CAGONT Canadian Association of Geographers – Ontario Division

CANADIAN ASSOCIATION OF GEOGRAPHERS – ONTARIO DIVISION

2021 Conference Program

Hosted by Western University's Department of Geography and Environment

November 12 to 13, 2021

Western SocialScience Geography & Environment

FRIDAY NOVEMBER 12, 2021

CLIMATE CHANGE, SUSTAINABLE LIVELIHOODS AND HEALTH

Friday November 12, 2021 | 1:00 to 2:00 p.m. EST

Chair: Isaac Luginaah

Panelists: Dan Scott (Geography and Environmental Management, U of Waterloo); Danielle Way (Biology Western University); Mohammad Reza Najafi (Civil & Environmental Engineering, Western University); Francisco Olea Popelka (One Health/Schulich Medicine & Dentistry, Western University); Gordon McBean (Geography and Environment, Western University)

Virtual Event Assistant: Asma Khanani Caporaletti

Description: Climate change is a leading issue of our time. As Geographers, we recognize the broad biophysical and social science aspects that are a necessary part of climate change research. In this panel session, researchers from a range of disciplines examine multidisciplinary climate change research and research needs arising out of the just completing COP26. The panel will also weigh in on actions Ontario Universities, students and faculty should be doing to address climate change.

WORKSHOP: R in GEOGRAPHIC RESEARCH

Friday November 12, 2021 | 2:30 to 3:30 p.m. EST

Workshop Lead: Rachel Kuzmich (Queen's University)

Virtual Event Assistant: Ebenezer Narh

Description: R is a programming language and open-source system for data exploration, manipulation, visualization, and computation. R is one of the most widely used systems for research in academia, and it is increasingly used in the public and private sectors, making competency with R a highly desired skillset. Combined with RStudio, an integrated development environment that offers a user-friendly interface, you are able to create functions and implement existing workflows to read, write and analyze geographic data (i.e., vector, raster, tabular) and create reproducible research. This workshop will get you started with R and RStudio, introduce you to useful packages and other resources, and discuss capabilities and applications in geographic research. Getting started in R can be intimidating, my goal is to make it accessible and give you the confidence to delve in deeper. This workshop is designed for people who are new to R and to those who want a refresher. It is recommended to install R and RStudio in advance. Download R by clicking here and RStudio by clicking here.

UNSETTLING GEOGRAPHY: OPPORTUNTIES AND CHALLENGES FOR ENGAGEMENT IN INDIGENIZATION

Friday November 12, 2021 | 4:00 to 5:00 p.m. EST

Chair: Chantelle Richmond

Panelists: Heather Castleden (UVic); Isaac White (Queen's University); Diana Lewis (Western University)

Virtual Event Assistant: Victoria Bomberry

Description: In the post-TRC era, the discipline of Geography has begun to engage more earnestly in processes of indigenization, yet these engagements are not without their challenges. This panel draws from research with Dept Chairs of Geography from across Canada, and the lived experiences of Indigenous faculty and students to offer insight into the various opportunities and tensions associated with engaging in processes of Indigenization in geographic research and teaching.

GEOGRAPHY TRIVIA

Friday November 12, 2021 | 6:30 to 7:30 p.m. EST

Host: Elizabeth Jewlal

Description: We may not all be physically gathered on Western's campus for CAGONT 2021, but we can still participate in a Western graduate student tradition virtually! Join us for some friendly competition and an evening of geography-themed trivia on Discord and Twitch. To play, open the Twitch livestream where the trivia questions will be announced by clicking here. Then, login (or create a free account) on the trivia Discord by clicking here. On Discord, select a team to play on (feel free to make some new friends). If you are new to Discord, there will be further instructions available on the site to assist you.

SATURDAY NOVEMBER 13, 2021

SPECIAL SESSION: POPULATION HEALTH STUDIES DURING COVID-19

Saturday November 13, 2021 | 9:30 to 11:00 a.m. EST

Chair: Haley Everitt

The public realm during public health emergencies: exploring local level responses to the COVID-19 pandemic
Jason Gilliand, Western University

The public realm is a well-recognized contributor to positive health and wellbeing. Public parks and recreational spaces are now some of the main outlets for people to get outdoors, however COVID-19 has created challenges in these spaces. We classify local government responses around maintaining physical distancing in the public realm using a preliminary conceptual map of theories and actions to identify variations in these approaches around the globe. This pilot classification approach provides a useful lens to examine pandemic responses, with future work building upon this map to potentially inform how cities may react to other complex planetary health issues.

Improvements and Declines in Mental Wellbeing in Canadian Adolescents During the First Summer of the COVID-19 Pandemic
Gina Martin*, Athabasca University
Co-authors: Jamie Seabrook, Kendra Nelson Ferguson (Western University); Stephanie Coen, (University of Nottingham); Zoe Askwith (Western University); Jason Gilliland (Western University)

Introduction: The impacts of the COVID-19 pandemic on adolescent mental wellbeing warrants urgent attention. Most previous research focused on declines in mental wellbeing; however, some adolescents report improvements. Additionally, changes in stress levels are often not considered. Methods: A cross-sectional online survey was conducted from June 2020 - September 2020. Canadian adolescents, aged 13-19, were asked about their mental wellbeing before and during the COVID-19 pandemic, using measures of self-rated mental health, stress, and psychological distress. Analyses were stratified by gender. Results: From 825 respondents, 51.6% reported that their mental health was worse since the pandemic, and 21.2% reported that their mental health was better. Forty-one percent of respondents reported more stress during the pandemic, and 37.4% reported less stress. For female adolescents, the proportion of respondents experiencing serious psychological distress was significantly higher during the pandemic than before. Age was significantly associated with worse self-reported mental health

since the pandemic for female and male adolescents. Female adolescents with fair/poor mental health prior to the pandemic had significantly higher odds of better mental health during the pandemic. Female and male adolescents with high stress prior to the pandemic had significantly higher odds of less stress during the pandemic. Conclusions: Findings highlight the need for supports for adolescents experiencing declines in mental wellbeing, particularly for female and older adolescents. Improvements to mental wellbeing should also be considered as we continue through, and beyond, the pandemic.

A qualitative, cross-sectional study of the mental wellbeing and coping strategies of Canadian adolescents during the COVID-19 pandemic.

Kendra Nelson Ferguson*, Western University
Co-authors: Stephanie Coen (University of Nottingham); Danielle Tobin (Western University); Gina Martin (Athabasca University); Jamie Seabrook (Western University); Jason Gilliland (Western University)

Qualitative research is lacking on the mental wellbeing of adolescents during the COVID-19 pandemic. The aim of this study was to explore the feelings and emotions adolescents experienced around the COVID-19 pandemic and the coping strategies they identified and employed to manage those emotions. Participants living in Canada between the ages of 13-19 years were recruited through social media platforms and youth serving organizations. Qualitative data were gathered from two open-ended questions included in a youth-informed cross-sectional online survey: 1) what feelings and emotions have you experienced around the pandemic; and 2) what coping strategies have you used during the pandemic? Data were collected from June 2020 to September 2020. A summative content analysis was taken to inductively analyze survey responses. A total of 1164 open-ended responses from Canadian adolescents (N = 851; Mage = 15.6) were analyzed. Three major themes were identified within the category of feelings and emotions associated with the pandemic: (1) socio-spatial and temporal disconnections; (2) emotional toll of the pandemic; and (3) positives amidst the pandemic. Within the category of coping strategies used during the pandemic, two major themes were identified: (1) connecting online and outdoors; and (2) leisure and health-promoting activities. Although the emotional toll of the COVID-19 pandemic is evident, the participants adopted various positive coping strategies to mitigate their distress, including physical activity, safe peer interactions, and hobbies. The results have important implications for public health policy and practice during pandemic times, emphasizing the importance of accessible mental health resources for those experiencing psychological distress.

The Influence of the Physical and Social Environment on Children's Physical Activity and Screen Time during the COVID-19 Pandemic

Emma Ostermeier, Western University

Background: COVID-19 protocols have changed children's physical (e.g., restricted use of recreational facilities) and social environment (e.g., discouraged socialization with peers), potentially exacerbating children's already low physical activity levels and excessive screen time. Purpose: This study examined how the COVID-19 pandemic affected children's physical activity and screen time and explored the influence of COVID-19 constraints (i.e., facility use and social interaction) on children's physical activity and screen time. Methods: Online surveys were disseminated to parents of grade 6 children (ages 10-12 years) in London, Ontario at two time points: before COVID-19 (May 2019 to February 2020) and during COVID-19 (November to December 2020). Surveys collected information about children's physical activity, weekday and weekend screen time, demographics and family COVID-19 constraints. Wilcoxon signed-rank tests were used to assess changes in physical activity and screen time. Results: Overall, parents ($n = 95$) reported declines in children's physical activity ($p = 0.01$) and increases in weekday ($p < 0.01$) and weekend screen time ($p < 0.01$). Significant changes in physical activity and screen time were identified between facility use groups. All social interaction groups experienced significant changes in screen time, but not physical activity. Conclusions: The findings from this study indicate that children experienced declines in their physical activity levels and engaged in greater amounts of screen time during the COVID-19 pandemic. As adequate amounts of physical activity and limited screen time are important for children's health and well-being, resources that support physical activity participation during the pandemic are needed.

SESSION 1: PHYSICAL ENVIRONMENTS & SPATIAL DATA

Saturday November 13, 2021 | 9:30 to 11:00 a.m. EST

Chair: David Goldblum

Discovering Big Opportunities at your fingertips: iPad Pro LiDAR sensor to estimate the diameter at breast height

Fangyi Wang*, Lakehead University
Co-authors: Muditha K. Heenkenda (Lakehead University); Jason Freeburn (Lakehead University)

The Diameter at Breast Height (DBH) plays an important role in the forest management including understanding the dynamic changes of forests, estimating economic value and supporting resource management. Fast and accurate DBH estimation has always been a challenge in forest surveys. The new technologies: airborne and terrestrial Light Detection and Ranging (LiDAR) are expensive and time-consuming. Some studies evaluated personal laser scanners and indicated low accuracies in terms of point cloud co-registration. We explored the iPad LiDAR sensor to measure DBH values considering its affordability, readily availability and visualization capabilities. This study was carried out at a research forest located in Thunder Bay, Ontario. Five plots (with a 5m radius each) were scanned, making 360-degree scan using the iPad and 'Zappcha' app. These plots are different from each other by spacing, average DBH, and species. LiDAR point clouds were pre-processed using CloudCompare software. DBH of 81 trees

were measured using a manual circle fitting method. The accuracy of smaller Red Pine trees is relatively higher than larger Red Pine and White Spruce trees. The overall correlation (pooling 81 trees) between estimated DBH and field samples was 0.52 indicating a moderate accuracy. The accuracy of the DHB estimation didn't change with the distance from the scanning location to the tree. Therefore, the result showed a potential use of iPad LiDAR Scanner for DBH estimation. We recommend developing an application that combines iPad's location sensor and LiDAR scanner in order to produce georeferenced point clouds, and incorporate precise positioning system for field sampling.

Climatic Changes in the Mesoscale Wind and Temperatures in the Hudson Bay Lowlands: Impact on the Surface Energy Balance

Olalekan Balogun, York University

The Hudson Bay exerts a strong advective influence on the surface energy balance in the Hudson Bay Lowlands (HBL) region of Canada. The onshore winds are relatively cold and moist compared to the warm and dry offshore winds. The contrasting thermal and humidity properties of these two wind regimes affect the partitioning of net radiation between the sensible, latent and ground heat fluxes over the HBL. The long-term impact of climate change on the advective role of the Hudson Bay was previously unknown. In this study, we show that global warming has caused significant changes in the mesoscale wind regimes and the advective role of the Hudson Bay on the surface energy balance over the HBL. We found a strong increasing trend in onshore wind frequency of about 7% over the past 40 years. The most rapid changes occur in June when the onshore winds have increased by 17%, resulting in a shift from offshore to onshore winds dominance over the region. Our results also demonstrate that the offshore wind temperatures are increasing at a faster rate than the onshore temperatures, producing positive trends in the surface energy fluxes that are significantly different between the wind regimes. We identify considerable spatial heterogeneity in the magnitude and strength of these climatic trends across the HBL. Our results show that the changes in the mesoscale wind regimes and surface energy balance of the HBL under present and projected climate warming are markedly different than was previously thought.

