon storage capacity would be lost to the atmosphere. For comparison, humans emit about 10 billion tonnes of carbon every year through the burning of fossil fuels.

Finally, a big factor of pollution in Canada is due to garbage/waste. I see this as the largest issue in Canada today because the stats show it. Canadians produce more garbage per capita than any other country on earth. Canadians generate an estimated, “1.33 billion metric tons of waste per year, with 1.12 billion metric tons of this generated by industrial waste.” (Statista, 2019) I have experienced this problem first hand. Often when I’m on the road traveling to a ski competition, we have to get fast food on the road. The amount of packaging you receive with your food is excessive. “Canada produces 777 kilograms of garbage per citizen. Across all 17 countries studied, the average was only 578 kg per citizen.” The numbers show that Canada produces more than twice as much garbage, per person, than Japan, the best country on the ranking in that category, which recorded only 377 kilograms per person that year.” (Statista, 2019) My father chatted to me about the crisis, and he claims to know the cause of this problem. “Countries in the EU all have a strict pay-per-garbage law that prevents them from disposing of too much waste at once.” (Lynch, 2022) This makes them more mindful about the waste they do throw out. “Each person will have a chip that's embedded into their trash can, and when the garbage truck comes to pick up their trash, it weighs their trash and charges everyone accordingly at the end of the month.” (Lynch, 2022) Currently there are no regulations or charges against the amount of waste you can produce in Canada. Although Canada is one of the best countries at cleaning up, this doesn’t mean we are good in terms of the waste we produce. “Emissions from Canadian landfills account for 24% of national methane emissions.” (Canada, 2022) The amount of waste that goes to the incinerator is equal to the volume of greenhouse gasses going into the atmosphere. On the upside, a lot of this waste is recycled and created into renewable energy.

To conclude this paper, I thought I would also play devil's advocate. There are many people who say that the global warming crisis is a natural cycle of the planet. They claim that the climate has always been changing. Over the course of the Earth's 4.5-billion-year history, the climate has changed a lot. This is true. But the rapid warming we're seeing now can't be explained by natural cycles of warming and cooling. The kinds of changes that would normally happen over hundreds of thousands of years are happening in decades. "Global temperatures are now at their highest since records began. In fact, 17 of the 18 warmest years on record have all taken place since 2001." (Liodden, 2019) This means that there is strong evidence that pollution is the cause of the global warming crisis.

Global warming is a problem that is vastly overlooked by most people. This matters because the future health of our planet is our responsibility, and if we can't change soon it may be too late. We need to protect and sustain life on planet earth, by ceasing or mitigating the habits - personal and industrial - which are damaging the environment. Most people are too caught up in their first-world problems and fail to see the outcome of their choices and habits. Through my own experience, I have seen the disregard for Mother Nature get worse. I have seen more garbage on the side of highways, and the ski seasons get shorter each year. Personally, I think people need to wake up and take a stand against pollution. Canada needs to put more laws in place to stop pollution, and use more renewable sources to create energy. Currently, "less than 2% of all energy in Canada is created with renewable sources." (Capp, 2022) The symptoms of this problem is a dying planet which we can never recover from. This is why I believe pollution is the most critical issue affecting my community.

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