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**Strengthening the resilience of vulnerable groups
to climate change in cities through city efforts:** Mitigating
vulnerability by including all voices in the process of
sustainable urban development and climate action in
Montreal

By Valériane Buslot
Social Connectedness Fellow 2018
Samuel Centre for Social Connectedness
www.socialconnectedness.org
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Table of contents

ABSTRACT

This research explores the policies and programs that are implemented in Montreal regarding the issue of increasing vulnerability and social exclusion of the most vulnerable populations due to climate change. It explains how climate change, social isolation, urban development and public participation are all intrinsically related. It assesses the sustainability and inclusion of voices of vulnerable groups in these projects and programs. Major challenges that were found about those policies and programmes included: unequal sustainable development projects, gaps in data collection, little citizen mobilization and collaboration between partners, inadequate long-term financials/funding, and governance and administrative barriers.

Key recommendations are:

- Data: Homogenizing data collection by setting norms and regulations. Setting up a program to check whether the data translates on the field reality. Using technology to collect missing data but also use it to share information with citizens.

- Mobilization of citizens: Use of online platforms, adapted workshops and reaching out to the vulnerable populations to make accessibility to public consultations easier for vulnerable populations. Reducing administrative barriers and simplifying the process of the Citizen's Right Initiative. Implement programs to educate people about the effects of climate change in their daily life.

- Collaboration and partnerships: Create a policy to have proportional representation (of citizens (age, gender, culture, origins), NGO's, businesses, foundations, institutions, politicians, etc.) during roundtables or public consultations. Measure the involvement of different stakeholders through indicators, which are used in the process of decision-making to make sure that everyone is taking part equally in the project's decisions.

- Measuring the effectiveness of programs and policies: Implementing a feedback process to measure the effectiveness of policies and program. Additionally, develop a checklist to ensure the process for projects ensures a minimum level of inclusiveness.

INTRODUCTION

Today's society is experiencing an increasing imbalance in social inequalities. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO): "We live in a world where the richest 1% of the adult population owns 40% of global assets, while the bottom half of the adult population owns only 1% of global assets."[1] This trend is predicted to increase to a staggering 1% of the richest population owning two thirds of the global wealth by 2030.[2] For the first time, in 2008, more than half of the world's population lived in urban areas and it is only expected to grow.[3] Unfortunately, rapid and unplanned urbanization often leads to increased poverty, environmental degradation, and puts stress on limited services and infrastructure. Adding to the already growing trend in inequalities is climate change. Increasing temperatures, water stress, heavy flooding, and many other extreme weather events will only further exacerbate the already existing inequalities in many cities. It is expected that the poor and most vulnerable populations will be the ones who bear the biggest burden, as they will have fewer resources to adapt to the changing conditions.[4]

Montreal has acknowledged this issue and has voiced their interest in being a leader in tackling climate change and building a more resilient and socially equal city. In this paper, I look at the relationship between climate change, social isolation, inequality and vulnerability in cities, and how the City of Montreal is tackling these issues. It is important to mention that I do acknowledge that there are other factors at play concerning people's vulnerability than just climate change. First, I will explain important concepts, such as social isolation, vulnerability, climate change, resilience, citizen participation and urban development.

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[1] Ahmimed, Charaf, Malcolm MacLachlan, and Hasheem Mannan, Policies for Social Inclusion, UNESCO, 2014.
[2] Michael Savage, "Richest 1% on Target to Own Two-thirds of All Wealth by 2030," The Guardian, 2018.
[3] Bryan Walsh, "Urban Planet: How Growing Cities Will Wreck the Environment Unless We Build Them Right," Time, 2012.
[4] UNFCCC, "Combination of Climate Change and Inequality Increasingly Drives Risk," 2018.

Secondly, I will go over the main stakeholders in this issue and analyze the trends between social isolation and climate change in cities and who are the most vulnerable populations. Thirdly, I will look at the programs and projects that have been implemented in Montreal. I will see whether public participation in those initiatives is inclusive or not. Lastly, I will go over best practices in public participation that are helping to make vulnerable populations more resilient, and propose policy and program recommendations that could be adopted in Montreal.

METHODOLOGY AND APPROACH

This research was produced in partnership with Data-Driven Yale (DDY). The purpose of the collaboration was to see how the quantitative data of the new index developed by DDY could be translated and used in a particular context, like in Montreal. The index is called the Urban Environmental and Social Inclusion Index (UESI). It covers over 30 cities and leverages geospatial data to gain insights into how climate change, pollution and socioeconomic status are linked in cities around the world.

The report is mainly based on field research, literature reviews, and event and congress participation in Montreal between May and August 2018. All interviews were voluntary and conducted in either French or English.

The first few weeks of research focused on literature reviews, attending events, and looking into what organizations and initiatives exist in Montreal and the challenges face. The second part of the research consisted of outreach and interviewing relevant stakeholders (citizens, nongovernmental organizations (NGOs), institutions, city officials, CEO's) involved in creating inclusive climate action in Montreal. The research from part one guided the

creation of general interview questions and contact people for outreach. The questions addressed the challenges facing the most vulnerable populations regarding climate change; the initiatives and policy changes required to tackle these challenges; the role of institutions, mayors and neighbourhood councils to ensure the public participation of the most vulnerable populations; and how the concept of social connectedness ties to the issue of climate change vulnerability.

During interviews, participants could choose to fully identify their name and the organization they represented, or remain anonymous by name and/or organization. Throughout the research, 15 structured interviews took place either in person or on the phone, ranging from 30 min up to one hour and 30 minutes. In addition to asking general questions, a few additional questions were tailored to each person interviewed based on their previous or current lived experience in public participation with or as vulnerable populations for a better understanding of some issues.

KEY CONCEPTS

Social isolation can be defined as an indefinite disconnect from others. Being isolated is not just a physical circumstance but can also be a mental state as well.[5] Urbanization relates to social isolation in that in the past decades many modern cities have been designed around cars, at the expense of parks, public spaces and common spaces where people naturally get together.[6] Another trait of cities is the great diversity of people coming from different cultures

[5] Kim Samuel, Alkire Sabina, Zavaleta Diego, Mills China, and John Hammock. "Social isolation and its relationship to multidimensional poverty." *Oxford Development Studies*, 2018.
[6] Kim Samuel,"Building For Belonging." Resurgence • Learning from Nature. 2015.

in one place. Diversity is usually seen as a positive vector for change, but the increase of different cultures can also lead to a greater chance to social isolation compared to smaller communities.[7] This is a big issue knowing that the expected urban population[8] and urban dwellers are expected to increase[9]. Those displaced primarily due to climate related disasters is likely to increase as well. As Charles Geisler, a sociology professor from Cornell University, concluded, by the year 2100:

"Rising sea levels could force up to 2 billion people inland, creating a refugee crisis among one fifth of the world's population."[10]

However, neither the Paris agreement nor the United Nations Summit for Refugees and Migrants addressed the direct human cost of climate change.[11] Social isolation and environmental degradation as a consequence of climate change affect immensely the most vulnerable populations in cities. Pope Francis said: "Big cities also conceal the faces of all those people who don't appear to belong," for it is these "second-class citizens"—including the poor, the elderly, and children—who are disproportionately at risk of diseases caused by air pollution and other environmental hazards."[12]

Vulnerability in this context is defined as "the diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of a natural or man-made hazard."[13] It is thus important to include all voices, through public participation,

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[7] Roelof Hortulanus, Anja Machielse, and Ludwien Meeuwesen. Social isolation in modern society. Routledge, 2006.

[8] Bryan Walsh, "Urban Planet: How Growing Cities Will Wreck the Environment Unless We Build Them Right," Time, 2012.

[9] Patricia McCarney,"City indicators on climate change: Implications for policy leverage and governance", World Bank's 5th urban research symposium cities and climate change: responding to an urgent agenda, 2009.

[10] Alexander C. Kaufman, "Climate Change Could Threaten Up To 2 Billion Refugees By 2100," HuffPost, 2017.

[11] Hamsa Vijayaraghavan and Deepti Somani, "As Climate Change Worsens, India Must Consider a Policy on Environmental Migration," The Wire, 2016.

[12] Kim Samuel,"The Urban Condition Is the Human Condition," The Huffington Post, 2017.

[13] IFRC, "What Is Vulnerability?" The Seven Fundamental Principles", 2018.

when creating, deciding or implementing new projects that will impact the citizens themselves.

Public participation entails "the exercise of democracy or active citizenship in a debate on public policy issues."[14] This practice can develop for citizens a sense of belonging to to their community, generating many positive impacts, particularly in terms of inclusion and social cohesion. This must all be in the purpose to seek sustainable development, which implies, "economic development effective, socially equitable and ecologically sustainable while resting on a new form of governance, which encourages the mobilization and participation of all civil society actors in the decision-making process."[15] Dominique Ollivier, President of the Public Office of Consultation in Montreal (OCPM), said during our interview that consultations are key because:

"A bad idea mentioned a thousand times will be a bad idea but a good idea mentioned once can be the solution."[16]

However, misuse of public consultations (for example, when the final decision seems already made before starting the process) contributes to citizens' loss of confidence in their institutions, while decision makers see them as a considerable loss of time since citizens do not have the capacity and the knowledge necessary to discuss certain topics with specialists.[17]

On the contrary, climate change can also foster belonging and connectedness in communities. For example, through activities to mitigate or adapt to climate change and to increase the resiliency of populations, people connect, share, and built together new possibilities for a more sustainable future. Such activities can, for example, include increasing

[14] Ville de Montréal, Programme Quartier 21 : Aménager des quartiers durables- cadre de référence, 2010, p.2.
[15]Ibid.
[16] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
[17] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.

green spaces in the city by having a community garden or planting trees in the neighbourhood, which promotes social ties and a sense of community from children to older people.[18]

RELEVANT ACTORS AND STAKEHOLDERS

In total, there are four key stakeholders that play a major role in the process of either exacerbating vulnerable populations' circumstances or helping them overcome the obstacles they face in their daily lives, for instance, by representing them in decision-making processes, including them in data, consultations, etc.