Data-driven versus knowledge-driven spatial multicriteria methods for landslide susceptibility assessment

Seyed Vali Vakhshoori, Western University

Landslides cause considerable loss of lives and properties every year. To prevent this, a landslide susceptibility index (LSI) is needed to find the possible locations of future landslides. An LSI is created by analysis of the relationship of the occurred landslides and the relevant criteria (e.g., rainfall and slope degree) using two general types of methods: knowledge- and data-driven methods. None of these methods are the best and both should be compared for a study area. However, the common procedure of applying and comparing these methods in

landslide susceptibility studies has two main drawbacks. First, the criteria layers are often classified to find the density of landslides in each class. This is a questionable approach because the classification causes more uncertainty in the created LSI and is done arbitrarily that may be in favor of knowledge-driven models. Second, after finding the density of landslides and weighting the criteria, the criteria maps are combined using different methods to create an LSI. The criteria maps in both models should be combined using the same method so that the resultant LSIs of knowledge- and data-driven models are comparable. In this study, a new approach is adopted to find the relationship of landslides and the criteria map layers using mathematical functions without classification of layers, and a combination rule which can be used in both knowledge- and data-driven procedures are introduced and used. These modifications in the commonly used methods of LSI creation will help to apply and compare the models more accurately.

Evaluation of Soil Properties, Topographic Metrics, Plant Height, and Unmanned Aerial Vehicle Multispectral Imagery Using Machine Learning Methods to Estimate Canopy Nitrogen Weight in Corn.
Jody Yu, Western University

Management of nitrogen (N) fertilizers is an important agricultural practice and field of research to minimize environmental impacts and the cost of production. To apply N fertilizer at the right rate, time, and place depends on the crop type, desired yield, and field conditions. The objective of this study is to use Unmanned Aerial Vehicle (UAV) multispectral imagery, vegetation indices (VI), crop height, field topographic metrics, and soil properties to predict canopy nitrogen weight (g/m^2) of a corn field in southwestern Ontario, Canada. Random Forests (RF) and support vector regression (SVR) models were evaluated for canopy nitrogen weight prediction from 29 variables. RF consistently had better performance than SVR, and the top-performing validation model was RF using 15 selected height, spectral, and topographic variables with an R^2 of 0.73 and Root Mean Square Error (RMSE) of 2.21 g/m^2. Of the model's 15 variables, crop height was the most important predictor, followed by 10 VIs, three MicaSense band reflectance mosaics (blue, red, and green), and topographic profile curvature. The model information can be used to improve field nitrogen prediction, leading to more effective and efficient N fertilizer management.

SESSION 2: AGRICULTURE & FOOD

Saturday November 13, 2021 | 9:30 to 11:00 a.m. EST

Chair: Gordan McBean

The Challenges of Farming in Manchester, Jamaica
Sheovoney O'Bryan, Church Teachers College: Mandeville

Greenhouses are now being widely used all over the world as they serve as an advantage for farmers by creating an oasis for crops. More specifically they provide ventilation, adequate sunlight, humidity, temperature and even protection against insects that will cause harm to the crops. The aim of this research was to gain an insight into the activities of greenhouse and peasant farmers with particular focus on the challenges they encounter as well as the solutions they are employing while being part of the agricultural sector in the parish of Manchester, which is located in west-central Jamaica. Manchester is known for its high-quality production of citrus, bananas and ground provisions such as yam, but has its agricultural productivity has challenged in recent times by issues relating to climate variability. Data was collected within a qualitative framework and includes: photographs, Google Earth images, observations and semi-structured interviews of two farmers. The study reveals that both greenhouse and peasant farmers are faced with many environmental challenges such as insects and rainfall-related damages, forcing them to respond by a myriad of solutions that cut into their profit margins, including the use of fungicides, pesticides, farm pond, drainage system and a sanitation strategy. This study is a comparative analysis between greenhouse farming and peasant farming.

Gender matters in postharvest food loss: A cross sectional analysis from semi-arid northern Ghana.

Sulemana Saaka, Western University

Food insecurity is a global problem with concentration in the Global South. In smallholder farming communities across Africa, evidence suggests that post-harvest loss is one of the crucial but understudied drivers of food insecurity. In Ghana for instance, post-harvest losses are recorded during harvesting, grading, and during parking. Post-harvest loss prevention has the potential of significantly mediating the problem of food insecurity in Africa given that the proportion of food lost during post-harvest activities could feed a significant proportion of the food insecure population in the continent. Although generally post-harvest loss in the Global South is driven by poor postharvest handling and lack of infrastructure, what is less understood is the role of gender in mediating post-harvest loss outcomes in smallholder farming communities. Using a cross sectional survey of 1100 smallholder farmers, we examined the association between gender and post-harvest loss in semi-arid northern Ghana. Findings showed that women had lower chances of reporting higher post-harvest loss compared to men (α=-1.027; $p \leq 0.05$). Other household level factors were also associated with food loss. Households in which both spouses took part in decision-making, were less likely to report post-harvest loss (α=-1.257; $p \leq 0.001$). Furthermore, lager households, and households that received climate information from external experts, all significantly reported lower chances of high post-harvest loss. Older farmers also reported lesser likelihood of post-harvest loss compared to younger farmers. These findings demonstrate the need to pay attention to gender in post-harvest loss prevention. Given women's longstanding role and deep knowledge of postharvest management in Africa, food policy on postharvest loss needs to leverage women's rich

knowledge. Creating participatory learning spaces for both women and men farmers may be a viable way of promoting gendered knowledge transfer for post-harvest loss prevention.

Issues with Small-scale farming in Jamaica
Shaquille Landell, Church Teacher's College

The purpose of this research was to investigate the different farming techniques used by small farmers within the Small Island Developing State of Jamaica. It also sought to explore the issues they face regularly, along with the solutions that these farmers have created to minimize the effects of such issues. The study was conducted within a qualitative framework, with the use of Semi-Structured Interviews (SSIs), photography, and observation as the primary methods of data collection. A total of 8 small farmers were interviewed within the same agriculturally dominated community, Paul mountain, which is in the parish of St Catherine. Through the research, the interviewed farmers stated their most trusted and relied upon techniques of farming; these techniques regularly aid the farmers to yield the most profit from their acres of land. The research revealed that small-scale farmers face their fair share of issues, many of which have led to some even considering permanently closing their pens and retiring. Lastly, the study revealed what solutions that these farmers have implemented to combat these troublesome issues, so that they may continue to carry on their profession and support themselves and their families.

Sweet Pepper Processing: Innovative Solutions Towards Sustainable Agriculture
Tajeme Robinson, Church Teachers' College: Mandeville

In Jamaica, sweet pepper is a very familiar crop among the farming community and is grown mostly in parishes such as Manchester and St Elizabeth. Sweet pepper in Jamaica contributes to the economy through the Hotels and tourist related service enterprise, as it is a wonderful additive to salads, sweet & sour meals as well as almost every meal which requires natural seasoning. Due to Covid 19, sweet pepper farmers have lost their market in the hotels and other tourism-related entities hence the need for a revaluation of the crop and a need to diversify the ways it can be used. This research aims to explore one of many solutions to improving the shelf life of sweet peppers through agro-processing. This proposal focuses on processing bell/sweet pepper into Paprika, as well as a sweet pepper sauce. The researcher highlights the processes involved in transforming the sweet pepper to the finished product and unto the supply chain as well as how it can ultimately contribute to sustainable agricultural development. The research is, however, ongoing and is still in its developmental stage.

Perceptions, Barriers, and Opportunities for deploying Solar-powered cold storage Technologies- Evidence from Tanzania
Evodius Rutta, Queen's University

In Tanzania, fresh tomato production is the leading cash-earning vegetable crop, accounting for more than 50% of total exports of vegetables. However, between 30 and 50 percent of fresh tomatoes perish before they reach consumers due to poor post-harvest management. Lack of cold storage facilities is one of the leading causes of rapid spoilage of freshly harvested tomatoes threatening the sector's economic contribution, food supplies, and farmers' livelihoods. In recent years, the adoption of affordable, solar-powered cold storage technologies has proved to hold great potential for reducing losses of fresh produce, particularly for farmers in off-grid locations suffering from excessive food losses. Using semi-structured questionnaires, focus group discussions, and experts' consultations, this study examined farmers' perceptions, barriers, and opportunities for increasing uptake of solar-powered cold storage technologies in Tanzania. Forty (40) active small-scale tomato producers and twenty-three (23) experts from government, NGOs, donor community, and solar companies were purposively selected to establish constraints and effective ways for deploying solar-powered cold storage technologies in Tanzania. Data collected were audio-recorded, transcribed, coded, and thematically analyzed using NVIVO 12 software and Microsoft Excel. Findings revealed that the uptake of solar-powered cold storage technologies is constrained by limited awareness, high upfront costs, small market share, and poor post-harvest cold-chain infrastructure. The study concludes that addressing such barriers demands promoting policies that attract and retain investment in cold storage technologies, improving technology affordability through flexible payment strategies, and increasing market awareness on the cost and environmental benefits of solar-powered cold storage technologies.

SESSION 3: THESIS PROPOSALS I

Saturday November 13, 2021 | 9:30 to 11:00 a.m. EST

Chair: Sarah Bradshaw

Landscape and Environmental Control on Soil Organic Matter Quality and Microbial Community Structure in the High Arctic

Julianah Adediji*, Queen’s University
Co-author: Neal Scott, Queen's University.

The Arctic is a reservoir of soil carbon frozen in permafrost, most of which is not readily available for microbial degradation. Increasing temperatures in the Arctic are leading to permafrost thaw. If this soil carbon thaws and is mineralized, the impact on the climate system could be significant. However, little is known about variability in the quality of soil organic matter (SOM) across the landscape. Variation in SOM quality is an important link between permafrost thaw, global climate change and other important environmental quality measures. SOM can be both a source and sink of CO2 and methane that are important greenhouse gases. SOM can affect mobility and fate of contaminants in soil and can also be redistributed in soil following permafrost disturbances, leading to enhanced carbon mineralization. The magnitude of these impacts on the environment depends on the unique relationship between soil

microbial community structure, quality of SOM, and rates of mineralization. My research proposes to examine the key factors that control variability in SOM structural quality using NMR and DRIFT spectroscopy and soil incubations. I will evaluate microbial community structure, and see how this affects degradation of SOM. My main objectives will be to: 1) Investigate the effect of vegetation and moisture on SOM structural composition in the high Arctic 2) Evaluate the interactions between landscape factors, SOM quality and microbial community composition. 3)Determine the lability of SOM and how it compares to SOM structure and degradation and to 4) Assess the influence of permafrost disturbance on SOM structure and degradation.

Investigating Disparity of Priority Air Pollutant Exposure within Hamilton
Elysia Fuller-Thomson, University of Toronto

Understanding air pollution's spatial distribution within a city elucidates which populations are most exposed, while in turn showing cities where interventions are most needed. Inequity in the intraurban distribution of has pollutants has been well studied for particulate matter and nitrogen oxides emissions but it remains to be seen whether other common air pollutants follow a distinctive pattern, especially in countries outside the United States (Amini et al., 2017). Our goal is to map the distribution of nitric oxide, nitrogen dioxide, ozone, sulfur dioxide and benzene in the city of Hamilton, a city of diverse pollutant sources. Passive sampling will occur on streetlights during four fourteen-day periods in each season, starting January 2022 and ending December 2022. Sampling will be located at fifteen sites that best capture the land use of each city ward, and fifty-eight sites will be selected to measure near pollution groups. A land use regression model will then be used to connect land characteristics with the measured level of exposure. The exposures generated from land use regression model will then be linked to a stepwise ordinary least square regression model to investigate whether certain vulnerable populations are more exposed to air pollution. Overall, this project will give the most detailed information on socioeconomic disparity of air pollution in Canada.

Characterizing the Surge Pattern of the Otto Glacier on Ellesmere Island, Canada: 1990-2020
Monika Wagner, University of Waterloo

Sea level is rising at an unprecedented rate due to climate warming, yet the processes controlling the flow and discharge of glacier ice to the ocean and how this contributes to global sea level remain poorly constrained. This is especially true for surge-type glaciers, a class of glacier movement that cycles between rapid fast flow (surge-phase) and slow flow (quiescent phase), which can significantly alter mass loss to the ocean over short time scales. As such, in-depth studies of individual surge-type glaciers are essential for quantifying the spectrum of surge patterns that can occur as well as identifying triggers and controls for surges. In this study, we will focus on the Otto Glacier of Ellesmere Island (Nunavut), a little understood surge-type glacier. We will use remote sensing images from 1990-2020 to quantify surge duration and

associated velocities, determine how glacier geometry evolves during a surge, and identify bed controls on dynamic behavior. The findings will provide specific insight into how and why glaciers surge in the Canadian Arctic Archipelago. This knowledge is critical for accurate projections of hazardous iceberg presence in Arctic waters and refined estimates of the Canadian Arctic's contribution to sea level rise.

Are big data better data?: Understanding how partnerships impact government collection, use, and sharing of big data

Zarin Khan, University of Waterloo

Big data can offer insights to support better government decision-making. However, in the process of collecting, using, or sharing these data, common constraints such as bureaucracy, limited resources, or organizational silos, often push governments to outsource tools and expertise partnering with third parties. This can indicate that there is
- a strong interest in utilizing big data;
- tension around government capacity to collect, share and analyze data; and
- a broad range of entities – commercial, non-profits, or research organizations that offer data, technological, or strategic solutions.

