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Climate Change in Toronto, Ontario

Toronto is the capital of the Canadian province of Ontario and one of the major metropolitan areas within the Canadian Corridor, Canada’s most populous region. It is located in southern Ontario on the northern shore of Lake Ontario and is situated on a plateau intersected by the Toronto ravine system, a vast network of deep ravines and rivers which form a large urban forest that runs throughout most of the city. British officials first established Toronto in 1793 under the name York, after the British purchase of the area of Toronto from the Mississaugas people living within the region. Since then, Toronto has grown into the most populous city in Canada, the fourth most populous city within North America and a significant global city with great strides in many fields such as business and art (City of Toronto). However, when any city grows in size and modernizes there are negative results of such growth as well, such as low-density urban sprawl, traffic congestion, and an increase in the production of various wastes. However, one of the most prevalent problems for Toronto is the increasing climate change throughout Canada, which has had extremely negative effects on the populations within the city and Canada as a whole. In response to this, Toronto has gone through several developments in order to lead to sustainable development within the city and prevent further contributions to climate change, which will be discussed within this essay.

Climate change has always been a potential problem to many places around the world, but it has recently been observed that a large number of negative effects due to climate change can be seen within the southern interior of Canada, particularly in Ontario. One of the more prominent negative effects that have been recently observed in this region, particularly in the city of Toronto, is an increase in extreme weather events (Wang et al. 2015, pg. 7328). In 2013, Toronto experienced two extreme weather events that provided an example of the negative effects of climate change. The first was the large flood that Toronto experienced; on July 8th Toronto experienced received the largest amount of rainfall it had ever received in a single day (126 millimeters) (Young, 2013). The sheer amount of rain that dropped that day flooded roads, and basements causing thousands of people to go without power that night. The modification made to the city in the aftermath of Toronto helped minimize the impact of this flood, but it still showed that Toronto was still susceptible to flash flooding. The second was the December ice storm of North America, of which Toronto was one of the hardest hit by its effects. At the height of the storms, over 300,000 people were without water and power and had to take shelter in community warming centers. The costs accumulated from both events added up to over $1.3 billion, the equivalent of a 51% residential property tax increase. In more recent years, this region has received an ensemble of high-resolution climate simulations developed by the Providing Regional Climates for Impact Studies, which out line potential outcomes from the increasing climate change throughout the region. The PRECIS model worked by taking into consideration both the atmospheric and land surface components of the climate system in the region, allowing it to show the physical processes of the climate system as well as the interactions between the atmosphere and surface (Wang et al. 2015, pg. 7329). One of these future projections showed that in Toronto alone, there would be 80% more summer rain in July and 50% more in August, and summer storms would become 3 times larger than the average today by the year 2040. The 2013 disasters of Toronto and future climate simulations for the region have led to further consideration in the modification of the city against future disasters. To prepare for more extreme weather events in the future, Toronto has begun to take several steps to reducing the effects of such events by actions such as: planting more trees to increase shade and to clean and cool the air, increasing the size of storm drains and culverts to handle greater volumes of storm runoff, and installing permeable surfaces around the city, such as paving stones with gaps in between that the water can move through, in order to reduce flooding.

Another pressing issue that Toronto is attempting to address with the increasing threat of climate change is the current warming trend surrounding the region. In November 2012, the city released a report on future weather and climate projections. The report contained some fairly surprising weather patterns for Toronto by the year 2040, based on the current warming trends. The report stated that winters would become warmer and summer storms would become more severe, but there were several other aspects that were not as expected within the report. The report predicted that there would be 40 days in the year with a temperature of 40 degrees Celsius (as opposed to the current average of only 9 days a year), 180 days with a temperature of 25 degrees Celsius, and 5 heat waves per year as opposed to one every two years. In 2014, detailed analyses were done at 12 selected weather stations to measure the warming trend at the time and results showed that people within Ontario (and by extension, Toronto) would be highly likely to experience annual temperature increase exceeding 2 degrees Celsius over the next few decades (Huang et al. 2014, pg. 5259)

The increased heat will present a problem to many people living within Toronto, as they about half of the population lives in apartments that are difficult to cool and typically do not possess air conditioners; this will lead to an increasing demand and usage of air conditioners. Unfortunately, the electrical systems running through these apartments do not have the capacity to withstand the addition of so many air conditioners at once. If nothing is done before this increased heat becomes the norm during the summer, than many people living in these apartments may die as a result of poor air conditioning and extreme heat (Hartmann 2015). In order to lessen the potential effects of this, Toronto’s city hall is encouraging energy conservation among the populace of the city, telling people to turn off electrical products when they are not in use and to buy products that are more energy efficient.

Apart from encouraging its citizens to adopt a more sustainable lifestyle, Toronto has made certain larger steps into decreasing its influence on the spread of climate change throughout the city and Canada. One of these steps involves the adoption of the Transformation Toronto 2050 strategy. Transform Toronto is a two-year project that was adopted on April 15 by the City’s Parks and Environment Committee with the intention of engaging Toronto residents and businesses to come up with creative ways in which to reduce greenhouse gas emissions, with an end goal of greenhouse gas reduction by 80% by the year 2050. The second step was empowering a subcommittee of the Parks and Environment Committee called the Subcommittee on Climate Change Mitigation and Adaption. The purpose of the subcommittee is to provide advice on solutions to develop a low carbon environment to participants of the Transform Toronto 2050 project at key milestones of its initiative. The subcommittee is scheduled to meet six times before the end of its term on December 31, 2016 to compare and contrast ideas on sustainable development, and staff of the subcommittee are required to attend five roundtables that are separate from meetings in order to hear information and advice from experts on climate change mitigation and adaption (Parks and Environment Committee 2015).

Despite climate change still being a current issue within the city of Toronto, it stands today as one of the more prominent cities in reducing its influence on the spread of climate change. The disasters of Toronto in the year 2013 brought the potential impacts of climate change to the eye of government officials as well as everyday citizens of Toronto and since then, both have been making strides to reduce future disasters as much as possible. In addition, non-profit organizations such as the Toronto Environmental Alliance have been cooperating with city hall and Toronto’s citizens in order to educate people on how to lead Toronto to a more sustainable future. This is important due to the fact that Toronto, being a major city not only within Canada but the world as a whole, has such an influence on the world today that it needs to realize the responsibility of its position and make choices that align with the responsibility and ethics that they wish to uphold. By doing so Toronto can provide a powerful example of choices the rest of the developed world can make to create the best possible scenario for our continued survival and creating a sustainable world for future generations to live in.

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