First and foremost, an important decision maker to promote inclusive climate action, are the ones who are affected by it, meaning the most vulnerable populations. They need to rally together, voice their discontent and cooperate with other stakeholders to be able to participate in this transformative approach. A barrier to their participation is the fact that most of them live in low-income neighbourhoods in Montreal. People tend thus to have less time, capacity and financial capabilities to be aware of and make it to consultations or other events.

A second key player is the public sector, which includes the City of Montreal and other institutions like the *Office de Consultation Publique* (OCPM. They have an important role in congregating diverse stakeholders in the decision-making process and in drafting and implementing new policies, projects and programs related to climate mitigation and adaptation. The City of Montréal, although a key player, faces many barriers to change "as the organization and the way they operate is very slow and bureaucratic."[19]

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[18] Andrew CK Lee and Ravi Maheswaran. "The health benefits of urban green spaces: a review of the evidence." Journal of public health 33, 2011.
[19] Julie Guicheteau (Ville de Montréal) interviewed by Valériane Buslot, Montreal, QC, June 28, 2018.

Thirdly, community organizations, *Tables de quartiers*, neighbourhood associations, and NGOs play a key function in the transmission of information during assemblies. As local experts, they share their knowledge on local issues that they are more familiar with and are thus able to give a more realistic perspective on issues that are being treated. They are also able to implement local projects that reflect the reality of their residents.[20]

Lastly, the role of the private sector is usually forgotten when talking about sustainable development in cities. However, nowadays, businesses, promoters, and investors play a major role in providing funding to initiatives, such as the Green Climate Fund, and putting climate change mitigation at the basis of their business models. In addition, they also provide support to the government and other organizations, and take the lead in low-carbon initiatives.[21] Nevertheless, businesses can also further exacerbate the situation of vulnerable populations if stakeholders working on private large-scale projects decide to prioritize economic profits before the needs of the population during the decision-making process.

CONTEXT OF MONTREAL

In Montreal, between 2001 and 2012, the number of people who were included in the working poor grew by more than 30 percent, going from 91 000 up to 126 000 people. Most of these people were single parents, mainly women, or recent immigrants, who are five times more likely to be part of this category.[22] Furthermore, in Montreal it is projected that in the

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[20] Cédric Beacher (CEO of Nomadeis) interviewed by Valériane Buslot, Montreal, QC, at Movin'on, June 1, 2018.

[21] Theodore Panayotou, The role of the private sector in sustainable infrastructure development. Harvard Institute for International Development, 1998.

[22] CBC,"More Working Montreal-area Residents Living below Poverty Line, Study Finds | CBC News." CBCnews, 2016.

region, due to climate change, there will be more rain and more frequent heavy rainfalls, higher average temperatures, and longer heat waves.[23] This year's summer is already a good example of what is to be expected in the future, with already five heat waves.[24] More than 80 people died from extreme heat in Quebec in July. It is predicted that Canada could see five times more heat-related deaths between 2031 and 2080, compared to numbers based on statistics from 1984 to 2015.[25] Social inequalities, for instance, to adapt to climate change, directly translate into health issues and affect life expectancy. Director of Centraide, Lili-Anna Persea said in 2016 that: "In Montreal, there is an 11-year discrepancy in life expectancy between some rich and poor neighbourhoods."[26] Those results show us that neighbourhoods where poorer individuals/families live, such as Parc-Extension, Côte-des-Neiges, Little Burgundy and others, should be included in data collection, decision-making processes, policy recommendations, and implementation of new projects and initiatives to make sure climate action and sustainable development are socially inclusive and target the right people.[27]

The United Nations has acknowledged the importance of cities, producing 80% of the global GDP[28], which is why Sustainable Development Goal number 11 goal is to "develop for 2030 sustainable cities and communities."[29] In fact, Montreal was the first Canadian city to

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[23] Roger Lachance, Climate Change Adaptation Plan 2015-2020 - Executive Summary, City of Montréal, 2015.
[24] Susan Schwartz, "Getting to Know Elderly Neighbours during Heat Wave Could save Lives." Montreal Gazette, 2018.
[25] Alexa Taylor, "New Research Predicts Heat Waves in Canada Could Become More Frequent - and Five times More Deadly," National Post, 2018.
[26] CBC, "More Working Montreal-Area Residents Living below Poverty Line, Study Finds | CBC News." CBCnews, CBC/Radio Canada, 2016.
[27] Alexa Taylor, "New Research Predicts Heat Waves in Canada Could Become More Frequent - and Five times More Deadly," National Post, 2018.
[28] Richard Dobbs, Sven Smit, Jaana Remes, James Manyika, Charles Roxburgh, and Alejandra Restrepo. "Urban world: Mapping the economic power of cities." McKinsey Global Institute, 2011.
[29] United Nations. "#Envision2030 Goal 11: Sustainable Cities and Communities Enable", 2017.

submit its resiliency plan, offering a five-year vision with measures to foster the city's capacity to respond in a resilient way to climate uncertainties. The city is also a member of the C40 [30] and 100Resilient Cities [31] networks and has hosted this year's ICLEI World Congress.[32] Although there are initiatives taken to tackle these issues, it is key to first discuss which populations are the most vulnerable.

Most Vulnerable Populations in Montreal to Climate Change

There are five groups of people that are most vulnerable to climate change: mainly low-income families such as immigrants and refugees, older people, children, people with disabilities, and homeless people. According to the *Réseau québécois de villes et villages en santé* (RQVVS), among the recently arrived, young families and especially the elderly, 15 percent of them live in a state of social isolation and are thus more vulnerable to the effects of climate change.[33]

Immigrants & Refugees

33 percent of the population in Montreal is made up of immigrants. The biggest immigrant populations are from Italy, Haiti, France, and China.[34] However, in recent years, due to political tensions across the border in the U.S., or from the Syrian war, which generated the largest refugee flow since the Second World War[35], there has been a flood of refugees

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[30] C40, "C40 Cities: Why Cities? Ending Climate Change Begins in the City." 2018.
[31] 100 Resilient Cities. "Montréal - 100 Resilient Cities." 100 Resilient Cities Bangkok Unveils First City Resilience Strategy to Build More Prepared Livable Competitive Capital Comments, 2018.
[32] ICLEI. "Main Outcomes of the World Congress: ICLEI in the Urban Era." ICLEI World Congress 2018. Accessed August 24, 2018.
[33] Susan Schwartz, "Getting to Know Elderly Neighbours during Heat Wave Could save Lives." Montreal Gazette, 2018.
[34] Roger Lachance, Climate Change Adaptation Plan 2015-2020 - Executive Summary, City of Montréal, 2015
[35] Aryn Baker, "How Climate Change Is Driving Migration to Europe," Time, 2015.

entering Canada. In addition, climate change is also exacerbating the forced displacement of people around the world. So-called "eco-refugees", like Irene, who was interviewed in 2016 by journalist Nicholas Keung for the Star Journal, came from Bangladesh with her family because of the air pollution to settle down in Canada. [36] According to the Internal Displacement Monitoring Centre, 19.3 million people were displaced worldwide in 2014 due to climate change. Studies predict that the number could be between 250 million and one billion by 2050. [37] Overpopulation in cities will lead to inaccessible health services and education, worsening living conditions, job losses, and more. It is easy to see how the already vulnerable people moving to the cities and the poor that already live in the cities will be even worse off. Neighbourhoods, like Parc-Extension, the poorest and one of the most diverse neighbourhoods in Montreal, attracts many new immigrants and refugees, because of the lower rents and diversity of people living there. However, citizens living in this neighbourhood might be the ones who will suffer the most first, as it is hard for them to access health services, even though there are services in this area.[38] Jillian Ritchie from the Collective Community Services spoke about this issue in access:

"We see language can be a huge barrier to accessing social health services/.../ especially with immigrants and refugees coming in. English or French may not be either of their primary languages, they may communicate better in English, but because of this system, you know all of our CLSCs and government is all in French. So I see that from my perspective being a huge barrier, the fact that we do live in a bilingual country, but really the prominent social health services are available in one language. /…/ Cultural components can really be an additional complexity when trying to treat an already complicated situation, so I surely think diversity and multilingualism is one of the strengths of the city, but when it comes to social health services, I think that is a huge challenge."[39]

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[36] Nicholas Keung, "Environmental Migrants Breathing Easier in Canada," Thestar.com, 2016.

[37] Centre, Internal Displacement Monitoring, and Norwegian Refugee Council. "Global Estimates 2013: People displaced by disasters." *Geneva: IDMC,* 2014.

[38] Centraide, « Portrait : Villeray, Saint-Michel, Parc-Extension », Analyse Territoriale 2015-2016, 2016.

[39] Jillian Ritchie (Collective Community Services), Interviewed by Geneviève Westgate, Montréal, QC, June 14, 2018.