This creates a blurred image of the actors and their roles in data collection, use, and sharing processes. Moreover, a significant gap exists in understanding how the shifts in data governance impact our society. In this rapidly shifting area of technology adoption, governments are often challenged in responding to their core responsibilities, such as building trust, ensuring transparency, and supporting an equal society. In addition, capacity limits and lack of strategic management can restrict the use of data. Through my research, I will examine how governments navigate these challenges. I will identify and categorize data-based partnerships between governments and other actors. I will analyze the associated needs, challenges, and opportunities generated through these partnerships. As a part of this, I will deconstruct the components of data governance to demonstrate how partnerships emerge, influence, and impact the overall process of data collection, use, and sharing. The findings of this research will be used to develop data strategies addressing current challenges to invigorate data governance for a better society.

Urban Wetland Management for Food Security in Akure South Local Government Area, Ondo State, Nigeria

Adenike Omodehin, Federal University of Technology, Akure, Ondo State, Nigeria

Wetland, being one of the most valuable and important natural resources play very significant roles in the environment, providing benefits such as reduction of flood; improvement of water and air quality; poverty alleviation through job creation; promotion of human well-being as well as food security. Despite these important roles, wetland resources are still endangered by factors such as increase in population, rapid urbanization, mining and pollution, among others.

There is therefore a need to use wetlands wisely and sustainably. This study is aimed at assessing the wetlands in Akure South Local Government Area of Ondo State with a view to adopting effective wetland management strategies that will enhance food security in the area. To achieve this aim, geo-spatial mapping techniques will be used to identify wetland zones in the study area; the threshold for food security in the study area will be determined; multi-temporal imageries will be used to consider the effect of urban growth on the spatial configuration of wetlands in the study area; and wetland management policies as well as the potentials of wetlands in the study area will be examined. Data would be obtained from well-structured questionnaires, interview guides and satellite imagery, analysis would be done using the Statistical Package for Social Sciences (SPSS) version 26 and Remote Sensing and Geographic Information System (RS & GIS) techniques. Recommendations will be made from the findings and information that will enhance sustainable wetland management for food security will be provided to relevant authorities in the city.

What if we are not in the same boat: Evaluating the role of social capital in community engagement for coastal adaptation

Sara Bohnert, University of Waterloo

Communities experience variations in vulnerability to threats like sea level rise (SLR). Historical context, social and institutional structures or injustices create different sensitivities and vulnerabilities to coastal inundation. A community's capacity to adapt is also, in part, influenced by their social capital. Social capital refers to the social relationships, networks of trust, norms and values that allow for collective action within a community. Despite attention to the impacts of social capital on community engagement and collaborative decision making in Public Health literature, social capital is rarely considered in research on community engagement for coastal adaptation. This gap has implications for the equity of community engagement protocols and the effectiveness of collaborative coastal adaptation strategies, considering that communities most vulnerable to SLR often have the least capacity to adapt or engage in adaptation dialogue. To address this issue, I will undertake a comparative analysis of two case-studies on the British Columbia lower mainland. Using a mixture of literature, policy review and semi-structured interviews, I aim to identify: 1) structures that result in varying social capital; 2) how social capital impacts communities' participation capacity and their influence in coastal adaptation dialogues; and 3) how community engagement policy for coastal adaptation can be adjusted to address these barriers. The ultimate objective of this research is to provide policy recommendations for community engagement processes for coastal adaptation on the B.C. lower mainland.

Energy insecurity to Inuit Energy Sovereignty in Nunavut: Reconciling with renewables?

Alex Makin, Queen's University

Energy insecurity is determined by the accessibility, affordability, availability, and resilience of energy sources. Closely connected to a reliance on fossil fuels and the binding of communities, households, and individuals to the vagaries of global markets, energy insecurity has negative economic, environmental, health, and social implications. In Canada, such implications are disproportionately experienced on behalf of remote northern Indigenous communities whose dependence on diesel fuel continues to erode aspirations for Indigenous energy sovereignty. In response to appeals to reduce the dependence on diesel fuel and advance Indigenous energy sovereignty, the Government of Canada is promoting a variety of initiatives. One particular clean energy project on behalf of Natural Resources Canada (NRCan) is the Indigenous Off-Diesel Initiative (IODI). While it has been argued that clean energy projects with Indigenous participation may strengthen the economic basis and the process of national reconciliation, minimal empirical research has yet to concentrate on how the politics of control, ownership, and power intersect with ongoing struggles for sovereignty in Inuit communities in Nunavut. In response, I aim to centre Inuit perspectives from the four Inuit communities selected to participate in a the (IODI), which include Gjoa Haven, Kugaaruk, Rankin Inlet, and Taloyoak. In this proposal presentation, I will discuss my research context with a concentration on infrastructure and energy in Nunavut before discussing my conceptual framework, research questions, methodology and methods, and lastly the eligibility and feasibility of my proposed research.

SESSION 4: POSTER Q&A

Saturday November 13, 2021 | 9:30 to 11:00 a.m. EST

Do perceived inequities in safe water access manifest in collective action? Evidence from urban Ghana

Meshack Achore, Queens University

Access to safe drinking water plays a critical role in improving health and wellbeing. It is estimated that over 137 million urban inhabitants in sub-Sahara Africa do not have access to safe drinking water. This paper explores determinants of collective action in water insecure neighborhoods and examines how perceived inequities in access to water and trust mediate the relationship between lack of access to water and collective action. The results show that compared to wealthy individuals, the urban poor (OR=12.047, p = 0.000) were more likely to participate in water-related collective action. Primary decision makers were 1.696 times more likely to participate in collective(p=0.02). We also found that perceived inequities (OR = 0.381, p = 0.00) were a significant predictor of participation in collective action to address water insecurity. Water service providers should be subjected to a rigid state-level framework that ensures inclusivity, fairness, and justice in their distribution systems.

A Mi'kmaq Journey for Recognition

Kimberly Bell, University of Guelph

Presentation Format: Poster with images, timeline and radio buttons with recordings of interviews with my family; plus the reading and/or playing of published materials. Intention: To take you on a journey through the history of the Mi'kmaq people using a combination of content from published materials, as well as my own family's history and experiences. I feel it's important to tell this story because the Mi'kmaq are still largely unrecognized.
- How the decimation of the caribou herds and migratory lands contributed to the poverty of the Mi'kmaq at the turn of the 20th century (Pastore, 1998).
- When Newfoundland joined confederation in 1949, the premier of Newfoundland claimed there were no Indigenous people on the island, providing no recognition to the Mi'kmaq at all (Contenta, 2013).
- How racism forced Indigenous people to 'hide' their identity which led to the government as well as the Newfoundland Federation of Indians not knowing how many Mi'kmaq were left (Contenta, 2013) (Pastore, 1998).
- And finally, how the government limited the number of Mi'kmaq status applications they approved, causing hurt and strife within the Mi'kmaq community. A class-action lawsuit is currently before the court (Contenta, 2013) (CBC News, The National, 2018) (Hooykaas, 2021, Unit 5). If, in 2022, the court does not rule in favour of those Mi'kmaq, who were denied status, what are they left with? I've asked my family to answer this question and you'll hear their responses.

The Future Demise of Cavell Glacier, Jasper National Park, Alberta.

Brian Luckman, Western University

News accounts of glacier mass loss were prominent throughout 2021.This poster reports on two small adjacent glaciers in Jasper National Park. Angel Glacier is a classic cirque glacier on the east face of Mount Edith Cavell with a source area of ca. 1km2 between ca 2430-2735m that feeds a hanging tongue which was confluent with Cavell Glacier prior to 1940. Avalanche accumulation of snow and ice nourishes Cavell Glacier (elevation range ca 1800-2000m) at the foot of the main mountain face. Two closely spaced moraines downvalley (ca.1720s and 1860s) document the Little Ice Age advances of Cavell Glacier which had an area of ca 1km2 (exclusive of contributions from Angel). Its debris-covered toe had receded 520m by 1945 and another ca 200m by 1960. The proglacial lake (Cavell tarn), initiated at the icefront ca.1960, was 500-550m wide in 2020. In 2020 Cavell Glacier terminated in a low calving ice cliff and its area was ca.10ha. (>90% loss). Cavell Tarn drains seasonally. Winter images indicate the actual ice front is a vertical cliff 10-30m high. Between 2020 and 2021 the glacier lost ca. 2ha. (ca 20%) with an estimated 3-5m vertical lowering. The hanging toe of Angel Glacier receded between 1945 and the 1970s but advanced ca 50 m between 1978 and 1983. Subsequent recession has reduced its length by about 50% with little change in the last 3 years. The strong difference in behaviour between these glaciers reflects their topographic settings. Cavell Glacier will probably disappear in the next decade.

Studying the Catawba River Watershed's Relationship of Modeled Water Quality with Land Use and Land Cover Change from 2001-2016

Megan Holland*, University of Toronto-Mississauga
Co-author: Barbara Teague (Appalachian State University); Dr. Steven Seagle (Appalachian State University)

The overall water quality of a watershed is influenced by its land use and land cover change, along with population growth within its included ecoregions. The Catawba River Watershed (CRW) is located over the western piedmont region of North Carolina and throughout a portion of central South Carolina. This area experiences anthropogenically-caused issues affecting its ecosystem services regarding urban development, excessive nutrient loading, and non-point source pollution, all of which can be studied through change in water quality. This study aimed to analyze the water yield change per watershed basin in the CRW by gathering and classifying adequate land use and land cover change data from the period of 2001-2016. This involved running and creating reproducible results using the Integrated Variation of Ecosystem Services and Tradeoffs (InVEST) modeling software, producing values of Hydropower Water Yield as well as Sediment Retention per pixel over the study area for statistical comparison. The results indicated that the CRW had a high value of change per pixel overall regarding Hydropower Water Yield, with rates that changed depending on basin placement and topographic gradient. Results from the Sediment Retention model produced correlated amounts of per pixel yield with elevation change as well. Overall, the combined water quality data demonstrated an increase of 1.92 percent of water yield per pixel (in m3/ha/year), and an increase of 2.04 percent of sediment retention per pixel (in tons/watershed) from 2001-2016 in the CRW.

Long-Term Concentration-Discharge Relationships – a Credit River Case Study

Victoria Carroll*, University of Toronto-Mississauga
Co-authors: Yilong Kuang (University of Toronto-Mississauga); Zijing Wu (University of Toronto-Mississauga); Zhaoyue Zhang (University of Toronto-Mississauga)

Water quality concerns exist globally, and research is necessary to understand the unique and dynamic relationships between various solute concentrations and discharge. We studied long-term concentration-discharge relationships along the Credit River found in urban Southern Ontario to understand the region's water quality better. Historical data from the Water Survey of Canada and the Provincial Water Quality Monitoring Network, dating from 1975 to 2018 at five stations along the Credit River, were used to determine concentration-discharge relationships with increasing catchment areas. The resulting trends exhibited one of three solute patterns with change in discharge: chemostasis, enrichment (transport limitation) or dilution (solute limitation). We divided the data by median discharge breakpoint, yielding nine potential patterns for c-Q relationships. Three of the nine patterns appeared in over 60% of the analyses of all solutes. However, some solutes like total phosphorus did not favour specific patterns and presented four out of the nine c-Q patterns. Other solutes, such as chlorine and calcium, exhibited chemostatic behaviour. Our results for dissolved inorganic phosphate

differed from previously published research that took place in different geological regions. Ultimately, we found that less reactive solutes tended to have similar c-Q relationships across the river's stations and more reactive solutes exhibited changing c-Q relationships downstream. The urban nature of the stream and physical manipulation of the natural streamflow over the years of study may have influenced the results. This data collection is non-invasive and generates quality data over long periods, contributing to regional water quality monitoring.

Seasonal Suburban Riparian Zone Soil Respiration Dynamics

James Kanarek*, University of Toronto
Co-author: Tim P. Duval (University of Toronto-Mississauga)

Warmer temperatures due to changing climate and abundant soil moisture from suburban surface runoff could have the potential to turn suburban riparian zones into sources of greenhouse gases. Despite the continued growth of suburban areas, however, suburban riparian zone soil respiration is not well understood. This study sought to characterize carbon dioxide (CO2) efflux dynamics from soil respiration in suburban riparian zones. We measured rates of respiration in grassland and forest communities typical of suburban stream riparian corridors over a seven-month period. Our results showed average CO2 efflux was typically higher at grassland sites at 0.34 g/m^2/hr. For both spring and summer, the grassland sites showed higher CO2 efflux while forest sites had higher CO2 efflux during winter. Additionally, our findings showed that CO2 efflux was correlated with soil temperature but varied greatly depending on the season. We found a correlation between soil respiration and temperature was highest during the spring with an R^2 of 0.66 and for winter and summer was close to or below 0.1. These findings demonstrate great variability in CO2 release from suburban riparian soils, this is similar to what is seen in agricultural riparian zones where CO2 efflux can be highly variable across smaller areas. This variability will likely make conceptualization of CO2 efflux across suburban riparian zones difficult.

