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Internal Migration in the Canadian Prairies and British Columbia due to Climate Change

Abstract

The United Nations High Commissioner for Refugees (UNHCR) predicts that by 2050 there will be 25 million to one billion persons forced to migrate due to climate change (Becklumb, 2010), yet there is a distinct lack of research on the ripple effect that climate disasters will cause in regard to internal migration throughout Canada. While Canada may become a refuge for global citizens experiencing climate induced displacement, Canadians could also be forced to migrate internally. This paper will analyze the effects of climate change in western Canada including the Canadian Prairies and British Columbia and will explore the impacts of climate migration. Due to the fact that the Canadian Prairies contain only 18% of the Canadian population (Statistics Canada, 2022) but have 80% of the country's farmland, small groups of the population are responsible for cultivating Canadian produce. With climate induced weather phenomena, this small population could be forced to move away from their farms and change their livelihoods to live in cities when their land becomes barren. For those without the comfort of financial capital, migration will be the only way they can adapt to the effects of the climate crisis (Dickson et. al., 2016). Provincial and Federal governments have currently not released adequate action plans for how to adapt or prevent climate induced migration within the prairie provinces.

Keywords: Climate refugees, Canadian prairies, forced migration

Résumé

Le commissaire des Nations Unies pour les réfugiés prédit que par 2050, 25 millions à un milliard de gens seront forcés de migrer dû aux effets du changement climatique (Becklumb, 2010). Cependant, il existe un manque notable de recherche en termes des effets secondaires causés par les désastres climatiques, notamment en ce qui concerne la migration canadienne. Alors que le Canada pourrait devenir un lieu de refuge pour les citoyens internationaux déplacés par le climat, les Canadiens pourraient eux aussi être forcés de se déplacer dans leur propre pays. Ce texte analysera les effets du changement climatique dans l'Ouest canadien incluant dans les prairies et dans la Colombie-Britannique, et explorera les impacts de la migration climatique. Puisque les prairies contiennent seulement 18% de la

population canadienne (Statistiques Canada, 2022) et 80% des terres fermières du pays, seulement qu'une petite parcelle de la population devient responsable de la cultivation de fruits et de légumes canadiens. Avec des phénomènes climatiques de plus en plus influencés par le changement climatique, cette petite population pourrait se voir forcée de s'éloigner de leurs fermes et de se trouver une nouvelle façon de gagner leur vie pour vivre en ville alors que leur terre sera considérée aride. Pour ceux sans le luxe d'un capital financier, la migration sera leur seule façon de s'adapter aux effets de la crise climatique (Dickson et. Al., 2016). Jusqu'à date, les gouvernements provinciaux et fédéraux n'ont toujours pas publié de plan d'action convenable afin que la population puisse s'adapter à, ou aider à prévenir, une migration causée par le changement climatique dans les provinces des prairies.

Mots clés : les réfugiés climatiques, les Prairies canadiennes, la migration forcée

Introduction

Climate change is a dominant subject of discussion and study in the twenty-first century with over 1,530,000,000 results popping up on Google alone when researched. However, there is a distinct lack of research on the ripple effect that climate disasters will cause in regard to internal migration throughout Canada. The United Nations High Commissioner for Refugees (UNHCR) predicts that by 2050 there will be 25 million to one billion persons forced to migrate due to climate change (Becklumb, 2010). For those without the comfort of financial capital, migration will be the only way they can adapt to the effects of the climate crisis (Dickson, 2014). Large-scale human migration will increase, termed climate migration, due to resource scarcity and increased frequency of extreme weather events, particularly in the global south (Podesta, 2019). Drastic changes in Canadian eco-systems threaten eroding coastlines, severe storms, melting ice in the Arctic, and an increase in the frequency of forest fires (Mortillaro, 2019). While Canada may become a refuge for global citizens experiencing climate-induced displacement, Canadians could also be forced to migrate internally.