Older People

When Montreal was hit with five heat waves this summer, it was the most vulnerable populations who suffered immensely. According to public authorities, "Most of the victims were between the ages of 50 and 85 who lived alone in 'heat islands' in high-rise apartments with no air conditioning, or suffered from chronic health or precarious living conditions, including homelessness, mental health issues and substance use."[40] The majority of the victims either lived alone or had underlying physical or mental health problems.[41] "This is a major concern as the number of people aged 65 and over living alone grew by 1.1%, from 93,720 people in 2006 to 94,725 people in 2011."[42] This means that more than one third of senior citizens on the island of Montreal live alone. Older people, ranging between 65 and 88 years old at the Centre for grandparents in Villeray, expressed their opinion concerning this topic:

"Some of us don't have the means to have air conditioning. It is hard because I don't sleep well because of the heat."

"Being asthmatic, I need to schedule my day according to the weather to suffer less. Extreme weather, hot or cold, isolates us in our homes as it is too risky for us because we are more vulnerable to falling, with ice and snow, or diseases, during heat waves." [43]

Children

Younger generations tend to be overlooked, but they are at the forefront of this issue as they will be the ones to live the longest and be affected the most by our actions today and

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[40] Allen McInnis, "Heat Wave: 33 Quebecers Have Died, 18 in Montreal, Health Officials Say," Montreal Gazette, 2018.

[41] Amy Fleming, Ruth Michaelson, and Oliver Holmes, "Heat: The next Big Inequality Issue," The Guardian, August 13, 2018.

[42]Roger Lachance, Climate Change Adaptation Plan 2015-2020 - Executive Summary, City of Montréal, 2015, p14.

[43] Centre Grands Parents de Villeray, Interviewed by Valériane Buslot & Geneviève Westgate, Montréal, QC, 2018.

the consequences of climate change over time. Children are estimated to bear 88% of the burden of disease related to climate change. Hurricanes in the United States like Katrina, Harvey and Irma have impacted a lot of children's health as well as extreme heat waves and emerging infectious pathogens such as the Zika virus.[44] In Montreal, the numerous heat waves encountered this year are a serious concern for children. In the past, parents would encourage playing outside for fresh air. However, nowadays, smog warnings are occurring frequently and putting children's health at risk. According to the World Health Organization (WHO), Montreal comes dangerously close to the recommended limit for air quality. It is known that inhaling pollutant particles can lead to asthma, lung disease, cancer, mental health conditions, diabetes, and dementia.[45]

"Children suffer more heat impacts because they spend more time outside. They are more vulnerable to the heat-related increases in air pollution that come from fossil fuel exhaust because their lungs are still developing. Outdoor play also makes them more prey to insect vectors carrying dangerous infections."[46]

People with Disabilities

CBM, an international Christian development organization, committed to improving the quality of life of people with disabilities in the poorest communities of the world, says that of the world's poorest and most vulnerable people that climate change is having the largest impact on, 20% are people with disabilities. The main issue regarding complications for people with disabilities due to climate change is the impact it has on their quality of life and well-being. [47] Issues that are likely to affect them according to CBM is:

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[44] Jacqueline Howard, "Climate Change Has Pediatricians Worried," CNN, 2018.
[45] CBC. "Death Toll Jumps to 34 as Heat Wave Continues to Bake Southern Quebec | CBC News." CBCnews, 2018.
[46] Dr. Mona Sarfaty, (executive director of the Medical Society Consortium on Climate and Health and director of the program on climate and health at George Mason University's Center for Climate Change Communication) Interviewed by Jacqueline Howard, CNN.
[47] David Lewis and Kath Ballard. "Disability and Climate Change."

"Decreasing food security and resulting malnutrition, decreasing access to clean water, sanitation and hygiene (WASH), increasing emergencies due to extreme weather events, reducing access to infrastructure, shelter and basic services, increasing displacement / migration or necessary migration not possible due to disability, increasing human security and protection issues (including due to conflicts resulting from climate change)."[48]

Homeless People

Homelessness affects an estimated 100 million people around the world.[49] In Canada, it is estimated that more than 235,000 Canadians experience homelessness in a year. Volunteers counted, in March 2015, 3016 people sleeping on the streets or in shelters in Montreal. The homeless are amongst the most vulnerable groups in developed regions, suffering from high rates of chronic disease, smoking, respiratory conditions, and mental illness, all of which makes them "more vulnerable to new and resurgent disease processes associated with climate change."[50] This could result in greater rates of illness and death due to increases in heat waves, air pollution, storms and floods, and vector-borne diseases resulting from climate change.[51] Additionally, it is hard to diagnose sometimes people with mental illness or people who have drug or alcohol dependency, as their decision-making is compromised and their symptoms are not as obvious to detect if they are intoxicated.[52]

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[48] Ibid. p3.
[49] Homeless World Cup Foundation, "Global Homelessness Statistics," Homeless World Cup Home, 2018.
[50] Perrin Grauer, "Climate Change Hit Poorest Canadians the Hardest, Say Experts," Thestar.com, 2018.
[51] Ibid.
[52] CBC, "Keep an Eye out for Montreal's Homeless during the Heat Wave, Old Brewery Mission CEO Says | CBC News," CBCnews, 2018.

Locality of Vulnerable Populations in Montreal

In Montreal, most of the vulnerable populations live in specific neighbourhoods of the city. Looking at Appendix 1 and 2, we can see that low transportation access, higher air pollution concentration, lower tree cover, and higher urban heat island affect most of the neighbourhoods in Montreal where people have the lowest income. [53] Jillian Ritchie, from Collective Community Services, said:

"I do see in this part of the city that there is a greater number of homeless people; there is very clear poverty here. From an environmental perspective, I can see that specifically in LaSalle which is a community that is very isolated, and it doesn't have a really centred part of the area. There is also a very large number of refugees there, and living in low-income housing, there isn't the same kind of transportation in that city. The environmental impact that I see is isolation. You know, because they don't have the opportunities to be using public transport, there could be a language barrier, and culturally just family dynamics are very different here. So I think isolation would be the biggest impact of all of these challenges."[54]

The Importance of Data

Data plays an important role in the representation of those vulnerable populations. Tools like the Urban Environmental and Social Inclusion Index (UESI) can help map out and see which neighbourhoods are most disadvantaged and need more attention regarding climate change resilience. Like Dr. Angel Hsu, Director of the Yale Data-Driven Environmental Solutions Group and formerly Principal Investigator of the Environmental Performance Index, stated "Data makes the invisible visible," and "We can only treasure what we measure." She underscores the importance of tools like the UESI in driving awareness and action at the city level.

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[53] Data-Driven Yale, Urban Environmental and Social Inclusion Index, Portal, 2018.
[54] Jillian Ritchie (Collective Community Services), Interviewed by Geneviève Westgate, Montréal, QC, June 14, 2018.

KEY PROGRAMS AND PROJECTS DEVELOPED

As mentioned earlier, Montreal promotes itself as one of the leaders in adopting a sustainable development approach that is inclusive for all. Montreal adopted the Agenda 21, which was developed at the United Nations Conference on Environment and Development in 1992 in Rio de Janeiro (Earth Summit). This agenda is a guide to implementing sustainable development for the 21st century.[55] Since then Montreal has developed its first sustainable development plan for 2005-2009 and has worked recently on their latest plan for 2016-2020.[56] There are 3 major goals identified in the plan: reduce GHG by 80 percent by 2050, fight inequality and promote inclusiveness, and set Montreal as an example in sustainable development practices. The second goal addresses the need for more inclusive participation towards making the population, including the most vulnerable ones, more resilient to climate change and adopting more sustainable practices.[57]

"As the government closest to citizens, Montreal is on the front lines when it comes to managing diversity, equity, and economic and social inclusiveness. That is why the city plans to put forward innovative urban practices that will promote interrelationships, develop a sense of belonging, adopt healthy lifestyle practices and create connected and healthy neighbourhoods. /.../ The city will also take advantage of all available opportunities to encourage the active participation of all citizens in the democratic process."[58]

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[55]Ville de Montréal, Programme Quartier 21 : Aménager des quartiers durables- cadre de référence, 2010, 3
[56]City of Montréal, "Background on the Approach," Ville De Montréal - Borough Côte-des-Neiges-Notre-Dame-de-Grâce - Recycling, 2018,
[57]City Of Montreal, « Sustainable Montréal 2016-2020 : Together for a sustainable metropolis», 2016, 11
[58]Ibid.

Programs

Quartiers 21

Initiated in 2005 as part of Montreal's First Strategic Plan for Sustainable Development, Quartiers 21 is inspired by the United Nations Agenda 21. It is an experimentation tool that supports and finances sustainable development projects at the local level. Between 2005 and 2010, 16 projects were set up to apply sustainable development principles at the community level. These projects have promoted awareness and citizen participation in environmental, social and economic issues, as well as the consultation of all local stakeholders: institutional, community and private. The participation of local residents in the consultations varied from one project to another. The funding came from two organizations: the City of Montreal, and the Public Health Department of the Montreal Health and Social Services Agency.[59]

Projects

Integrated Urban Revitalization Projects

Another initiative that the City of Montreal has created to fight against poverty and social exclusion is setting up an integrated urban revitalization (RUI) strategy. Montreal has some 20 sectors with a high concentration of poverty. Concerned about this situation, the City of Montreal received funding from the Quebec government to implement 12 integrated urban revitalization initiatives in as many neighbourhoods as possible. Through this program, specific investments are injected to combat poverty and exclusion. The projects are done using cross-sectoral and multi-network partnerships and are based on citizen participation

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[59] Multim. Montréal (Quartiers 21), 2018.

and self-determination of communities at all stages of the process.[60] It is said that the RUI "philosophy" is based on the concept of an integrated approach to collective action that has the following four characteristics (4 M's): multisectoral; multi-level, multi-scalar and multi-partnership.[61] The main goal of RUI is to involve the ongoing participation of actors from deprived neighbourhoods, as well as their community associations, in the joint design of integrated responses to their own problems.[62] The boroughs the projects are set in are the poorest neighbourhoods in Montreal such as: Ahuntsic-Cartierville, Lachine, LaSalle, Mercier–Hochelaga-Maisonneuve, Montréal-Nord, and Villeray–Saint-Michel–Parc-Extension.[63]

Collective Impact Project (CIP)

The goal of the CIP is to help increase the impact of local collective action so that communities can achieve measurable and significant results to reduce poverty in Montreal neighbourhoods.[64]

> *"In spring 2016, 17 Montreal neighbourhoods were selected to join the first wave of the Collective Impact Project. Each of these neighbourhoods has its unique issues, strengths, challenges, and vision for the future. But what they all have in common is a firm commitment to a collective process to improve their communities and their living conditions."[65]*

The Collective Impact project has successfully created on June 16, 2018 a neighbourhood roundtable, after two years of collective work, in one of the most ethnically diverse and low-income neighbourhoods of Montreal, as mentioned earlier, Parc-Extension.