The impacts of rural labor exodus on agricultural production: The case of China.

Huan Wang, University of Ottawa.

With China's ongoing urbanization and industrialization, many agricultural workers migrate from rural areas to cities and participate increasingly in the growing urban industries. This rural exodus has a significant impact on China's agricultural landscape and in particular a notable decrease in the labor force involved in farming. Simultaneously to this restructuring of its labour force, China is also seeing a reconfiguration of key factors required in agricultural production, including arable land resources and capital investments in farming. A central question is whether and how China's agricultural output will be affected, and in turn whether and how national food security can be guaranteed given significant changes in production factors such as land transfers and capital input brought about by the exodus of the agricultural labour force. Our aim in this paper is to examine the linked processes of rural labour out-

migration and arable land policies at different stages of social development in China and the resulting changes; specifically, we will analyze how rural labour migration affects land transfers, and in turn how land transfers, as an intermediate medium, affects agricultural production. The case of China is used as an example to analyze the broader processes and impacts of rural exodus on agricultural production to develop recommendations for labor policy and land policy in other developing countries.

SPECIAL SESSION: SPATIAL PATTERN AND MOBILITY RESEARCH DURING COVID-19

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: Alexander Wray

What drives disease flows between locations?
Shiran Zhong, Western University

Communicable diseases "flow" between locations. These flows dictate where and when certain communities will be affected. While the prediction of disease flows is essential for the timely intervention of epidemics, few studies have addressed this critical issue. This study predicts disease flows during an epidemic by considering the epidemiological, network, and temporal contextual factors using a deep learning approach. A series of scenario analyses helps identify the effects of these contextual factors on disease flows. Results show that the extended spatial-temporal effect of the epidemiological factors stimulates disease flows. The compound effects of the network factors enhance the transmission efficiency of these flows. Lastly, the temporal effect accelerates the combined effects of epidemiological and network factors on the flows. The findings of this study reveal the intricate nature of disease flows and lay a solid foundation for real-time surveillance of epidemics and pandemics to inform timely interventions for a broad range of communicable diseases.

Spatial variation of socio-demographic factors affecting mobility in Ontario during the COVID-19 pandemic
Ben Klar, Western University

Human mobility patterns are often dictated the by socio-demographic characteristics of regions. Beginning in March 2020 there has been a large-scale shift in mobility around the world resulting from the COVID-19 pandemic due to restrictions on social gatherings and closure of many in-person businesses. These changes resulted in an overall decrease in mobility, but similar to what we have seen under non-pandemic circumstances, the mobility impacts of the pandemic have not affected everyone equally, with people in certain jobs or social positions needing to travel more than others. This research uses network mobility data from TELUS Communications Inc. through their Insights platform which is a privacy preserving

system for analyzing mass-mobility patterns within Canada. We calculated two aggregate mobility metrics, Movement Time and Radius of Gyration, at the Aggregate Dissemination area (ADA) level. We used a geographically weighted regression model with demographic variables measuring age, income, visible minority groups, education levels and urban environment at the ADA level, for different time periods during the pandemic. We test the hypothesis that areas with lower socio-economic status are associated with lower change in mobility compared to before the pandemic. These results suggest that people from lower socio-economic status areas are more likely to exhibit higher mobility earlier on in the pandemic, particularly in larger cities. The results further our pre-pandemic understanding of how demographic variables relate to mobility patterns, and how observed discrepancies in mobility patterns among different social groups exist during the pandemic.

Analysis of spatiotemporal patterns of COVID-19 across Middlesex-London
Xiaoxuan Sun, Western University

This paper first reviews current geospatial portals of COVID-19, and then discusses and documents an attempt to develop a real-time health surveillance system that can detect clusters and monitor the transmission of diseases across the Middlesex-London region, where cases and clusters of COVID-19 have been reported and change over time. Its purpose is to inform strategies to be used in working with the local health system for mapping and disseminating information about COVID-19. The Emerging Hot Spot analysis results showed the classification of the COVID-19 hot spots and the associated spatiotemporal change trends across Middlesex-London between July 21, 2020 and January 26, 2021. Hot spots, consecutive hot spots, sporadic hot spots, oscillating hot spots, and consecutive cold spots comprised the main spatiotemporal pattern of the study area. In light of this, it is important to find an appropriate approach to working with the health system and providing real-time guidance during the COVID-19 pandemic. An adequate surveillance system can also assist in dealing with other outbreaks that occur in the community on a regular basis. In addition to helping manage COVID-19 and better understand disease patterns, this research may be valuable in management practices and prevention strategies.

The new BRT system has led to an overall increase in accessibility for essential workers during the COVID-19 pandemic: empirical evidence from Winnipeg, MB, Canada.
Suraj Singh, Western University

Recently, in the city of Winnipeg, the implementation of new bus rapid transit (BRT) system in the middle of the COVID-19 pandemic has raised many concerns, challenging the rationale behind the untimely release. However, the new BRT service can benefit low-income, socio-economically vulnerable, and transit captive “essential workers” who still must travel into work during the pandemic. This study evaluates whether the new BRT system can have positive impacts for essential workers to access their job locations, and those who seek their services

during the pandemic as well. To analyze the changes in space-time accessibility, we generate multiple travel time surfaces with 15-minute resolution given a time window. Then, for each surface generated, we calculate space-time constrained cumulative accessibility measure for each essential service type (e.g., grocery, healthcare). Finally, we compute the average of these accessibility measures for each essential service category within the time window, and use the resulting averages as a basis to calculate the differences pre and post the BRT construction. The new BRT service demonstrates varying accessibility impacts across different parts of the BRT corridor. Dedicated lane-section shows a significant increase whereas non-dedicated lane-section shows a decrease in accessibility. Nevertheless, across the whole BRT corridor, the new BRT service demonstrates an overall increase in accessibility to essential services. This demonstrates positive accessibility benefits of new BRT service to "essential workers" during the COVID-19 pandemic. A decrease in accessibility along the non-dedicated lanes parts suggests the necessity of dedicated lanes when planning BRT services within urban areas.

Investigating space-time patterns of COVID-19 transmission risk and their associations with the built environment in Hong Kong.

Dong Liu, Western University.

The exploration of space-time patterns of areas with high COVID-19 transmission risk and their associated built environment and sociodemographic characteristics is of great significance for policymakers to formulate effective intervention measures aimed at controlling the spread of COVID-19. This research aims at identifying and comparing places with higher COVID-19 transmission risk across different waves as well as examining the associated built environment and sociodemographic characteristics in Hong Kong. Based on the types of buildings/venues (residences and places visited by confirmed cases) and cases (imported cases and local cases), we divide the building/venue-level locations into four categories, which include 1) residences of imported cases (IR), 2) residences of local cases (LR), 3) locations visited by imported cases (IV), and 4) locations visited by local cases (LV). The space-time patterns of COVID-19 cases are examined by detecting significant space-time clusters using the space-time scan statistics. Our research reveals that the third wave has wider transmission range and longer spread period than the first two waves. The results also indicate that higher density of population, high-rise buildings, private residential, commercial and transport land use, less sky view and fewer greenspaces are associated with higher COVID-19 transmission risk. Generally, when COVID-19 transmission risk is higher, local communities with lower income and higher population density have a higher risk of pandemic outbreaks and COVID-19 has exposed and exacerbated social inequality.

SPECIAL SESSION: URBAN CLIMATES

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: James Voogt & Scott Krayenhoff

Understanding the effects of street trees on the diurnal cycle of road surface temperatures in residential neighbourhoods in London, ON

Austine Stastny, Western University

Cities are particularly vulnerable to the effects of global-scale climate change, including an increase in the number of extreme heat events and overall increasing environmental temperatures. Vegetation is an essential component of urban design because it is used to mitigate these effects. Limited research explicitly examines the effect of urban street trees on road surface temperatures (Troad) – an important variable that contributes to the overall high surface temperatures in cities, both by day and night. Thus, this research examines how varying amounts of street tree cover across three different residential neighbourhoods affects the diurnal behaviour of Troad. Using a mobile traverse methodology, a measurement campaign was undertaken in London, Ontario to measure Troad as well as incident solar and thermal radiative fluxes – two significant determiners of road surface heating and cooling. In order to capture the spatial variability of measured variables created by vegetation morphology, measurements were made at slow (~20km/hr) vehicle traverse speeds and fast (0.5Hz) temporal sampling. Our analysis assesses the differences between Troad and the radiative warming and relative cooling rates of road surfaces between the three neighbourhoods. Additionally, thermal image composites are used to visualize the diurnal pattern of Troad and characterize the relative warming of Troad under tree canopy coverage at night. Results from this research will provide useful information for local officials and planners on effective street tree planting strategies that will contribute to climate resilient urban residential neighbourhoods.

Quantifying changes in human thermal exposure due to climate change and urbanization: A multi-scale modelling approach

Timothy Jiang*, University of Guelph
Co-author: E. Scott Krayenhoff, University of Guelph

Urban overheating poses a threat to human comfort and health, and it is being exacerbated by climate change and urban development. And as both of these drivers are projected to intensify this century, urban denizens will experience higher levels of heat stress. However, while the change in air temperature due to urbanization and climate change by the end of the century has been quantified, it is only one factor in human heat stress. For example, the three-dimensional short- and long-wave radiation environment, which also factors into thermal

exposure, may also change as a result of climate change and urban development. In this study, we quantify the interacting effects of climate change and urbanization on pedestrian thermal exposure in cities of the future during heat waves. We select the hottest week of every summer at the start and end of the century and dynamically downscale global climate model data using mesoscale and microscale models, capturing multi-scale factors influencing human thermal exposure. We show that the amount of extreme heat experienced in a deep urban canyon in the hot, arid city of Tempe, Arizona is projected to increase substantially by the end of the century, especially under an RCP8.5 climate scenario.

A seasonal assessment of urban outdoor pedestrian thermal exposure in a humid continental climate

Tim Aiello, University of Guelph

Many cities in the northern hemisphere experience both extreme heat and extreme cold weather. Pedestrians are exposed to these thermal extremes, causing bodily stress. With a growing and ageing urban population, city design that contributes to the mitigation of summer heat exposure while also reducing winter cold exposure is of increasing importance. In addition to air temperature, pedestrian thermal exposure depends on several microclimatic factors, including wind speed, humidity, as well as shortwave and longwave radiation, which can be quantified by the mean radiant temperature (Tmrt). There has been little detailed study of the impacts on pedestrian thermal exposure in climates with high humidity during summer and snow cover in the winter. We gathered seasonal radiation data from varied urban microclimates using the six-directional method in a Canadian city. We deployed a mobile human-biometeorological weather station (MaRTy cart), which has previously been used primarily in hot, dry climates. Radiative flux profiles are decomposed into their directional components, and they demonstrate substantial differences in the drivers of thermal exposure between seasons and locations within the urban area.

Cooling Impacts of Reflective Roofs and Pavements in Tropical Neighborhoods

Renata Cardoso*, São Paulo State University
Co-authors: Margarete Amorim (São Paulo State University); James Voogt (Western University)

Combined with more frequent and intense heatwave events arising from climate change, the increased near-surface air temperatures in urban areas can cause heat stress and affect the health of people, especially those living in warm regions without appropriate housing. Intentional surface modifications can reduce urban heat within the canopy layer and are increasingly being evaluated to plan scenarios for climate adaptation. Their assessment through numerical modeling can also provide information on the potential cooling impacts of heat mitigation strategies prior to their implementation, which is helpful to city planners and decision makers. This study evaluates the cooling benefits of adaptation measures in Presidente Prudente (São Paulo, Brazil) local climate zones using the ENVI-met microclimate model. A mid-

rise downtown area and a compact low-rise residential neighborhood are chosen to model the impacts of albedo increases on ground level and rooftops during summer conditions. Model evaluation and calibration are conducted through in situ observations to assess the model biases and improve the performance and reliability of results. The albedo strategies are then simulated for a typical summer day, and the cooling efficacies are derived from each scenario to assess their potential in reducing the pedestrian-level air temperature in a tropical city. Results show that reflective pavements are more effective at cooling mid-afternoon air temperature compared to reflective roofs, with maximum reductions of ≈0.4 ℃ and ≈0.1 ℃, respectively, per 0.10 albedo increase in both neighborhoods.

Analytical Study on the Intensity of Surface Urban Heat Island in Kaduna, Nigeria
Kolade Victor Otokiti, University of Leeds

Climate change and urbanization are the leading causes of increasing land surface temperature and the formation of Urban Heat Island (UHI). To that effect, rising Land Surface Temperature (LST) has become a major environmental issue in cities during the past few decades. This posits issues bordering around land surface temperature at the centre of scientific transdisciplinary enquiries, ranging from urban planning, public health, geography, climatology, among others. This paper seeks to model the relationship between Land Use/Cover (LU/C) indices and LST over Kaduna, Nigeria, using Landsat Multi-Temporal images distributed between 2001 and 2021. First, the LST values were computed from the thermal bands of the Landsat images. Second, the Maximum Likelihood Classifier algorithm of the supervised land use/cover classification technique was used to identify the patterns LU/C dynamics. Third, the Landsat images were used to generate LU/C Indices maps, including Normalized Difference Vegetation Index (NDVI), Normalized Difference Built-up Index (NDBI), Modified Normalized Difference Water Index (MNWVI), Soil-Adjusted Vegetation Index (SAVI). Finally, the relationship between LU/C indices and LST was expressed by correlation coefficient values.