This paper will analyze the effects of climate change in the Canadian Prairies and in British Columbia and how it will affect migration in that region. Due to the fact that the Canadian Prairies hold only 18% of the Canadian population (Statistics Canada, 2022) but have 80% of the country's farmland, small groups of the population are responsible for cultivating Canadian produce. With climate-induced weather phenomena, this small population could be forced to move from their farms and livelihoods to live in cities when their land becomes barren. Provincial and Federal governments have currently given no consideration to climate-induced migration within the prairie provinces. The Province of British Columbia (B.C.) is one of the most environmentally aware of climate disasters with $1.2 billion in new funding for CleanBC (Government of British Columbia, 2022) and local projects on climate actions taking place. Although the Pacific province of B.C. borders the prairies these two regions have drastically different approaches to climate change and forced migration.

The Canadian Prairies

The Canadian Prairies span across the provinces of Manitoba, Saskatchewan and Alberta and contain more than 80% of the country's farmland (Government of Canada, 2015). As Canada's main producers of grains products such as: wheat, oats, barley, rye, flax, canola, mustard, and sunflowers; the prairies feed internal supply chains and are a major export for Canada (Morrison, 2015). Weather events such as ice storms, droughts and floods, an increase of hydrologic extremes in regard to greenhouse gasses or climatic warming will affect the prairies (Gan, 2000). According to the Nature Conservancy of Canada, the prairies are the world's most endangered ecosystem, comprised of temperate grasslands subject to little rainfall (Kraus, 2016).

Although the prairies are not dense in terms of population, they comprise 80% of the country's farmland (Government of Canada, 2015). The Prairies Regional Adaptation Collaborative (PRAC), a three-year inter-provincial project funded by National Resources Canada (NRCAN), developed the Regional Adaptation Collaboratives program from 2007 to 2011 to facilitate policy adaptation as a result of climate change. PRAC considers water resources management, drought, excessive moisture,

terrestrial ecosystems and suggests new policies to adapt to climate change (PRAC, 2012).

An article by Mcleman and Ploeger first published in 2011 in Springer Science and Business media on soil and its influence on rural drought migration was published after the NRCAN's Regional Adaptation Collaboratives and gives a historical analysis on migration in the Canadian Prairies during the largest drought in the twentieth century. The article focuses on the Swift Current district of Saskatchewan, where forests are unable to grow. Mcleman and Ploeger (2012) demonstrate the dispersal of people during the depression-era drought of southwestern Saskatchewan which highlights the link between soil quality, the hydrological cycle and human migration patterns. The text examines the dispersal of people out of Saskatchewan during the dust bowl of the 1930s, the image of barren lands, no rainfall and empty homes is told by Mcleman and Ploeger and could soon again become the harsh reality Canada will face due to the adverse effects of climate change. The dust bowl in the 1930's was a time of severe drought in North America, termed the dust bowl due to soil erosion and sky-darkening dust storms from over-plowing the severely dry land (Mcleman & Ploeger, 2012). The text greatly highlights the dispersal of people from southwestern Saskatchewan to other provinces or to northern Saskatchewan subject to a wetter climate (Mcleman &Ploeger, 2012). Thus, with an increase in temperatures and harsher weather conditions, using the findings from Mcleman in regard to the prairies and the outward migration from Saskatchewan, the region could see an influx of people partaking in interprovincial migration. Desertification in the area will thus lead to uncultivable land where people can no longer make a profit from produce sales.

There have been developments in research on the South Saskatchewan River basin that can imply similar future projections of community loss when climate change deteriorates the area, specifically in the book *The new normal the Canadian prairies in a changing climate* (Diaz et al., 2010). Currently, in rural Saskatchewan, there have also been major advancements in transportation networks, as noted in the research of Blaire (2010). Contrary to the dustbowl of the 1930s, if a severe drought were to arise, residents in Saskatchewan do not have to leave their community to find work but would have a longer commute. Therefore, although climate change will have an overall negative effect on the prairies, people might feel like they have more options to stay in the areas they are familiar with, as opposed to in the 1930s, when transportation networks were limited.