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[60] Réseau Québécois de villes et villages en santé, "Revitalisation Urbaine Intégrée", RQVSS accueil, 2018.

[61] Margarida Queirós,"Integrated Urban Revitalisation in Montreal: lessons from local development initiatives." Finisterra-Revista Portuguesa de Geografia, 2010, 62.
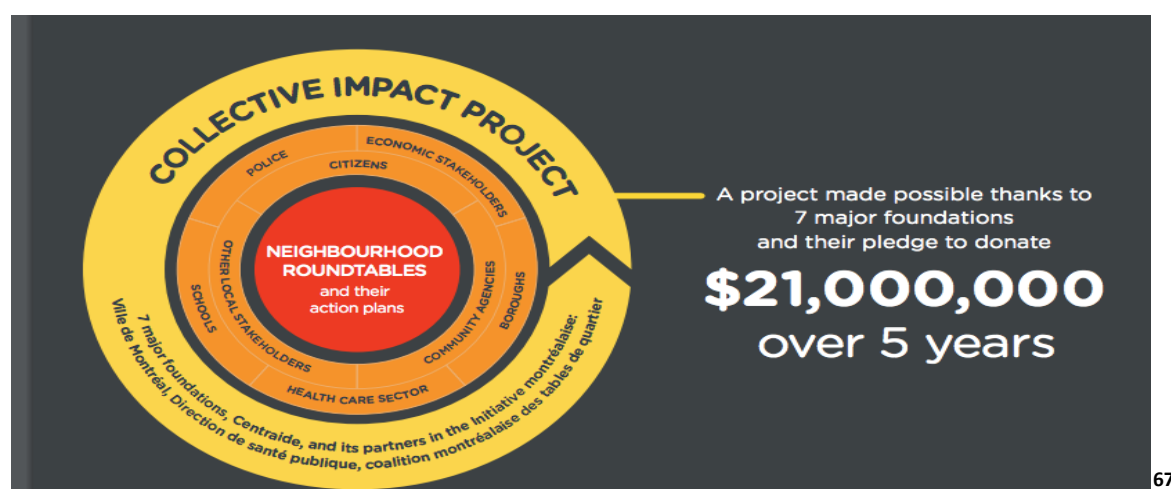
[62] Ibid, 56.

[63] RQRI, "Les démarches territoriales intégrées, pour agir collectivement dans la lutte contre la pauvreté et l'exclusion sociale", Ministère du Travail, de l'Emploi et de la Solidarité sociale, 2016, 5.

[64] Centraide, "Collective Impact Project: Joining Forces to Accelerate Change," Centraide - EN, 2018.

[65] Ibid.

[66] Hopefully, this new platform can give a voice to all citizens of the neighbourhood in the future regarding project decisions, concerns in their daily life, proposal initiatives, etc.

Institutions

Specific institutions have been created, since Montreal adopted Agenda 21, such as the *Office de Consultation Publique de Montreal* (OCPM), which was founded in 2002. It is an independent organization that collects citizens' opinions on a variety of topics. Its members are neither elected officials nor municipal employees and lead the debates in all neutrality. A public consultation of the OCPM allows an in-depth understanding of a project and its issues. It gives citizens a voice, allows them to ask questions and collects their points of view in order to prepare recommendations for the elected decision.[68] Initiatives such as the "Citizen's right of initiative", where citizens can demand their own consultation on a specific project, is key for citizens to voice their opinions and concerns.

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[66] Centraide, "Parc-Extension," Centraide - EN, 2018.
[67] Centraide, "From Idea to Action- New Collaborative Model", 2018.
[68] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.

Another institution, but that was created in 1977, is *Trajectoire Quebec* who "intervenes in the promotion of citizens' rights in public transportation throughout Quebec."[69] The association supports access to affordable, safe and quality mobility services.

Law

On June 15, 2017, Bill 122 was passed in Québec. It is stated that this new bill is: "An Act mainly to recognize that municipalities are local governments and to increase their autonomy and powers."[70] This bill officially recognizes cities in Quebec as local governments and gives them more power and autonomy. The bill proposed to strip cities of the power to hold citizen referendums, which was heavily criticized by different commercial and local groups during hearings. Jean-François Lisée, leader of political party Parti Québécois, explained that after a long debate they came to a compromise: "Every city that decides not to use the referendum tool, will have a basic public consultation policy – not any consultation policy, but the one that is enshrined in the law."[71] The City of Montreal already has a public participation policy, the OCPM. However, Bill 122 requires Montreal to review its policy because the abolition of the referendum will leave gaps, and change the dynamics of recourse to the OCPM. It would, therefore, be necessary to define more precisely the cases that must be submitted to the OCPM. [72]

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[69] Trajectoire, "À Propos," Trajectoire Québec, 2018.
[70] National Assemby Québec, "Bill N°122: An Act Mainly to Recognize That Municipalities Are Local Governments and to Increase Their Autonomy and Powers - National Assembly of Québec," Loi électorale - Assemblée Nationale Du Québec, 1.
[71] Raquel Fletcher, "Quebec Government Reverses Decision on Abolishing Referendums," Global News, 2017.
[72] Ibid.

GAPS IN THE PROGRAMS AND PROJECTS

Though Montreal has taken some great initiatives to increase citizen participation in building resilience and having a voice in their own community planning, there are some major challenges that have been rising up along the way. The challenges are of the next order: not so equal sustainability development projects, highly reliant on the citizen's participation in poor neighbourhoods – the mobilization of citizens (cost, time, frequency), the collaboration between partners, financials/funding, data; and governance and administrative barriers.

Unequal Sustainable Development Projects in Montreal

There is an extension of University of Montreal's campus that is being promoted as "the highlight project" of the sustainable development plan of Montreal. It looks like a wonderful project at first sight, as it is set in one of the poorest boroughs in Montreal called Villeray-Saint Michel-Parc-Extension.[73] Where there are the most vulnerable populations, there is also the most potential to increase their resilience to climate change. Villeray-Saint Michel-Parc-Extension exactly represents this as it is a low-income, highly diverse and densely populated area. It ranks as one of Canada's poorest neighbourhoods and first place in poverty in Montreal, with 44 per cent of the neighbourhood earning a low-income. It is the second most populated borough in the city, with a population of 142,225 residents in which 60,000 are immigrants. The top five countries of origin of immigrants are, in order, Haiti, Algeria, Vietnam, Italy, and Morocco. Nearly 80 percent of the population has a mother tongue that is neither French nor English.[74] One in five does not have a diploma. Borough households have a median annual income of $43,139 CAD, and 75 percent are renters compared to 64 percent

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[73] City Of Montreal, "Sustainable Montréal 2016-2020: Together for a sustainable metropolis", 2016.
[74] Benjamin Shingler, "Amid Rising Rents in Parc-Extension, Activists Mobilize to Preserve Affordable Housing | CBC News," CBCnews, 2018.

in Montreal. Not surprisingly, Parc-Extension is the neighbourhood in Montreal with the least green space proportionally to its number of inhabitants.[75]

This neighbourhood is being majorly affected by the construction of a new campus site. The University promotes that it is strongly committed to a sustainable development approach. Public transport (metro, commuter train, bus) and active living (walking, bicycling) are key principles of the project.[76] However, this project comes along with key issues, like skyrocketing rent prices, affecting the most vulnerable population in Montreal. Residents of Parc-Extension have voiced their concerns during an interview with Miriam Lafontaine for the Link newspaper:

> *"'For years, we've been trying to get social housing, and housing for families, and what do we get? We get a slumlord who decides that he wants to take a piece of our neighbourhood and turn it into whatever he wants,' yelled Adeel Hayat, who's lived in Parc-Extension for 13 years, through a megaphone."*
>
> *"This university is putting a wall between us and them."[77]*

Some say that this might be the biggest example of gentrification. As mentioned by Stéphanie Guay, one of the tenants in the neighbourhood, in the Link newspaper, "There's nobody at all from the neighbourhood who's going to live there, that's absolutely certain."[78] In addition, residents of Parc-Extension say that because the majority of public consultations were held in Outremont, they haven't been heard.[79] It is key to mention that Outremont is one of the richest French-speaking neighbourhoods in the City. It is clear that non-native French or English-speaking, low-income, low-educated people, who pre-occupied with other

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[75] Femmes et Villes International, "Où sont les femmes et les filles? Penser et agir sur les espaces publics de Parc-Extension afin d'accroître la sécurité des femmes et des filles", 2014, 73.

[76] OCPM,"Université de Montréal: Outremont Site- Proposed plan for the former sitching yard in Outremont."