SESSION 5: GEOGRAPHIES OF HEALTH

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: Zoe Askwith

What becomes of the broken-hearted?: Diasporic melancholia and geographies of care in "Islands" (2021)
Joseph Palis, University of the Philippines-Diliman

If islands are generally viewed as lithospheric outcrops in oceans, Martin Edralin's film Islands (2021) touches on isolation and solitude in a sea of unfamiliarity. Instead of actual subcontinental lands, the islands in Islands tell the stories of the lives of diasporic individuals living in a foreign territory and their (re)construction of familiar homespaces. The film centers

on one man's alienation to the social worlds he inhabits and calls home. Directed by a Filipino-Canadian filmmaker, Islands is set in Toronto and focuses on Joshua – an aging single man facing the prospects of living alone as he cares for his elderly father. A visiting distant cousin—Marisol—was summoned to care for the ailing father that sets the stage for the collision of two 'island' worlds. This presentation examines and analyzes the emotional geographies of diasporic lives, and the entanglements of two similar yet different individuals within the context of a Canadian landscape—at once forbidding and welcoming. Drawing on the works of Lawson (2009), DeLoughrey (2007) and Brathwaite (1967) on diasporic mobility and postcolonial islands, this presentation shows how caring and 'care-ful' geographies serve as a connective throughline in Islands that simultaneously unite and separate entities not unlike topological islands.

Undone, Restructured, Erased: A System in Crisis

Keri Cameron, McMaster University

Health reforms have impacted the way care is organized and delivered.
As austerity measures cut public financing for care and services are de-listed, care is increasingly informalized and commodified. The objective of my study is to explore care in Ontario, Canada from the perspective of patients. I took on the roles of both a researcher and a patient, examining the current state of care as a patient who has navigated the health system and as a researcher with a background in social geography and disability studies. I use feminist auto/ethnographic methods, including observation and fieldnotes, journaling, and reviewing notes in my patient records. In addition to this, I conducted semi-structured in-depth interviews with seven individuals who underwent surgery and two family members who provided informal care to individuals post-operatively. There are two layers of my analysis: our individual encounters with carers alongside our changing embodiment and the broader care relations of the system, increasingly influenced by neoliberalism. Neoliberalism produces poor working conditions for nurses and personal support workers which translates into insufficient care for patients and support for families and informal care providers. Care is increasingly being shifted to the home and into the community, and individuals and families are taking on more responsibility in terms of caring for family members.

Is the Andersen framework useful in explaining traditional medicine use in the Ghanaian context?

Ziyue Zhang, University of Toronto

Arguably, the most popular explanatory and predictive framework for understanding health utilization behaviour within the biomedical model is the Andersen framework, but there is a paucity of research on the use of Andersen's framework in complementary and alternative medicine, especially among populations in low- and middle-income countries (LMICs) like Ghana. Urban areas in LMICs are among the most rapidly expanding in the world, leading to

concerns about how rapidly changing urban profiles are impacting population health. Scholars point to the general gap of research on traditional medicine use in LMICs and the connection with rapidly evolving urban settings as a challenge to understanding the population health needs of vulnerable groups in such settings. This research uses survey data from 1,214 respondents collected in the Upper West Region of Ghana, Africa to examine the ongoing use of traditional medicine in Ghana as well as socio-economic, demographic, and geographic information of persons 18 years or older. The Andersen framework provides a systematic categorization of individual and contextual factors to help analyze and explain the variables associated with traditional medicine use in the Upper West Region of Ghana.

Examining the burden of disease and its relationship to socioeconomic status from traffic noise exposure in Toronto and London, Ontario
Tor Oiamo, Ryerson University

Exposure to environmental noise pollution is a growing public health issue in our world today. Environmental noise is generally defined as unwanted sound generated by humans as activity such as transportation and construction. Research shows that noise exposure can result in a variety of adverse health effects, such as annoyance, sleep disturbance, and ischemic heart disease. Furthermore, some research has found that exposure to higher levels of noise is associated with lower socioeconomic status. This study estimates the burden of disease (BoD) rate from traffic noise in Toronto and London, Ontario, and assesses the relationship between noise exposure and socioeconomic status. The BoD calculations were carried out to determine the amount of Disability Adjusted Life Years (DALYs) lost in each city, while a linear regression model was used to determine the relationship between exposure to noise and socioeconomic status. Burden of disease calculations demonstrated that 1188 and 1662 DALYs were lost in Toronto and London, respectively, for every 100,000 people exposed. The analysis also found a moderate correlation between high exposure to noise and low socioeconomic status. These results combined indicate that there is double burden of disease and low socioeconomic status related to traffic noise exposure in both large metropolitan cites and lower density mid-sized cities in Canada.

SESSION 6: GEOGRAPHIES OF GENDER AND INCLUSIVITY

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: Shawna Lewkowitz

The Spectacle of Collective Mourning: Analysing Women's Resistance in Kashmir
Prateeksha Pathak, York University

"Bodies not only are territory but also make territory." - Sara Smith

The state of Jammu and Kashmir has been engulfed within violence, bloodshed and forced displacement since the twentieth century. The state was divided between India and Pakistan in 1947, following the Partition of British India. The territory of the former princely state has become a bone of contention between the two nations since then. The conflict culminated in the insurgency of 1989, which led to massacres of Kashmiris and involuntary migration of thousands of Kashmiri Pandits, Sikhs, Christians and Muslim leaders. The counter-insurgency movement, planned by state-sponsored agencies, was equally brutal and led to mass killings, torture, rape and harassment of women and enforced disappearance of many Kashmiri Muslim men. The victims of these enforced disappearances also included "ordinary civilians having no connection with armed opposition groups operative in Jammu and Kashmir" (Amnesty International 1999:10). These forced disappearances have neither been acknowledged by state-sponsored institutions, nor have they received their due representation in national archives, popular media and cinema. As a result of this erasure of both men and memories, Kashmiri women were compelled to come out crying on streets, to mourn their loved ones, abandoning their sheltered lives and breaking the traditions, rooted within patriarchy, which expected them to remain confined within their homes and sob for their loved ones. My paper aims to analyse the narratives of resistance produced by women through the public spectacle of collective mourning in the urban landscape. They gather in the centre of Srinagar and mourn for their loved ones, making the urban space a site for collective resistance. These spaces and spectacles produce counter-memories which are "subjugated knowledges" produced by women from marginalised communities. Analysis of these gendered gatherings and writings about them such as Resisting Disappearance: Military Occupation and Women's Activism in Kashmir" by Ather Zia and Islam, Women, and Violence in Kashmir: Between India and Pakistan by Nyla Ali Khan will help me understand the role of counter-narratives of women that are forcibly silenced by the powerful groups in re-telling the stories of locals. By emphasising on Kashmiri women's agency, the paper will point towards a crucial aspect: "In the powerful idiom of postcolonial criticality, the question is not Can the Kashmiri women speak?, but rather: Can you hear them?" (Kaul and Zia 2018: 34)

Unignorable! Empowering citizens to hold duty bearers to task using photovoice.

Eunice Annan-Aggrey, Western University

Well over half of the one billion people with low income are living in middle-income countries, suggesting that they are living in societies with the financial and technological means to address their remaining poverty. What seems to be lacking then is the political will to prioritize the needs of the vulnerable persons. Given the increasing recognition of local governments as critical agents in promoting local development, this paper investigates the contribution of local level SDGs implementation to addressing the needs of populations at risk of being 'left behind' in development. Using qualitative methods, the paper compares the identified priorities of local government institutions with the perspectives of rural women on their most important need. The present research utilized the photovoice methodology to empower vulnerable women who are particularly underrepresented in decision making to articulate their needs. The research findings suggest that while local governments are touted as the best level of governance to

meet the needs of vulnerable populations, in several settings, the voices of some segments of society are missing in consultation discussions. This research utilized a photovoice methodology to empower vulnerable women who are particularly underrepresented in decision-making to articulate their needs. The images produced during this process supported women to tell their stories in ways that are difficult for local policymakers to ignore. The findings of this research underscore the immense potential of the photovoice methodology in empowering marginalized populations to reflect on their experiences and to express their thoughts about their realities.

Towards an integrated theoretical framework for understanding water insecurity and gender-based violence in Low-and Middle-Income Countries (LMICs).
Abraham Nunbogu, University of Waterloo.

Disparities in access to basic needs such as water are largely borne out of power imbalances across scales. In examining these power dynamics in the context of health inequalities, health geographers have deployed a feminist political ecology analytical framework to situate gender and other vulnerabilities as emerging from unequal power relations, and political ecology of health to emphasise the health implications of inherent relational power in the distribution of resources. Although appealing, the two theoretical frameworks over time have proven limiting in the study of intersectional vulnerabilities such as gender-based violence and water insecurity which reflect multiple dimensions of unequal power structures. This study expands the theoretical space for the study of inequalities in health geography by demonstrating the utility of incorporating feminist political ecology with political ecology of health to form an integrated theoretical framework – Feminist Political Ecology of Health (FPEH). This proposed theoretical framework gives guidance for engaging with a suite of questions and methods related to multifaceted problems such as water insecurity and gender-based violence. The paper highlights these theoretical issues and then discusses how FPEH can enrich research on water security and gender-based violence in low-and middle-income countries (LMICs).

There's No Place Like [Your] Home: Exploring Somali Hospitality as a Site and Source of Well-being for the Somali Canadian Diaspora.
Isma Yusuf, Western University

This article novelly explores Somali hospitality’s ontological functions as a cultural custom offering diasporic Somalis' protection from precarity. Interviews with first-generation Somali Canadian women (n=27) depicted Somali hospitality as a choreographed ritual that caters care-fully and sequentially to guests' well-being. From door to departure, the guest is 'top-down centralized' — the custom commencing first with an attention to a guest’s physiological needs (e.g., food, drink, shelter); it then shifts to focus on their welfare necessities (e.g., financial, social, medical), and concludes with an implicit awareness of guests' social well-being (e.g., sense of community, sense of belonging in place). In Somali hospitality, both home and host are transformed into material sites of protection, the cultural customs of the homeland providing a

buffer against of the weight of occupying a multiply racialized (Black, Somali and Muslim) in settler colonial place. Occurring in the private geographies of Somali home(s), the ritual provides Somalis a temporary break from the structural logics of anti-blackness and Orientalism negotiated daily in public space. Through prioritization of homeland social dynamics, the custom care-fully re-positions Somali guests from margin to center — from out of place, to in place. In focusing on geographies of the Somali home and the concealed spaces of racialized Black folk, this work contributes to the areas of Black feminist and Muslim geographies as well as to diaspora research concerned with migrant well-being at large. Most importantly, by highlighting the qualitative intricacies of Somali hospitality, this work validates the existence Black Arab cultural customs, for they remain largely subordinated within and erased out of the Arab social imagination.

A Feminist Critical Policy Analysis of Social Housing Provision for Low-Income Groups in Turkey

Esra Alkim Karaagac, University of Waterloo

Housing policy decisions are about more than just shelter, assets, finance or land use; they often contribute actively to inequalities by gender, race and class. As we study housing policies and how they are developed, marketed and implemented, we also have to consider the power asymmetries they represent and reproduce. Housing policies are often formed and implemented without even a cursory feminist critical glance, when the policy apparatus creates and maintains male-normed structures. Therefore, a feminist critical approach to policy analysis aims to incorporate critical and feminist lenses and thus create policies that meet the lived realities, the needs, aspirations and values of individuals beyond categories of family and household. This article examines how policy influences gendered relations of homeownership, labour mobility, and financial security in Turkey's Mass Housing Administration's (TOKI) social housing provision model for low-income groups. First, in conversation with current feminist critical policy analysis literature, the paper offers a framework on how to evaluate, challenge and improve social housing policies with a gender perspective. Then it draws on the findings of ethnographic research on TOKI Mass Housing Estates, revealing that the political economy of TOKI’s housing policy and practice not only produces gendered outcomes but also contributes to the reproduction of patriarchal property relations and fixing them in the urban space. Finally, the paper offers key institutional structures and policy areas to be challenged and dismantled, for gender equality in low-income social housing.