British Columbia

Climate change is predicted to develop quickly in B.C. compared to the global average, with the mean annual temperatures warming by 3°C to 5°C and precipitation raising nine to eighteen percent higher by 2100 (Pojar, 2010). In B.C. alone, there will be extreme weather events such as increasing severity of storms, floods, droughts and particularly wildfires, which have been readily seen in the past few years (Pojar, 2010). A survey of cattle ranchers in B.C. stated that 60% of 231 respondents have already changed their management styles due to climate change (Cox et. al., 2015). For cattle ranchers, adapting to the climate includes being able to supply adequate water sources for cattle and to have land available for them to forage; therefore, in order for their business and livestock to survive the effects of climate change, planning and the use of scientific knowledge is critical to reduce vulnerabilities in the ranching industry (Cox et. al., 2015). The instance of cattle farmers is crucial to note because with increased climate change it will be extremely difficult for these farmers to move their livestock to a location that is suffering less from climate disasters. With their livelihoods attached to the cattle, farmers are not able to migrate as freely as someone who works at a business not tied to its location.

In 2014, the Association of B.C. Forest Professionals (ABCFP), developed a wildland-urban interface (WUI) which can be described as a region or zone containing man-made developments and wildland simultaneously, which is an area where wildfires can easily destroy human development. In 2015, the ABCFP put out a report on how policies and practices lead to increased risks of forest fires stating that "in 2004, the Union of B.C. Municipalities and the Ministry of Forests and Range Protection Branch undertook a mapping project to identify moderate and high-risk WUI within the province. The analysis found that more than 684,000 ha of WUI were classified as high-risk" (ABCFP, 2015). This means that the

people living within that region are all at an extremely high risk of being evacuated during a forest fire. Although organizations such as the ABCFP are developing strategies to combat forest fires, they do not provide strategies or ideas to help people being displaced by the forest fires. Most of the academic literature discussing forest fires focuses narrowly on ecological impacts of forest fires and does not encompass both ecological and human migration factors. An increase in forest fires will also increase migration of people in the B.C. region.

The socio-economic systems of small or rural communities of B.C. are predicted to be greatly affected with increased ecological stress. Determinants of migration include familial connections as well as financial circumstances; therefore, if communities can create socio-economic relations to the community in times of climate change, then they may be less inclined to migrate out of that area. Drolet and Sampson (2016) list recognizing different adaptation strategies for different persons within the community to adapt to their knowledge and abilities, allowing them to be fully engaged in the community and put in a great amount of effort promoting social development. Drolet and Sampson highlight that "[a]ffected community members revealed an interest in sharing local knowledge and practices in support of sustainable social development and recognized the independence of social, economic, and environmental considerations" (2016, p. 71). Meaning that the government should invest in the development of infrastructure in affected neighbourhoods. This will also allow individual communities to adopt sustainable development practices ensuring humane and low-carbon lifestyles and sustainable livelihoods; this will also engage the public in education and advocacy to achieve sustainable approaches to life (Drolet and Sampson 2016). The interconnectedness and community lifestyle that this plan involves could make it increasingly difficult for people to decide to migrate away from their community due to the supported community. Community-based action in B.C. can be used to strengthen communities and their development projects in terms of climate change, and with the strengthening of community ties, people will be less inclined to move unless absolutely necessary.

Analysis and Comparison of Literature of the Prairies and British Columbia

Literature that explores the connection between internal Canadian migration and climate change within the prairie provinces demonstrates the complexities of migration in the Canadian context. Although climate induced migration is not officially recognized it will be a necessary repercussion of climate change. According to Mcleman's and Ploeger's research (2011) long-term droughts result in migration out of the prairies; therefore, with the increasing frequency and severity of droughts, it is likely that there will be a mass dispersal of people in that region. In B.C., there will be various climate catastrophes, but a majority of literature focuses on the effects of wild/forest fires in the province. Forest fires result in major land and property loss and force people to abandon their properties and homes, often at the last minute if there are changes in wind which carries the fire in different directions. Direct impact of forest fire damage is not the only cause for migration as many people are moving because of an increase in severe smoke levels (Wood, 2019). Air quality and UHI's are already impacting urban Canadian cities (Government of Canada, 2010). All forms of migration due to climate change are forms of forced migration and they could have been combated if countries, corporations, and people developed plans to combat it sooner. However, with provincial projects such as those highlighted by Baynham and Stevens (2013 and Drolet and Sampson (2016) in B.C., actions such as community planning are being used to combat climate change and preserve their areas. While the literature written on the prairies solely focuses on climate change's effect on the land, the literature on B.C. and climate implications is vast, connecting variables such as health, economy, and housing. This could be because B.C. is the country's leader in climate-related research and policies. Therefore, the literature surrounding climate change in B.C. has a more well-rounded approach and varying literature on the subject.