[77] Miriam Lafontaine et al., "What Université De Montréal's New Campus Means for Parc-Extension | News," The Link, 2018.

[78] Ibid.

[79] Jacob Serebrin, "U De M's Future Neighbours Upset over Second Campus," Macleans.ca, March 02, 2011.

pressing needs (food, shelter, jobs), do not have either the time, willingness or capacity to go to those consultations.

The Mobilization of Citizens

As mentioned in the case above, low-income or immigrant populations tend to be less active or present in public consultations. In a project led by "Women In cities" in Parc-Extension for the evaluation of a project to increase safe public spaces for women and girls, the report stated that there is a strong sense of solidarity between members of the same cultural community. However, it was cited that "it was very difficult to have information in this neighbourhood." There have been many different occasions for people to take part in forums, committees, general assemblies, public consultations, summits, etc. However, interveners point out that these activities bring together very few cultural communities. Again, in the case of the University Campus project respondents, community organizations represented the citizens of Parc-Extension, to whom they had expressed their concerns. The citizens of the neighbourhood felt that their voice would be "heard more" if they were represented by established groups in these political spaces, instead of going themselves and trying to overcome certain barriers (educational, language, etc.). [80]

Another concern for many public consultations is that they are meant to be very inclusive and representative of the diverse opinions of neighbourhoods. However, Women in Cities and the OCPM both stated that it is very rare they have random citizens not attached

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[80]Femmes et Villes International, "Où sont les femmes et les filles? Penser et agir sur les espaces publics de Parc-Extension afin d'accroître la sécurité des femmes et des filles", 2014, 76.

to an organization, that someone shows up at consultations without a specific interest or mandate.[81]

The mobilization of older people is another issue, as their mobility tends to decrease with age. Although the City of Montreal seems concerned about the inclusion of older generations in making the city more "age-friendly", public consultations regarding this very topic were all but inclusive to those who needed to be represented, older people. Earlier this year, Mayor Valérie Plante's administration had announced their decision to hold public consultations in the middle of winter, ahead of a new Municipal Action Plan for Seniors 2018-2020. However, this posed many barriers for older person who fear falling, which at their age can lead to serious complications, if not a life-or-death situation. Additionally, the locations of all four consultations are hardly conducive for easy access. As Toula Drimonis wrote in the National Observer:

> *"While three out of the four locations are near a metro station (one location requires an additional half-hour bus ride), none of the metro stations have elevators, making it impossible for seniors with disabilities to access them. If a senior intending to attend these consultations do not have alternate transportation or the financial means to pay for a taxi, they are de facto excluded."[82]*

Older people also have mixed feelings regarding climate change and how vulnerable and concerned they feel. One of them said:

> *"We have other things to worry about and it is the role of the younger generation, not ours."*

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[81] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018; Kathryn Travers (Women in Cities Executive Director), Interviewed by Valériane Buslot, Montréal, QC, August 8, 2018.

[82] Toula Drimonis, "Are Seniors Being Left out of Montreal's Bid to Make the City More 'age Friendly'?" National Observer, 2018.

Others who are more involved expressed their concerns regarding public consultations or having a platform to express their needs or concerns. An older woman expressed that:

"I send lots of emails to the City of Montreal about concerns and issues that I have, but I am pretty sure that they do not really bother looking or take them into account."

Collaboration Between Partners

Projects such as the Integrated Urban Revitalization (RUI) project and the Collective Impact Project (CIP) have raised issues regarding stakeholder collaboration. For instance, for the Collective Impact Project, it has been mentioned that there is a pace difference between the different actors. Local actors (community organizations, neighbourhood roundtables and citizens) are concerned about the fast pace pressure of the project developers as they feel this can risk destabilizing local dynamics. According to past project developments, those concerns are well-founded and need to be addressed.[83] Additionally, CIP has encountered issues regarding the foundations that are funding the projects as they usually have their own agenda. This creates sometimes a battle between each funder to have all targets and agendas aligned. It undoubtedly shifts the focus to the needs of the funders instead of the needs of vulnerable populations.

Similar issues have been raised in the area of transportation projects concerning political lobbying versus citizens' priorities. Mathew Chapman, the Campaign Coordinator at the Climate Reality Project, a charity organization with the purpose of educating citizens on the impacts and solutions to climate change, mentioned that:

"There's a lack of vision at the provincial level to propose transit projects because there has been so many that have been proposed and defeated and became political

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[83] Pole,Nancy, Jean-Marc Fontan, Le « Temps Zéro » Du Projet Impact Collectif (Pic) : Les Premiers Temps Du Partenariat Et De L'opérationnalisation, PhiLab, 12.

__battles. As opposed to and I would like to see this going towards public participation - talk to everybody, do it well and do it right and hear everybody's voice at the table."__[84]

Financials/Funding

For the RUI projects, not all projects have the necessary funding from the City to be realized and completed.[85] Many people have expressed the need to adopt a flexible and adapted financial plan that is driven towards, and supported by, the achievements of the local action plans.[86] Concerning the Collective Impact Project, it may still be too early to evaluate this new funding method that does not rely on the City of Montreal or *Centraide*, an organization whose goal is to raise money and invest it locally to break the cycle of poverty and social exclusion.[87] However, we have to stress the fact that the funding for CIP relies on seven foundations for an amount of $22.25 million for a five-year plan to invest in the 17-targeted neighbourhoods. We could question the longevity and long-term commitment of the project, as well as the viability to rely on only 7 foundations to support projects in all those neighbourhoods. As seen in Gatineau, integrated urban revitalization projects can amount up to approximately a minimum of 1.5-2 million Canadian dollars.[88]

Data Issues

During interviews with several NGOs as well as businesses, stakeholders expressed the need for more aggregated data. Kathryn Travers, Executive Director of Women in Cities, stated that "Aggregated data at the city level is much more useful as it shows exactly where

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[84] Matthew Chapman (Campaign Coordinator-Climate Reality) interviewed by Valériane Buslot, Montreal, QC, June 27, 2018.

[85] Margarida Queirós,"Integrated Urban Revitalisation in Montreal: lessons from local development initiatives." Finisterra-Revista Portuguesa de Geografia, 2010.

[86] Ibid, 67.

[87] Centraide. "Centraide of Greater Montreal | More than 350 Agencies to Fight against Poverty."

[88] Ville De Gatineau, "Revitalisation Urbaine Int," Patrimoine – Ville De Gatineau, 2018.

stakeholders should intervene. Unfortunately, there is a clear lack of disaggregated data on the topic." [89] Cédric Beacher, CEO of Nomadeis, a consultancy firm in sustainable development in Paris, discussed the issue regarding the inconsistency of data collected due to different norms or regulations for each institution or non-use of data.

"Materializing data to policy to practice is a big issue. The key is to put data into debates. Data needs to live."[90]

Matthew Chapman from the Climate Reality Project shared his opinion on their management of the data they collect:

"We do not do a great job leveraging data nationally, but at the international level we get better. The organization is 10 years old, so we did quite a good job at reflecting on 'are we doing it properly, effectively'…The answer has always been 'not well enough.' We do not feel like we are mastering what we are doing, using the data that we have."[91]

Governance and Administrative Barriers

Any form of participatory democratic governance is key to achieving inclusive climate action for the most vulnerable populations. Even though there are initiatives and projects put in place, as mentioned above, in Montreal many face governance and administrative barriers to those inclusive participatory processes. The OCPM noted several interesting points regarding this issue despite having a rigid working methodology. Consultations with recommendations for projects that were done 10 years ago will only be implemented today. However, the President of the OCPM pointed out that in the meantime, the context has

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[89] Kathryn Travers (Women in Cities Executive Director), Interviewed by Valériane Buslot, Montréal, QC, August 8, 2018.
[90] Cédric Beacher (CEO of Nomadeis) interviewed by Valériane Buslot, Montreal, QC, at Movin'on, June 1, 2018.
[91] Matthew Chapman (Campaign Coordinator-Climate Reality) interviewed by Valériane Buslot, Montreal, QC, June 27, 2018.

changed, the ways of moving have changed, the relationship with transport has changed, thereby rendering those recommendations totally irrelevant.[92]

"All the methods we used to be able to participate in a public consultation had a process that was highly regulated where everything is oriented around the written word, the document comes to be presented before the commission - almost judicial way. It made us lose a certain diversity of opinions. People had to travel at the time and place where we said the consultation would be." [93]

The citizen's right initiative, created by the OCPM, allows citizens to ask for a public consultation on a certain topic or project. However, they only represent 1% of the public consultations as they have big administrative barriers: time (needs to be done in maximum 3 months), quantity of signatures (15,000 for metropolitan projects and 5,000 for municipal projects), format of signatures (need to be physical signatures not online), no voice for the younger generation (need to be at least 15 years and older).[94]

Ouranos, an innovation cluster and consultation forum helping Quebec society to better adapt to climate change, [95] expressed in one of their report chapters on the participation of local actors that:

"Respondents to these sectoral workshops confirm the strength of the administrative, cultural and disciplinary barriers identified in the scientific literature. Most of the local stakeholders we met believe that climate change is a concern. The majority even consider that these changes could significantly affect their professional activities. They are aware of the sensitivities of the territory in general and it is easy for them to make links between these sensitivities and the impacts that climate change could have on the components of the city. Nevertheless, and paradoxically, they do not feel immediately concerned about this issue and do not feel they have the resources to manage it. This is not a specific and clearly identified concern: it is more of an issue related to other regular issues."[96]