SESSION 7: EXPLORING THE IMPACTS OF COVID-19

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: Asma Khanani Caporaletti

Impact of COVID-19 induced lockdown on urban thermal environment of Edmonton

Carolyne Qiang, University of Toronto-Mississauga

To reduce the transmission of the COVID-19 virus, the City of Edmonton, similar to other cities, introduced lockdown restrictions, involving the closure of non-essential businesses, shopping centers, and schools. This sudden halt in the majority of urban activities may result in unprecedented changes in anthropogenic heat emission. Although lockdowns are only temporary, society is adjusting for the new norms brought by COVID-19, such as companies allowing employees to continue working remotely even after the pandemic. It is thus necessary to study how the alteration of urban activity patterns impacts urban microclimate. This study examined the impact of COVID-19 induced lockdown on the land surface temperature (LST) of the industrial warehouses, high-rise offices, and residential houses in the City of Edmonton. Landsat 8 LST data from the pre-lockdown period (November 2019) and the lockdown period (December 2020) were used to examine the differences in the LST spatial pattern, with weather station data confirming the Landsat images were taken from the dates with similar air temperature. Results show a general decrease in the mean LST during the lockdown period for the industrial warehouses (-3.5 °C to -4.1 °C) and high-rise offices (-0.7 °C to -2.7°C), while an increase of mean LST for the residential houses (-4.5 °C to -3.4 °C). The temperatures on the residential winter rooftops are significantly and positively related to housing prices during the lockdown, which is not the case pre-lockdown. In conclusion, this research provides insights into the abnormality of urban heat fluctuation caused by the lockdown.

How do Systemic Lupus Erythematosus (SLE) Patients Access and Trust Health Information Pre and During COVID-19?

Francesca Cardwell, University of Waterloo

The spread of COVID-19 mis/disinformation is especially serious for individuals with chronic diseases like lupus, and conflicting and/or unfounded information spread through the news or social media can complicate a patient's health decision making and exacerbate stress. We assessed how an international sample of lupus patients access and trust health information pre and during COVID-19. Patients with Systemic Lupus Erythematosus (SLE) (n=1935) were recruited from 18 research cohorts and five advocacy organizations in Asia (n=201), Canada (n=845), Europe (n=324), Latin America (n=118), and the US (n=447). Participants completed an online survey from June 2020-September 2021 regarding the sources of health information they accessed in the 12 months preceding (pre-03/11/2020 – the date the World Health Organization declared a pandemic) and during the COVID-19 pandemic (post-03/11/2020). We calculated the percentage of patients accessing each source of information, their preferred sources, and the level of trust in each source. McNemar tests were used to compare frequencies pre and during the pandemic in the Canadian and international samples. Although lupus specialists and family physicians were ranked as the most preferred and trustworthy sources, patients accessed these sources less frequently during the pandemic, and accessed news media, a less trusted source, more frequently. Further, 12.4% of patients in Canada and 17.7% of patients in the international sample reported adverse impacts to health due to accessing news and social media for health information. Results will improve existing

information dissemination pathways for vulnerable populations across geographical contexts and enhance public health response during the pandemic and beyond.

The critical need for WASH in emergency preparedness in health settings, the case of COVID-19 pandemic in Kisumu Kenya

Thelma Abu, University of Waterloo

The devastating effects of inadequate water, sanitation and hygiene (WASH) is underscored by the current global pandemic. This paper presents research findings from a timely research project on WASH in HCFs in Kenya. In the first phase of the research, in-depth interviews were undertaken in Kisumu, Kenya to understand the impacts of inadequate WASH in HCFs and the level of preparedness of these facilities for emergencies. While those data were being analyzed, a global pandemic was declared in March 2020. To capture stakeholder reflections during this natural experiment, follow-up virtual interviews were undertaken with key informants (n=15) to explore the impacts of the COVID-19 pandemic on WASH in HCFs as well as community residents who access these facilities. Results from phase one reveal deeply rooted institutional challenges influenced by power and politics as well as environmental factors shaping access to WASH in HCFs. Research participants expressed varied perspectives on preparedness influenced by the availability of safe WASH services and the efficiency of the health referral system. The advent of the COVID-19 pandemic amplified institutional challenges shaping access to WASH in HCFs and all participants indicated the healthcare system was ill-prepared for the pandemic. Health workers were psychosocially burdened and subsequently embarked on strikes in protest. Both situations influenced citizens' perceptions of the pandemic as a hoax and caused a surge in adverse health outcomes. We recommend authentic partnerships among all stakeholders to develop and implement context-driven sustainable solutions that integrate WASH and emergency preparedness in HCFs across all scales.

Determinants of Covid-19 knowledge, preventive knowledge and preventive action in Nigeria, Kenya, Burkina Faso and Democratic Republic of Congo.

Joseph Braimah, Queen's University

Informal healthcare services remain an important factor in older adults' overall health and wellbeing. However, studies investigating healthcare utilization among older adults in sub-Saharan Africa (SSA) including Ghana have mostly been limited to formal healthcare. Thus, this study seeks to examine the prevalence of informal healthcare utilization and associated drivers among older adults with low incomes in Ghana. Bivariate and multivariate regressions separately examined the associations between informal healthcare utilization and sociodemographic, economic and locational factors using data from the 2018 Ageing, Health, Lifestyle and Health Services (AHLHS) study. Among 200 older adults with low incomes aged ≥65 years, the prevalence of informal healthcare utilization was 45%, with some 42.2% of the participants utilizing informal healthcare services every two weeks. The study revealed that

employed participants (AOR: 2.599, CI: 1.333-5.068, p=0.005) and those who renewed their health insurance (AOR: 2.546, CI: 1.124-5.766, p=0.025) were more likely to utilize informal healthcare compared with those who were unemployed and those who had not renewed their health insurance respectively. The study found that those who had consumed alcohol in their lifetime (AOR: 0.374, C1: 0.190-0.737, p=0.004) were less likely to use informal healthcare services compared with those who had not consumed alcohol in their lifetime. Employment and health insurance renewal independently increases utilization of informal healthcare. These findings are relevant for public health and policy interventions aimed at improving informal healthcare utilization among older people.

'Between the food and the shower': A study of civil society response to the COVID-19 pandemic in communities with limited access to WASH in Brazil

Rodrigo Curty Pereira, University of Waterloo

Brazil has some of the highest rates of COVID-19 cases and deaths. Furthermore, 35 million of its citizens have limited access to safe water, one of the main resources necessary to stem the spread of the disease. Civil society organizations (CSO) are taking action to respond to these inequities. This research aimed to understand how CSOs in Rio de Janeiro, Brazil, helped populations struggling with access to water, sanitation, and hygiene (WASH) during the COVID-19 pandemic, and what coping strategies could be transferred to similar contexts. We conducted in-depth interviews with representatives from CSOs that work directly with these communities (n=15) in the metropolitan region of Rio de Janeiro and used thematic analysis to meet the objectives of the research. We found that the COVID-19 pandemic exacerbated pre-existing social inequities among vulnerable populations in Rio de Janeiro, undermining their ability to protect their health. CSOs implemented emergency relief aid to meet these populations' demands for basic services and goods, such as food, water, and health support. A major challenge was the counterproductive actions of public authorities who promoted a narrative that diminished the risks of COVID-19 and the importance of complying with non-pharmacological interventions. CSOs fought this narrative by promoting sensitization among vulnerable populations and partnering with other stakeholders in 'networks of solidarity', playing a vital role in the distribution of social and environmental determinants of health. These strategies can be transferrable to other national and international contexts where government response to infectious disease control is considered insufficient.

SESSION 8: THESIS PROPOSALS II

Saturday November 13, 2021 | 11:30 a.m. to 1:00 p.m. EST

Chair: Jinhyung Lee

Exploring Kanyen'kehá:ka (Mohawk) values and relationship building with healthcare providers in Kenhtè:ke (Tyendinaga)
Jodi John, Queen's University

Prior to European colonization Indigenous peoples thrived within our own knowledge systems. In Canada, today Indigenous peoples have lower life expectancy than the general Canadian population and have higher rates of chronic disease such as diabetes, cardiovascular disease, and cancer. Indigenous peoples also suffer higher rates of complications, and poorer outcomes of chronic disease requiring long-term engagement in healthcare. However, racism and lack of culturally safe care make healthcare an unsafe space for many Indigenous people and create barriers to engagement. As a healthcare provider in my own Kanyen'kehá:ka community, clients showed me the potential for improved health outcomes when together we move beyond the western clinical model of care and engage in our own ways of being. Using Indigenous methodology, I will explore Kanyen'kehá:ka values and ways of relating that are present in relationship building between healthcare providers and clients when both are Kanyen'kehá:ka community members from the same territory. I will examine how these relationships differ from typical western clinical interactions, and how clients perceive these interpersonal relationships transform and impact engagement in healthcare. By centering Kanyen'kehá:ka ways of being and notions of health this project works towards creating healthcare spaces that are safe and engaging for Indigenous people, and in doing so, contribute to improving Indigenous health outcomes.

The Role of Waste Segregation in Sustainable Urban Agriculture and Climate Resilience in Cities of the Global South
Omobolanle (Bola) Oshinusi, University of Toronto

Cities of the Global South are disproportionately affected by inefficient solid waste management systems, where weak infrastructure, high population densities, and lack of safe solid waste collection, removal and disposal systems correlate with harmful environmental pollution and inadequate public health measures. An estimated 2.6 billion tonnes of carbon dioxide will be emitted by 2050 from dumped waste sources and open burning sites. In particular, food and organic waste causes 8 - 10% of methane emissions responsible for current global warming levels. Urban agriculture has been considered an effective solution to bolster food security and improve access to more nutritious foods for the urban poor, who are some of the most vulnerable populations to climate change impacts. This study will focus on the political

and social implications of planning an urban farming initiative as a green infrastructure strategy that harnesses food and organic waste from households as a way to reduce overall solid waste production and improve food security in municipal districts of Lagos, Nigeria. This urban farming initiative will be implemented in conjunction with a household waste segregation program, in an effort to study the willingness and challenges associated with waste segregation at the consumer level in a global south context. Looking at the interplays between waste overproduction and its impact on food security and climate change, a further assessment will be conducted to study how this system can contribute to improving overall climate resiliency in cities like Lagos that are particularly vulnerable to climate-related impacts.

Exploring the planning, implementation, and sustainability of a School Street initiative in Canada: A pilot study in Kingston, Ontario

Laura Smith, Queen's University

In Canada, childhood obesity rates are increasing simultaneously with the increasing use of private automobiles for the transportation of children. Specifically, children are being driven to school at much higher rates than seen in previous generations. To address the decline in children's active travel to school, Kingston Coalition for Active Transportation (KCAT) along with Kingston Gets Active (KGA) partnered with Queen's University to implement a year-long School Street initiative in Kingston, Ontario. School Streets involve closing streets adjacent to an elementary school to through traffic to allow children to safely travel to school. By providing a calm, car-free environment outside of schools, School Streets offer opportunities for children to build capacity for independent mobility, which can lead to increased engagement in outdoor free play and active transportation. The purpose of this research is to fill a knowledge gap in the literature by specifically focusing on the process of planning and implementing a School Street initiative and to assess their long-term sustainability in a Canadian context, to ultimately help inform future school-based active transportation interventions. This pilot study uses an ethnographic approach to study the implementation of a School Street. The study will draw on 3 types of qualitative data to answer the research questions including; direct observations of the School Street in-session, autobiographical memos written by the primary investigator who also acted as the project coordinator, and key informant interviews with parents, volunteers and school staff. The data will be collected within the first 4 months of the School Street initiative from September to December 2021.

Geographies of Production and Reproduction: The Case of Myanmar Migrant Workers in Thailand

Carli Melo, York University

The COVID-19 pandemic has illustrated the vulnerability of global production networks as supply chains in all sectors have been disrupted by worldwide lockdowns. The impacts of such disruption have been especially devastating for industrial workers in the global South. What has

been less noticed is that many such workers are migrants, either internally from other regions of the same country or internationally across borders. The employment of migrant workers has further implications because it means that the impacts of global production networks extend not just to the factories in which goods are made, but also to the distant places of origin from which migrants are drawn, to which they often send their earnings, and to which they will often later return. In Thailand, the employment of Myanmar migrant workers in global production networks, and the everyday lives of these workers and their families have been disrupted not only by the COVID-19 pandemic, but also by a coup d'état in Myanmar. In collaboration with the Mekong Migration Network—a sub-regional network of civil society organizations working to promote the rights of migrant workers—this doctoral project strives to support the efforts of civil society actors to address inequities in the global production network model that continue to leave millions of migrants and their families unprotected against economic, social, and political crises.

Coastal climate change adaptation at the community level: Developing long-term cycles of public engagement in British Columbia's Lower Mainland

Felicia Watterodt, University of Waterloo

Managed retreat is a method of climate change adaptation with the potential to increase socio-ecological resilience for flood-prone coastal areas. While retreat has been garnering both public and municipal attention as a proposed strategy to adapt to changing hydrological regimes and rising sea levels, the relocation of settlements and infrastructure from at-risk areas is a controversial and challenging process to implement, facing many barriers. Successful coastal adaptation will require active citizen engagement and widespread social acceptance in order to limit the potential for vulnerability, disenfranchisement, and conflict. This research seeks to analyze past and current community engagement strategies within the City of Vancouver's Coastal Adaptation Plan and the City of Surrey's Coastal Flood Adaptation Strategy in order to better inform future collaboration, public participation, and co-learning within the respective communities regarding coastal adaptation strategies. Over time, municipalities may be forced to diverge from the originally shortlisted options and adopt new strategies that were not approved during the initial stages of adaptation, such as managed retreat. My research seeks to understand how municipalities can sustain and enhance cycles of engagement, education, and knowledge creation, creating the space for long-term adaptation responses, while meeting short- and medium-term adaptation goals. In doing so, there is the potential for managed retreat to be reframed as a phased and cyclical adaptive management process that is community-led, rather than a disruptive or sudden forced displacement that is implemented from top-down.