Suggestions for Missing Information and Future Research Topics

Based on the existing literature surrounding climate induced migration in the prairies, British Columbia is a strong example of how provincial

governments have taken climate action to protect their citizens. Research in Saskatchewan has demonstrated a need for research on future droughts in the region and how the displacement of farmers will affect Canada's food production. Although the topic of climate refugees is relatively new and internal migration throughout Canada is not widely studied, a greater understanding and emphasis should be developed and researched by not only the Government of Canada but also independent humanitarian organizations within Canada. Further development in this area as a whole can predict movements of the population with the rise of climate catastrophes and can co-relate migration patterns throughout Canada with socio-economic conditions, mental health conditions and their link to climate change. This information will help to clarify needs and changes that are already happening in regions affected by climate change; if they address necessities for communities that are experiencing harsher conditions due to climate change, then perhaps resources can go to those areas to help preserve their communities. Or, if it is predicted that specific regions of the country will need to migrate to another, then the communities that are accepting the interprovincial migrants can aid them with their integration into the community before the situation becomes too harsh.

Research pertaining to the prairies contains a multitude of graphs and studies of the land and soil, demonstrating the effects climate change will have on the region, but there needs to be more preventative action from the affected regions and provinces alike. In B.C., some people look at the topic through a humanitarian perspective and others through an environmental perspective, but in the prairies the literature mainly discusses environmental implications. More research encompassing specific socio-economic relations, community relations and migration needs to be developed further. There seems to be a large divide between scientific research and abstract or conceptual research when it comes to climate change. Therefore, a branch between those two subject fields will allow this topic to become more well-rounded.

Conclusion

This literature review has developed the concept of climate change in regard to migration in Canada, not only international migration from climate refugees but also through an internal migration standpoint. This review has found that Canada's federal and provincial governments need to not only create an action plan to support refugees from around the world but also from within Canada. How are major cities going to be able to support an influx to their population and will there be enough affordable housing when needed?

There needs to be immediate action to preserve and save the Canadian Prairies: they are not only a main food source for Canadians and people around the globe, but farming and agriculture is a source of income for so many Canadians. Desertification of the prairies will not only create a lack of food supplies but could make the land barren altogether. The effects of wildfires also affect people across the country with smoke traveling from B.C. heavily in Alberta and even making its way as far as Ontario, the government therefore needs to create an action plan to combat wildfires and prevent them, instead of using removal of people as their first resort.

People are not addressing internal migration in Canada related to climate change because the severity is believed to not be as extreme as in other countries. According to Dickson and colleagues (2016), they note the widespread idea that Canada has a global duty to accept climate refugees due to its contribution to the fossil fuel industry; well, not only that but as a humanitarian issue as well. Canada has a duty to protect its citizens by developing strategies to combat climate change and protecting climate refugees in Canada.

Canada is a country where climate change is considered to be not as intense as other countries, particularly in the global south; however, we are already seeing climate refugees within our own country. Canada, unlike other countries, does have the advantage of having a vast land with a relatively small population; this means that it should be able to support its own climate refugees and those from around the world as well. However, if Canada and individual provinces alike do not prepare for climate refugees and climate catastrophes, then when they come, the country could be left in chaos. Climate predictions indicate that the effects of climate change will increase slowly and will not be abrupt, but it is unsure when

climate emergencies will fully arise and become an increasing problem for not only Canada, but the entire world. Therefore, Canadian literature on migration should continue to develop all ideas and concepts surrounding climate impacts, including the study of climate refugees and forced migration within Canada.

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