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[92] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
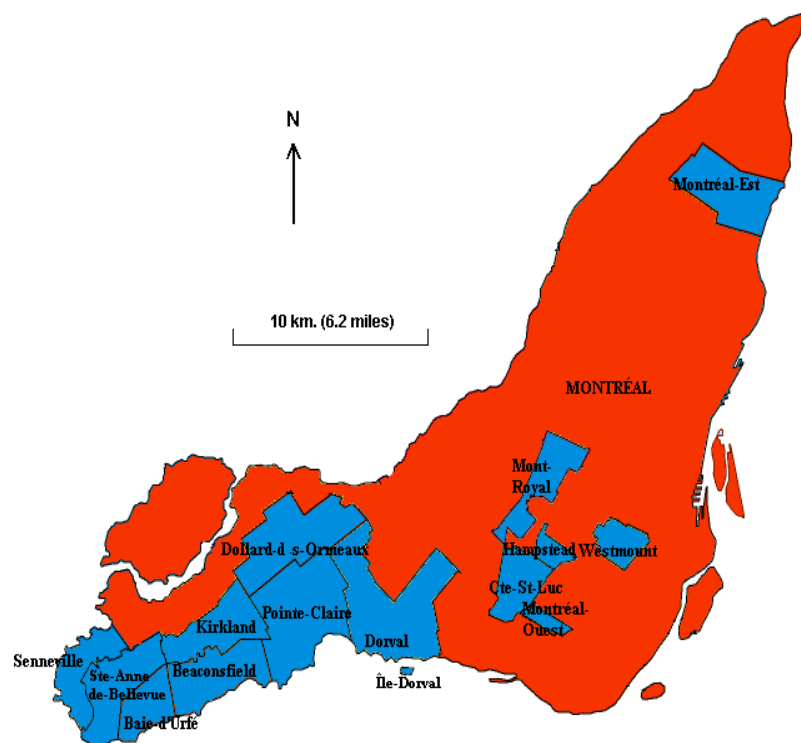[93] Ibid.
[94] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
[95] Ouranos, "Mission & Vission", Ouranos Home, Accessed August 25, https://www.ouranos.ca/en/ouranos/.
[96] Joerin, Florent & al., "Changements climatiques et transformation urbaine : un projet de recherche-action pour renforcer la résilience de la Communauté métropolitaine de Québec", Ouranos, June 2014, 149.

On the level of governance, the island of Montreal is a particularly difficult case, as the City of Montreal does not cover the whole island. The Island of Montreal today is composed of the City of Montreal as well as 15 independent municipalities (as seen below). This is making it sometimes hard or long to collaborate on projects that concern the whole island, as they are largely independent in their decision-making and have their own priorities.[97] This way, it comes back to a question of political will and conviction. Women in Cities experienced an issue regarding governance in Parc-Extension, where the ex-mayor was a woman and an advocate of gender mainstreaming and equity, and thus incorporated it in her programs and plans of development. However, as soon as the governance changed, the topic was left aside.[98]

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[97] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
[98] Kathryn Travers (Women in Cities Executive Director), Interviewed by Valériane Buslot, Montréal, QC, August 8, 2018.
[99] Municipal Organisations of Montréal (image), https://en.wikipedia.org/wiki/2002%E2%80%9306_municipal_reorganization_of_Montreal#/media/File:Montreal2006.png.

Words and No Concrete Action

Concerning the urban development plan that was created in 2014, [100] Éric Alan Caldwell, ex-City councilor of Montreal representing the Hochelaga neighbourhood, said that the plan "lacks firm commitments or deadlines, it consists of little more than a grab bag of nice ideas with no guarantee of completion." He articulated his opinion by saying that this plan: "Remains a bit of a pie-in-the-sky vision where we talk of quality of life, greening, active transport, without knowing how we will get there."[101]

The degree of participation in most of the programs is not homogenized or even defined, including in RUI or CIP, in Montreal, which results in big variations in public participation from one neighbourhood or project to another and in the power of their recommendations in the decision-making process. As previously stated, public consultations can be used as a tool to make people believe that citizens' voices are included. According to Arnstein's ladder theory of public participation, "Participation without redistribution of power is an empty and frustrating process for the powerless."[102] Tokenism is the most used approach in Montreal, referring to "an action that are the results of pretending to give advantage to those groups in society who are often treated unfairly, in order to give the appearance of fairness."[103]

OVERVIEW OF CHALLENGES IN MONTREAL

Moving from working in isolation to adopting a truly inter-sectoral approach is a

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[100]Arnstein ladder of participation 1969 (image),
https://www.google.ca/search?q=arnstein+ladder+of+participation&source=lnms&tbm=isch&sa=X&ved=0ahU
KEwi-i-DVpO_cAhXswVkKHf0lB8IQ_AUICigB&biw=1280&bih=726#imgrc=1qR6gZ4XLv0dzM.

[101] Alexis Fortin Robitaill, "Montreal Reveals Its 10-year Development Plan," Montreal Gazette, 2015.

[102] Arnstein, Sherry R. 'A Ladder Of Citizen Participation'. Journal of the American Planning Association, 35: 4. 2018. 216 — 224.

[103] "Tokenism Meaning in the Cambridge English Dictionary," Gender Pay Gap Definition in the Cambridge English Dictionary, 2018.

challenge for any planning process that aims to achieve sustainable development. The process of coordinated collective action requires changes in organizational culture, collective learning, conflict management, and adequate funding. These are key elements for social development as well as for participatory democratic governance. Due to Montreal's recent political-administrative re-shuffling, multi-level governance is currently the main challenge in what regards cooperation and coordination between and among public and private actors. If this is not addressed, vulnerable populations are at a higher risk of becoming even more isolated and having even less space in project decisions.

BEST PRACTICES DEVELOPED IN THE WORLD

As we now comprehend, it is not easy to combine inclusive climate action whilst including vulnerable populations in the process of data collection to decision-making and policy-making within today's structures. The difficulty of this challenge does not go unnoticed and some proactive organizations and cities have decided to come together to share new and innovative solutions to tackle those issues.

Congresses such as the ICLEI World Congress, held from June 19 to 22 this year, in Montreal, is a place where stakeholders (city planners, mayors, businesses, NGO's, etc.) gathered for four days to share and learn about municipal and regional best practices, aiming to create the sustainable world of tomorrow.[104] Among all the presentations and workshops, some directly addressed the challenges mentioned above. Some of the best practices, covering this specific topic in this paper, were the Partnership's Strategy in Barcelona and the Local roundtables in Australia.

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[104] Valériane Buslot, Morgane Ollier, and Geneviève Westgate, "ICLEI World Congress: A Network of Cities and Regions for Tomorrow's Generation?" Social Connectedness, 2018.

The Partnerships Strategy's basic goal is to increase the number of stakeholders' involvement and therefore the shared responsibility towards a sustainable city. The City Council is "using public-private partnerships to encourage innovation in areas such as transport, shopping, street lighting, and environmental monitoring."[105] These partnerships include private firms that are working with local NGOs to better understand the realities of the neighbourhoods. These public-private partnerships are there to help both sectors thrive whilst bettering the community. This is the main components that Marta Cuixart of the City of Barcelona put forward, which now has over a thousand partners.[106]

The Local roundtables plan, implemented in the City of Yara, in Australia, are composed of local citizens (from various backgrounds, age, origins, sectors) that are presented with information and data over the current situation in the city and are asked to come up with ideas and solutions regarding the information they received. The councilor from the city, Amanda Stone, highlighted that in order for partners to build a sustainable city, they need to build trust and share information and resources between all partners.[107]

Kounkuey Design Innovation (KDI) is a great example of building resilience within vulnerable communities. Developed by Harvard Graduate School of Design students, it is a non-profit design and community development organization working on innovative international partnerships, while also collaborating with residents to transform impoverished communities into low-cost, high-impact built environments that improve their daily lives. KDI believes that participatory planning and design is the key to sustainable development. They have worked across the globe, from urban informal settlements in Kenya, rural farm worker

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[105] GrowSmarter. "Lighthouse City: Barcelona." Grow Smarter, 2018.
[106] Notes from the ICLEI congress on the 19-22th June 2018 in Montréal taken by Valériane Buslot.
[107] Notes from the ICLEI congress on the 19-22th June 2018 in Montréal taken by Valériane Buslot.

communities in the United States, to urban and rural settings in Morocco, Mexico, Haiti, and

Ghana. [108]

"We partner with under-resourced communities to advance equity and activate the unrealized potential in their neighbourhoods and cities."[109]

There are also innovative solutions domestically we can look to that are making cities

more inclusive. The OCPM has developed new practices with the intention to include more

vulnerable populations in their consultations.

"We do what is now called stakeholder mapping before designing the consultation process. Stakeholder mapping sets the following goals: who are the groups where people or who should be spoken to consider that we have a fair mechanism. We design the consultation mechanism from this mapping to make sure everyone has an opportunity to participate" [110]

Aalborg city, in northern Denmark, is one of the most proactive cities in terms of

sustainability. It developed in 1994 the Aalborg Charter, which is an urban environmental

sustainability initiative approved by the participants at the first European Conference on

Sustainable Cities & Towns, that took place in Aalborg. Since then the City has become a real

leader in the field and has put in place many new inclusive locally led initiatives such as the

green agent, co-creation workshops, center for green transition, and networks for sustainable

business development.[111]

"Aalborg's Sustainability Strategy is the idea that each individual should be empowered to contribute to the transition in their own way, but also holding the knowledge that they belong to an inclusive society that is acting collectively."[112]

[108] KDI. "About." Kounkuey Design Initiative, 2018.
[109] Ibid.
[110] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
[111]State of Green. "Aalborg Commitments - State of Green." Home. Accessed August 25, 2018.
https://stateofgreen.com/en/partners/city-of-aalborg/solutions/aalborg-commitments/.
[112] State of Green. "Aalborg's Sustainability Strategy (2016-2020) - State of Green." Home, 2018.