Understanding the Challenges and Resilience among Visible Minority Essential Workers: Preparing for Future Pandemics in Ontario

Quinn Talbot, Western University

This project is interested in responding to the impacts of COVID-19 on immigrant essential workers living in the Windsor area. Its aim is to investigate the challenges of immigrant essential workers and how to better prepare them for future pandemics. Visible minority immigrant essential workers in Canada have a more difficult time coping with the pandemic situation than other groups. Furthermore, they often are required to have multiple jobs to support themselves and their transitional dependents. Visible minority immigrant women working as personal support workers (PSWs) in long-term care facilities and other frontline jobs are at increased risk for contracting the virus due to the gendered nature of low-wage work. Researchers, employers, and policymakers must become aware of the unique circumstances and the full range of experiences of these essential workers during COVID-19 pandemic.

SPECIAL SESSION: COVID-19 AND URBAN STUDIES

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Alexander Morganthaler

Household food wasting during the COVID-19 pandemic: A direct measurement study in London, Ontario
Haley Everitt*, Western University
Co-authors: Paul van der Werf (Western University); Jamie A. Seabrook (Brescia University College, Western University); Jason A. Gilliland (Western University)

The COVID-19 pandemic may have amplified the environmental, social, and economic implications of household food waste. A better understanding of household food wasting during the pandemic is needed to improve the management of waste and develop best practices for municipal waste management programs under crisis circumstances. Through direct measurement, this study offers a precise comparison of food waste generation before and during the COVID-19 pandemic in a sample of 99 London households. On average, the total amount of food waste sent to landfill increased by 23% or 0.55 kg per household per week. The increase in total food waste is the result of a significant increase ($p = 0.002$) in the amount of unavoidable food waste generated by all study households.

FRESHER: Food Retail Environment Study for Health and Economic Resiliency - Phase 1: The impact of COVID-19 on food retail and hospitality businesses and employees.
Marcello Vecchio & Louise McEachern, Western University.

The Food Retail Environment Study for Health & Economic Resiliency (FRESHER) is a rapid response to the widespread closures of, and modified operating conditions for, many food retail (e.g., grocers and convenience stores) and food hospitality businesses (e.g., restaurants and bars). FRESHER examines the economic and social impacts of COVID-19 in Ontario.

FRESHER utilizes mapping, surveys, and interviews to document and examine these impacts of COVID-19. FRESHER has documented high closure rates of food hospitality businesses across Ontario. Although most food retailers were spared from permanent closure, negative impacts of COVID-19 were still evident, including economic hardships, diminished personal well-being of both employers and employees, and infrastructure problems. Personal economic strain was a common theme: 50% of surveyed employees reported decreased wages. Additionally, 37% of employees reported feeling some level of pressure to go into work sick during the pandemic. Employees expressed feelings of isolation at work. They also reported experiencing compounded stress levels from having to deal with difficult customers, as well as the personal stressors of facing the pandemic at home. Despite the documented hardships during the pandemic, participants demonstrated clear evidence of resiliency. Businesses took advantage of available technology, building their online infrastructure and adapting products to reach personal consumers online. As trends point to a recovery on the horizon, it will be imperative for those in the industry to identify who and what was most impacted and the key policy strategies to create a more resilient industry.

Predictors of restaurant survival during the first nine months of the COVID-19 pandemic in London, Ontario.

Alexander Wray, Western University.

The COVID-19 pandemic situation has caused considerable shifts in Ontario's hospitality industry. Restaurants have faced rapidly evolving public health restrictions that have ranged from being fully open with dine-in table service, to only operating via takeout and delivery. Third-party delivery services have exploded in use, outdoor patios are now ubiquitous for most businesses, and consumer preferences have shifted considerably. The pandemic has been a catalyst for fundamental change to Ontario's restaurant industry. The Food Retail Environment Study for Health and Economic Resiliency (FRESHER) is tracking the impacts of the pandemic on restaurants. We report on a study of restaurant survival in the Middlesex-London, Ontario region. Restaurant's operating conditions were tracked from May to December 2020 by the FRESHER research team through phone calls, web searches, and social media interactions. This bespoke database is used to determine geographic predictors of restaurant survival during the first nine months of the pandemic. There are 1282 restaurants in the study area, of which 1059 were open in some capacity while 223 were closed as of December 31, 2020. Restaurant survival at a business level is affected by offering in-house delivery and phone-based ordering, but not third-party delivery or online ordering alone. Proximity to entertainment and large office land uses is significantly correlated with restaurants being closed, while proximity to shopping centre land uses had a protective effect. The loss of office workers and related events has likely driven the closure of many restaurants, while this evidence suggests going digital is not key to survival for restaurants.

SPECIAL SESSION: GEOGRAPHY OF HEALTH AND HEALTH CARE STUDY GROUP

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Isaac Luginaah

The imaginative geographies of global health research: in search of equity in Canadian research funder worldviews

Jenna Dixon, University of British Columbia

Health geographers are both participants in the production of global health research (GHR) and equally implicated in the ethical debates in how that research is conceived of, conducted and used. Indeed, through representations of the Global South as the othered world in which Canadians go to 'do' GHR, health equity issues are raised long before any researcher sets foot in the field, and GHR policies can themselves serve as determinants of equity. By drawing on the concept of imaginative geographies as representations of space that are entangled with relations of power, this presentation deconstructs how five major Canadian GHR funders (CIHR, SSHRC, IDRC, Global Affairs Canada, Grand Challenges Canada) imagine and situate health equity in GHR through their publicly available strategic, operational and peer-review policies. Through this analysis we discover a complicated funding landscape marked by a tension which, on the one hand, recognizes importance of combating socially determined up-stream causes of inequities, promotes gender equality, and considers equity in the research process, but on the other hand remains bound by developmental and colonial worldviews. Acknowledgements from funders of the contexts of inequity in which the Global South exists are only rarely located within power dynamics of the global political economy which serve to raise Canadian power and privilege. Despite progressive engagement in recent years to better place equity in GHR policies, particularly from CIHR, the imaginative geographies that separate North and South nonetheless reinforce colonial constructs and notions of vulnerable people who just need our help.

Gender disparities in rural livelihood diversification and household food insecurity in northern Ghana

Siera Vercillo*, University of Toronto-Mississauga
Co-authors: Yujiro Sano (Nipissing University), Bruce Frayne (University of Waterloo)

Although income diversification is considered a useful strategy for mitigating poverty and household food insecurity, the relationships between income diversification and household food insecurity are rarely explored in rural African contexts. Analyzing a cross-sectional survey of married spouses in 435 households, we examine the following two research questions in a northern Ghana case study: 1) Does income diversification increase the risk of experiencing

household food insecurity? and if so, 2) Does the relationship differ between women and men? Results indicate that income diversification is positively associated with higher odds of reporting household food insecurity (OR=1.23, p<0.01). We also observe that the positive impact of income diversification on household food insecurity is stronger amongst women than their husbands (OR=1.27, p<0.01). Based on these results, we recommend further investigations into the gendering of livelihood diversification and household food insecurity for progressing African rural policy that focuses on resolving women's restrictions.

Climate Change, Agrarian Change and Ecological Grief Among Smallholder Farmers in Ghana.
Daniel Amoak, University of Waterloo

Ecological grief is an emerging mental health concern that rural folks face and is projected to rise as climatic stressors worsen in agrarian regions. However, ecological grief within the sub-Saharan African context is underexplored as current studies have focused exclusively on high-income countries. Using data from in-depth interviews (n=40) this study examines ecological grief among smallholder farmers in the Upper East Region, the harshest ecological zone in Ghana in the context of a rapidly changing climate and agrarian regime. Our findings indicate that fears of losing their culture and tradition, the difficulty in meeting traditional dietary requirements, new contestations of common-pool resources, and the feeling of emasculation among men due to climate change constitute significant sources of ecological grief among farmers. Results from the study suggest that while men emphasized the erosion of culture, environmental knowledge, and emasculation, women were more concerned about food insecurity, social unrest, and the dissipating plant species and landscapes that were integral parts of their identity. The climate change emergency, which is particularly devastating to smallholder farmers, poses critical threats to their mental health and could trigger household food insecurity and intimate-partner violence. Given the projected dire climatic scenarios, this paper recommends that environmental policies incorporate measures to strengthen farmers' mental health for a more comprehensive battle against climate change in agrarian regions.

Modern contraceptive use in Ghana – A population-level analysis
T. Oluwaseyi Ishola, Western University

The use and provision of contraceptive services in Ghana have improved over the last decade, though there's still a high unmet need for family planning (Cleland, Ndugwa & Zulu, 2011). As a result, Ghana now records the lowest fertility rate in West Africa and one of the lowest in sub-Saharan Africa (Wallace & Adongo, 2018), even at the low average prevalence of 27.1% (Cahill et al., 2018). Family planning is considered a necessary component to achieve sustainable development goal 5, which seeks to achieve gender equality and empower all women and girls (SDGs) (Dockalova et al., 2016). Research shows that couples who use contraceptives can space their pregnancies two years apart. This outcome translates to a decline in the rate of maternal deaths by 35% and child mortalities by 13% (Cleland et al., 2006; Stover & Ross, 2010), which is

incredibly significant in regions like sub-Saharan Africa, where about 2.2 million pregnancies are unplanned. It could also be instrumental in preventing under-fiver mortalities up to 25% if the space between births were at least three years (Eliason et al., 2014). In this study, I use the Demographic and Health Survey 2014 dataset to determine current predictors of contraceptive use and estimate the effect size of the estimates of contraceptive use among women and men in Ghana. The most significant predictors are identified based on the findings and serve as priority intervention areas for family planning programs to narrow the unmet reproductive health needs of the population more effectively.

The (un)certainties of aging and HIV management in South Africa
Andrea Rishworth, University of Toronto-Mississauga

Research within geography and cognate disciplines demonstrates how (un)certainty informs relational, emergent and open-ended processes of healthy aging. Although (un)certainty shapes aging health inequities and possibilities for reconfiguration, research often centers on challenges for aging individuals, eliding more dynamic, complex and contradictory factors shaping the health and wellbeing of aging individuals and societies.
South Africa's HIV/AIDS epidemic provides important opportunities to engage contradictions in (un)certainty since expanded access to antiretroviral therapy allows individuals managing HIV to grow older in extended periods of comfort with more certainty. Drawing on qualitative research with older women in South Africa, we argue that while advances in medical testing and treatment allow individuals managing HIV to grow older with more certainty, longer lives managing HIV paradoxically rework new forms of suffering through contested disease etiology, indeterminant multitemporal processes, and dubious livelihood prospects. Expanded biomedical models of care mean older adults navigate multidimensional (un)certain HIV landscapes that can create new forms of disadvantage and subjection, while in other instances encourage opportunities for healthier lives and pragmatic social change. This paper concludes that future geographic research on aging-health-place interactions should extend the conceptual and empirical repertoire of (un)certainty by illuminating how constructions, experiences and enactments of aging, health and disease mediate (un)certain realities and the structures that seek to assuage them.

SESSION 9: MUNICIPAL POLICY AND PLANNING

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Godwin Arku

Practitioners' responses to plant closures: Experiences from Ontario
Jesse Sutton, Western University.

Before the COVID-19 pandemic, plant closures, especially in the manufacturing industry, were a significant concern in Ontario, Canada and will continue to persist after the pandemics passed. Over the past couple of decades, the province has experienced a shifting economic landscape, resulting in plant closures and redundancies. Plant closures are an especially emergent issue in Ontario as it constitutes one half the manufacturing centre in North America, which has been adversely impacted. Since the early 2000s, Ontario has lost over 300,000 manufacturing jobs and experienced numerous plant closures. The adverse effects of plant closures have been studied extensively in the literature. However, research on practitioners' perspectives and responses to plant closures have been scarce. To fill this gap, this paper conducts interviews (n=21) with practitioners from medium-sized cities in Ontario that have experienced plant closures. This paper finds a general lack of communication between local governing institutions and closed plants and various forms of government, the eagerness of local governing institutions to support closing plants, and a general tendency for labour-matching strategies to be employed. The findings highlight that local practitioners want greater communication and coordination between local agencies and plants.

To what extent do online mapping tools achieve public participation?
Robert Arku, University of Toronto.