RECOMMENDATIONS FOR MONTRÉAL

All these initiatives, representing only a fraction of the existing ones, are inspiring and are allowing us to take up new ideas to improve the City of Montreal. In terms of policy and program recommendations, there are five key areas where recommendations could result in tangible and more inclusive results: data collection, mobilization of citizens, good decision-making and collaboration, evaluations of policies and programs, and funding.

Data

There is a need for better evaluation of the impact of climate change on vulnerable populations by using new tools such as the UESI. The UESI is able for instance to give valuable insight to stakeholders on patterns regarding inequalities in climate-related variables (air pollution, green space, urban heat island, etc.). Using indicators that incorporate more local variables will give policymakers a better view of who suffers the most from those issues and help target and tackle them in the best way possible.[113] The fact is we have to stop putting data in clusters and disaggregate data in order to represent the pockets of the vulnerable populations within some neighbourhoods. But one of the central challenges of urban poverty analysis is the lack of available disaggregated and comparable data.[114] Homogenizing data collection is thus key. Combining initiatives for data collection can help better set norms and regulations in order to avoid data overlap and be able to compare data across cities and at a smaller scale.[115]

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[113] Hsu, Angel et al., "Global Metrics for the Environment: 2016 Report," Yale Environmental Performance Index, 2016.
[114]Judy Baker, and Nina Schuler. "Analyzing urban poverty: a summary of methods and approaches." The World Bank, 2004, 15.
[115] Cédric Beacher (CEO of Nomadeis) interviewed by Valériane Buslot, Montreal, QC, at Movin'on, June 1, 2018.

Putting a program in place to check whether the data translates on the field would as well. Additionally, making data more accessible, transparent and shareable would be a major step towards inclusive climate action, while will help keep organizations and institutions accountable for their actions or inaction. We have to surpass what, Matthew Chapman mentioned, might be an issue that arises from our cultural background:

"I think people tend to be afraid of releasing data, being proprietary. In Norway, they are just okay sharing this, have a common goal they want to achieve. Now they have to compromise to do something good for the people. And this example is shown within the civil society that is too wary about sharing. We have this DNA of competitiveness."[116]

Technology can be used as a vector of change not only to collect missing data but also as a communication device for sharing information. One idea is to advertise applications on mobile phones or the internet to allow citizens and businesses to provide information which will fill in for the missing data, giving more accurate projections on the situation. This would also facilitate the sharing of information about cities' and countries' performances, making them more accountable for their actions or inactions.[117]

Mobilization of Public Participants

Mobilization of citizens continues to be a challenge as stated by the OCPM:
"We know the obstacles are of three kinds, it is systemic, material or informational. Systemic we cannot do much with that if people are not present it's a bit difficult. On the other hand, we can work on the material obstacles, be it the location, the conditions under which it happens, the support we give, etc. And we can definitely work on information."[118]

Lowering the cost and increasing accessibility can be done through the use of online platforms: using Facebook to post events and livestreaming for those who cannot physically attend public consultations, which is what the OCPM is trying out. [119] Lowering the cost for

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[116] Matthew Chapman (Campaign Coordinator-Climate Reality) interviewed by Valériane Buslot, Montreal, QC, June 27, 2018.
[117] Hsu, Angel et al. "Development: Mobilize Citizens to Track Sustainability." Nature, 2014.
[118] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.
[119] Ibid.

vulnerable populations can be done through adapted workshops and reaching out to the vulnerable populations, instead of asking them to move to a certain place. For example, holding a public consultation that is animated by a native Hindi or Arabic speaker coming to a community center in a diverse neighbourhood, or going to an elderly community center or schools. From interviews and research, most citizens are open to discussing issues that directly concern them. The key is to be able to translate data or complex information in a way that they can see how it affects them in their day-to-day life.[120] Major barriers to citizen participation and participatory democracy are the big administrative structures and requirements of some consultation initiatives, which prevents them from even taking place. Reducing and simplifying the process the Citizen's Right Initiative, such as allowing more time, online signatures, accepting signatures of people under 15 years of age, would likely increase citizen participation.

On a societal level, programs for example in schools, community centers, etc. should be created to educate people about the effects of climate change and how their vulnerability to it can impact their lives today and in the future. It should also teach people to accept the fact that there is uncertainty surrounding climate change and this uncertainty should be incorporated at every level of governance, but this should not prevent people from taking action.

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[120] Cédric Beacher (CEO of Nomadeis) interviewed by Valériane Buslot, Montreal, QC, at Movin'on, June 1, 2018.

Good Decision-Making

To achieve inclusive climate action and have the voice of the most vulnerable people heard, it is crucial to include them in the decision-making process. As expressed by Cédric Beacher:

> *"Good decision-making is mainly inclusive decision-making that is being fostered by roundtables and communication between the different stakeholders."[121]*

The RUI and CIP projects take more of an approach to work "with" not "for" the vulnerable populations. Thus, a policy should be created that mandates an equal ratio and diversity of citizens (age, gender, culture, origins, etc.), NGO's, business holders, etc. that should be there during roundtables or public consultations to ensure an inclusive approach that promotes the vision of all stakeholders. The end goal is to increase the degree of participation and decision-making power of citizens. This is called the proportional representation of different stakeholders, which ensures a diversity of opinions as well as some stability in the project's decision in the long run.

> *"PR (proportional representation) is a powerful tool to encourage coalition governments and not have monolithic power in hands of one party and not make the other party want to swing everything that has been done."[122]*

Overall, participatory decision-making in cities has been shown to be very successful. It enhances transparency because information, priorities, strategies, actions are open to all stakeholders in the city. Accountability is enhanced because by sharing in decisions, partners are accountable to each other for the tasks to which they have committed themselves. Groups that are usually excluded from the decision-making process have the opportunity to

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[121] Cédric Beacher (CEO of Nomadeis) interviewed by Valériane Buslot, Montreal, QC, at Movin'on, June 1, 2018.
[122] Matthew Chapman (Campaign Coordinator-Climate Reality) interviewed by Valériane Buslot, Montreal, QC, June 27, 2018.

present their concerns and defend their interests. It also increases efficiency because information is shared and decisions are taken in common, avoiding overlap and duplication of efforts. Taking all these reasons into account, it is clear that participation is a key element of good governance.[123] Even for projects, such as the new university campus, it is not too late to change the approach and include some new consultations in Parc-Extension to include the population living there, and try and find a solution to their concerns, like increasing rent prices.

Participatory Decision-Making Indicators

An idea to ensure proportional representation is respected is to measure, through indicators, how involved the different stakeholders are in the process and ensure that everyone is taking part equally in the project's decisions. If not, the RUI and CIP organizations should intervene immediately and find out what has caused this imbalance in power. Such an approach demonstrated to be successful in Kalimantan, Indonesia, regarding the development of a new sustainable forest management plan, which was established with the equal participation of government officials, local citizens, businesses, etc.[124]

Measuring the Effectiveness of Projects and Programs

The OCPM mentioned that they have not yet had the mandate to do some feedback on participatory evaluations of the projects they did consultations on, but said: "It would be very interesting to have".[125] Implementing a feedback process to measure the effectiveness

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[123] UNCHS, "Participatory Decision-Making Indicators Measuring progress on improving urban management decision-making processes", UNHCS (Habitat) 2001, 4.

[124] Guillermo A. Mendoza and Ravi Prabhu. "Development of a methodology for selecting criteria and indicators of sustainable forest management: a case study on participatory assessment." Environmental management 26, 2000.

[125] Dominique Ollivier (OCPM President), Interviewed by Valériane Buslot, Montréal, QC, August 1, 2018.

of policies and programs can help build the resilience of vulnerable populations and help them adapt based on the outcomes of the projects. Some sort of checklist could also be created by the City of Montreal and used for each project they work on to ensure the process ensures a minimum level of inclusiveness.

Funding

To ensure support of climate action projects and the sustainable development plan, which extends over several years, a sustainable funding plan should be considered. The City of Montreal should ensure enough funding to finalize each project they agree to so as not to come across a similar situation the RUI encountered. Additionally, tools, such as the UESI, could help to obtain or keep funding from different stakeholders (businesses, NGO's, institutions, etc.), as tools like that help justify and support why those projects and programs should be done.

"For us, everything that we do, the more research we have, the more backup we have, the better. We are responding to funders. So if we tell Centraide or Health Canada, this is the issue, this is the statistical analysis of it, this is what we are doing to help, and this is the outcome. We couldn't ask for more. So for us, something like [the UESI] would be super important and relevant."[126]

Communicate Change

It is important when bringing change on different levels to a program, project, process or any other initiative or system, to communicate this change effectively. Michael Wexcler, from Copenhagenize, a firm that "works on planning cities, districts, and neighbourhoods, integrating simplicity, logic and human nature into mobility networks,"[127] shared steps to reach effective communication and mobilization of stakeholders. Openly communicating new

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[126] Jillian Ritchie (Collective Community Services), Interviewed by Geneviève Westgate, Montréal, QC, June 14, 2018.

[127] Copenhagenize. "Planning & Design." Copenhagenize Design Co., 2018.

opportunities for public participation can be through: raising awareness, considering everyone's views and opinions, creating opportunities for people to take action, and finally stakeholders taking action.[128] Most importantly, tailoring communication to the specific vulnerable populations that are affected can help increase the participation of those populations. This in turn could foster a relationship of trust and a sense of being valued, amongst all stakeholders, and help plan a more resilient city.

IMPACT

The findings and recommendations in this research paper are intended to help the City of Montreal, be more inclusive in the whole process from data collection, project proposals, decision-making up to implementation and reviewing of the projects. This paper can be shared with the parties that were consulted during this research as well as any other institution or organization that would be concerned by similar issues. Moreover, the community organizers of communities such as Parc-Extension that are involved in RUI, CIP and the new university campus could benefit greatly by having this paper, which lays out fair arguments for them to advocate for more community involvement in these projects. Stakeholders in other cities can also use this paper as a comparison and reference point to what their city is doing efficiently or not regarding inclusive public participation. Additionally, best practices referenced in this report could improve or spark new innovative ideas in other cities to increase the inclusion of vulnerable populations in climate action. At an individual level, when working on projects, whether it is on a climate change-related issues or any other sector, everyone should ask themselves "who is not in the room" during the decision-making

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[128] Michael Wexcler (Urban Designer at Copenhagenize), Interviewed by Valériane Buslot and Morgane Ollier, Montréal, QC, June 19, 2018.
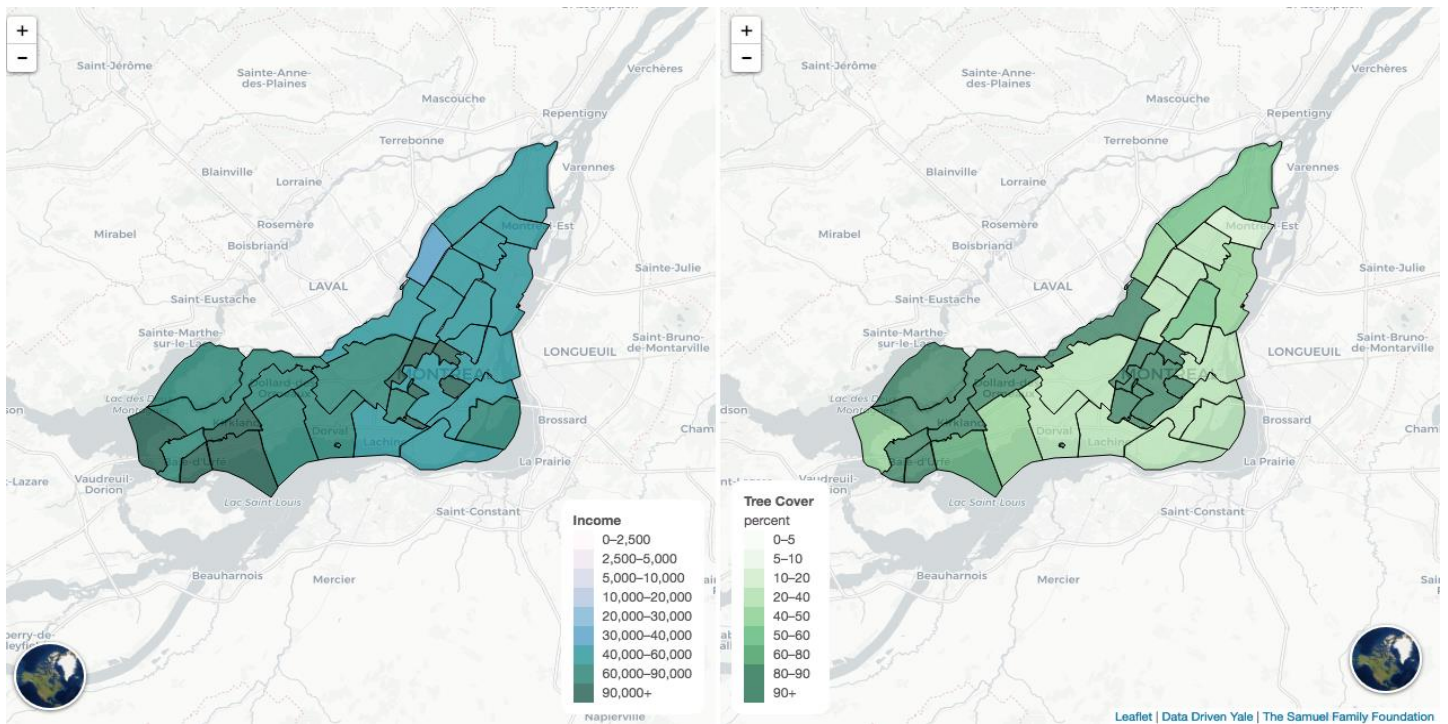
process and why. Asking this question and taking action to change the situation if someone is "left out" in every situation in life is a great start to make our society more inclusive.
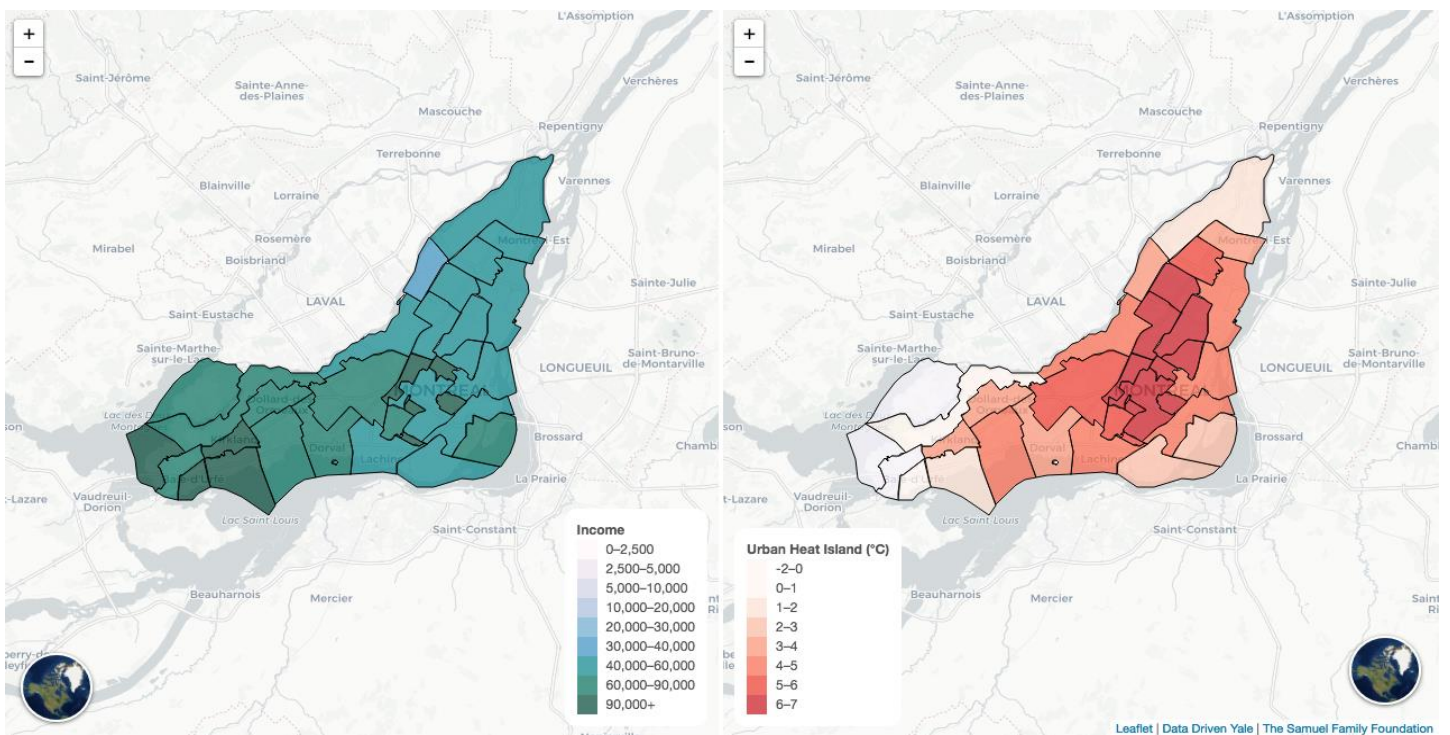
CONCLUSION

Climate change is a real threat, as it showed this summer with its many heat waves globally, as well as in Montreal. Many people have and will be suffering, but the most vulnerable populations, such as low-income populations, women, children, older people, homeless people, people with disabilities, and immigrants and refugees, will bear the cost even more. Cities such as Montréal have voiced their interest in being a leader in tackling climate change and building a more resilient city. It has implemented programs like Quartiers 21, Projects (Urban revitalization projects, Collective Impact Project), created Institutions (Public Consultation Office of Montreal (especially "Citizen's right of initiative")) and implemented laws (Bill 122). Although these initiatives are a great start, other best practices, found at the ICLEI congress such as the partnership strategy in Barcelona, roundtables in Australia, Aalborg City initiatives or Kounkuey Design Innovation and OCPM new innovative practices, showed how these processes could be improved. Montreal could refine their actions to be more inclusive in terms of data (collection, sharing, transparency, etc.), mobilization of citizens, good decision-making and collaboration of stakeholders, measuring effectiveness of policies and programs, and creating more flexible funding possibilities. Unfortunately, I was not unable to address more the position of the private sector as well as get the perspective of homeless and people with disabilities in this research. In addition, this paper does not address the impact of technology, smart cities, and AI, how they take up more place in future decision-making processes and how this could influence the inclusiveness of

the most vulnerable populations. These would be interesting ideas to research further and

look at its impacts regarding inclusiveness in the decision-making process.

Appendix 1: UESI - Income vs. Tree Cover in Montréal

Appendix 2: UESI- Income vs. Urban Heat Island in Montréal

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