Public participation in urban planning endeavors is a highly variable process. Strategies may range from basic public information campaigns to comprehensive public sector-community discussions that aim to empower local residents with decision-making functions to influence planning outcomes. The form and function of such participatory processes are usually informed by the proposed planning aims, contexts, and participatory goals associated with a project. The use of participatory mapping approaches is an emergent and relatively more accessible method that is increasingly being applied as a participation method in spatial planning processes. While this approach is touted to be a context-sensitive strategy in land use planning, it is important to consider how such methods, based on their design and implementation, contribute to planning processes by assessing the level of participation attainable in adopting these methods. This paper sought to demonstrate the various participation levels attained in the design and implementation of an online mapping tool, as a participation technique, in a modeled urban infill planning study. To demonstrate participation levels attained, the design features and implementation of the online tool was quantitatively assessed based on a Spectrum of Public Participation Rating Scale. This rating scale, based on the International Association for Public Participation's "Spectrum of Public Participation" framework, evaluates the design and user interface of participatory tools in terms of how well it supports the Spectrum's levels of civic engagement (inform, consult, involve, collaborate, and empower). We demonstrate that the use of similar tools attains lower levels of public participation, i.e. Inform and Consult.

Exploring the State of Local Economic Development Ability in Ontario: Capacity, Challenges, and Opportunities.

Evan Cleave, Ryerson University

Loss of manufacturing jobs and shut down of large production facilities; loss of brick-and-mortar retail; stiff competition from new markets in the global economy; the endgame of demographic transition and the resulting population decline/slow growth in small communities; declining tax base and fiscal shortages; and harsh austerity-based policies. Exacerbating these challenges is a slow but consistent removal of support from the provincial government – both financial and through a downloading of political and local economic development (LED) responsibilities to municipalities. This means that municipalities are increasingly responsible for providing services and supporting their residents. Poor approaches to LED, therefore, can have a direct negative impact on the lives and livelihoods of residents. Successful economic development begins with good planning. Unfortunately, austerity and reductions in government spending have limited the institutional knowledge, skill, and capacity needed to undertake policy planning. So not only do municipalities need better local economic development planning, but they also need better capacity for planning. In fact, within local governments it is recognized that modern economic development is now about capacity building. Within this context, this research seeks to identify the current abilities that municipalities in Ontario have to conduct meaningful planning. To achieve this, in-depth interviews were conducted with 30 local economic development practitioners from across Ontario, to access their practical knowledge and experiences to begin to gauge current planning capacity levels, the challenges that exist in developing and maintain capacity, and opportunities for future development.

Participatory Augmented and Virtual Reality: A comparative case study recognising its viability in citizen participation

Logan Duff-Meadwell, University of Waterloo

Technology requires a deep analysis of its implementation into decision-making, to understand and identify how and if it constrains or enables citizen participation. Augmented and virtual reality (AR/VR) are technologies which require this analysis. These technologies have seen rapid advancements over the past decade, and are now adoptable in citizen participation. Few studies have characterised its ability as a participatory tool, with research showing the potential of AR/VR, but not its impact in citizen participation. This study addresses this gap in research by exploring cases across North America which adopted participatory AR/VR, in determining the benefits and challenges of the technology, and addressing its viability in citizen participation. Five cases were identified, combining in six interviews of nine individuals. The interviews revealed that AR/VR performs well as an urban planning tool, due to its realism, proactive approach to communication, and educative nature in explaining complex contextual information. However, it lacks the ability to function as a participatory tool. This was determined by its isolating nature, cost, and current method of adoption. These insights yielded requirements for AR/VR to progress, involving a framework of best practices which follows co-production, realism, interactivity, game engines, and real-time feedback. It is concluded that AR/VR must follow a distinct structure to function as a viable participatory tool, where straying

from a framework causes it to lose its participatory capabilities. Overall, this study demonstrates the characteristic of AR/VR in citizen participation, and expresses a framework for future government adoption.

Contesting urban dispossession in Harare's informal settlements
Elmond Bandauko, Western University

This paper examines the political agency of informal settlers/squatters in Harare, Zimbabwe. It demonstrates that squatters/informal settlers in Harare are engaged in everyday practices of urban appropriation to reproduce themselves in a context, where the urban authorities are highly ambivalent and intolerant of informal practices of urban housing. The continued deployment of revanchist urban policies such as evictions have not resulted in the disappearance of informal settlers; they continue to expand beyond uncontrollable levels. This direct action to appropriate urban space for housing and livelihood purposes has been theorized as a form of "insurgent citizenship" that enables the realization on the "right to the city" for the urban poor. The question addressed in this paper is: how is urban dispossession contested and resisted by the urban poor living on Harare's urban margins? To address these questions, the paper draws on key informant interviews with urban governance actors, in-depth interviews and focus groups with residents of selected informal settlements in Harare. In addition to the "quiet encroachment" of the informal settlers, there are emerging possibilities for bold acts of encroachment on urban space.

SESSION 10: GEOGRAPHIES OF MIGRATION AND EDUCATION

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Michael Buzzelli

Aspects of Cultural Expression and Identity among Ghanaian Immigrants in Toronto
Desmond Oklikah Ofori, University of Guelph

This paper investigates the identity and culture of Ghanaians in Toronto from the 1960s —a visible minority group in Canada whose experiences are often categorized within other identities and whose history has engendered little investigation (Margaret Peil, 1994; Wisdom J. Tettey and Korbla P. Puplampu, 2005 & Kwadwo Konadu-Agyeman and Takyi K. Baffour, 2006). The accounts of thirty-one Ghanaian immigrants who lived in Toronto were examined and used as excerpts to understand the influence of gender, age, race and culture on Ghanaian immigrants' identity and cultural practices in Toronto. The excerpts are used as primary evidence to support arguments and ideas. The paper traced transnational relations among

Ghanaians and Ghanaian associations in Toronto from the 1960s. In interrogating the concepts of culture, identity, diaspora and transnationalism, the study observed that Ghanaian immigrants in Toronto from the 1960s (re)negotiate and (re)define their identity, cultural needs, individual and group relations and place in Ghana and Canada.

Higher Education Student Migration in Canada: Examining the Push and Pull Effects of Student Mother Tongue

Ebenezer Narh, Western University

Higher education student migration (HESM) generates repeated annual streams of internal movement of young adults across Canada. Despite its high volume and socioeconomic implications for regions and institutions of higher learning, research on HESM in Canada is lacking. The objective of this research is to examine the push and pull effects of student mother tongue on the interprovincial HESM for the 2016/17 academic year. The analysis is carried out using data from Statistics Canada's Postsecondary Student Information System (PSIS). Interaction matrixes of English-French student migrants are generated, and analyzed using the z-test and log-linear model. Student mother tongue highlights an important and distinct feature of Canadian HESM in that English mother tongue students constitute the bulk of the migration flows, but their French counterparts are more mobile on individual basis. The spatial structure of HESM in 2016/17 depicts three (3) main provincial clusters of student in-flows and out-flows: Ontario and Quebec with low rates, the Atlantic and Western provinces with middling rates and the territories with high out-migration rates. This study illustrates the influence of mother tongue on the migration of higher education students who, in turn, have a significant impact on local economics and labour markets. The presentation concludes with a discussion of policy implications relating to migration and local economic development.

Immigrant Attraction and Retention: Exploring Local Policies in Ontario, Canada

Cailin Wark, Ryerson University

For cities in the Province of Ontario, Canada, immigration is now considered a vital part of local economic and community development. As part of the efforts to stabilize and (re)grow their local economies, city officials have changed focus from traditional sectors towards advanced manufacturing, creative economies, and knowledge-based industries. But demographic change, and loss of skilled workers, has created a spatial mismatch were there are significant issues regarding the lack of human capital needed to support the new economic sectors. As a result, there has been a prioritization of attracting and retaining high-skilled and well-educated. Within this context, this research examines the ways that cities in Ontario are leveraging local assets and constructing and implementing immigrant attraction, integration, and retention strategies. To achieve this goal, local immigration policies of the 52 cities in Ontario were examines, of which, 36 have a formal immigration policy document. A comprehensive content analysis was conducted on these documents to identify the ways that immigration is conceptualized (i.e. the

challenges that immigration presents a solution to), the attraction and retention targets for Ontario cities, and the specific place-based policies and approaches that local governments are implementing. Based on this analysis, it is clear that cities in Ontario are focused on immigrant attraction (i.e. through promotion, marketing, and branding), integration (i.e. securing employment for migrants; reducing barriers and inequality), and retention (i.e. growing communities; creating opportunities to participate in local cultural and social events; celebrating diversity; emphasis on immigrant health and wellbeing).

Applying an EDI Lens to Evaluating Faculty and Curricula Composition at Canadian Geography Departments
Shervin Ghaem-Maghami, University of Toronto-Mississauga

While geographers have spent decades exploring how matters of inequality and injustice can be addressed through a critical approach that integrates the principles of equity, diversity, and inclusion (EDI), incorporating this standard into the systems and processes of academia within the discipline of geography remains at a much earlier stage of development. This is reflected in the lack of descriptive data available on faculty in universities in general and within geography departments in particular. Additionally, the extent to which EDI-related themes are incorporated into geography curricula is largely understudied. By analyzing data from 2010 to 2020 for approximately 650 geography faculty working at Canadian universities in terms of ethnic minority status, gender, and other relevant indicators, this research argues that while there has been an increase in the percentage of ethnic minority and/or female geography faculty over this period, minorities and women remain significantly under-represented in the academy. Our analysis is complemented by a multi-pronged assessment of around 250 syllabi for undergraduate and graduate geography courses offered by selected Canadian geography departments. Following examples from other disciplines, we developed a framework for evaluating EDI content in the sampled syllabi. The findings reveal a correlation between increased diversity in faculty and higher EDI scores in the curricula. Recommendations are offered for how geography department faculty hiring practices and geography-course syllabi can better integrate EDI standards in order to create academic environments in which future generations of geographers can be exposed to, learn, and uphold these principles into research and practice.

SESSION 11: CHANGING CLIMATES

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Eunice Annan-Aggrey

Assessing resilience for a climate-induced relocation for the Guna community in Panama.
Darren Wynes, University of Waterloo

As climate change challenges the ability of resource-strapped developing nations to effectively implement adaptive measures to protect their citizens, planned relocation is increasingly being acknowledged as a viable adaptive measure when no other recourse is available. For many vulnerable populations in low-lying coastal areas and islands, sea-level rise (SLR) and its concomitant impacts will necessitate resettlement of whole communities to areas of safety. The Guna Indigenous communities in Guna Yala, Panama, face a precarious future on their island territories as impacts related to climate change expose their villages to a host of environmental hazards. Planned relocation is being considered as the best adaptive measure to reduce the Guna's vulnerability to the adverse impacts of climate change. Any assessment of the viability of a relocation must consider the resilience of the community affected, a concept well-delineated in the literature of Social-Ecological Systems (SES). This paper will assess the SES resilience in the Guna community using the following indicators: diversity, knowledge, social capital, governance, and adaptive capacity.

Theorizing "Wicked Concept" and Reconceptualizing Wisdom as Wicked
Senanu Kutor, Western University

The emergent conceptual framework of wicked problems has garnered much attention in academic discourse, including geography. By refining and drawing insights from tenets of the wicked problem concept, this paper posits a "wicked concept" usefully defined through five propositions: Wicked concepts are difficult to define and have no universal meaning; there is an unending quest for a universal definition of wicked concepts; definitions and conceptualizations of wicked concepts are neither true nor false; all wicked concepts' components are fundamentally unique; and wicked concepts are multidimensional. Although not exhaustive, our list of propositions aims to generate intellectual discourse on the usefulness of the wicked concept as a conceptual framework with which to analyze concepts marked with such ambiguities. Using the concept of wisdom as a reference point, we argue that academic knowledge production—particularly as it relates to wisdom— would benefit significantly from being reconceptualized as wicked.

The association between household food security and type of farm power used in land preparation among smallholder farmers in semi-arid northern Ghana
Evans Batung, Western University

In sub–Saharan Africa where the impacts of climate change are disproportionately felt, food insecurity is increasingly becoming a major concern for smallholder farmers. Although agricultural mechanization has received tremendous attention in SSA over the past couple of years as a potential pathway for improving agricultural productivity, its links with food security among smallholders remain unclear. This paper contributes to the literature by examining the association between household food security and source of farm power for land preparation among smallholder households (n=1100). The findings from regression analysis show that

households that used tractors for land preparation were significantly more likely (OR=1.43, p≤0.05) to report being food secure when compared to households using manual tools. Similarly, households with older (OR=2.41, p≤0.05) and formally educated (OR=7.71, p≤0.001) primary farmers were also more likely to report being food secure when compared to households with younger and informally educated primary farmers. Further, households in the middle wealth category (OR=1.71, p≤0.01), as well as those practicing joint decision-making (OR=1.61, p≤0.05) also had a higher likelihood of being food secure. Surprisingly, however, households that had access to formal sources of credit were had a lesser likelihood (OR=0.66, p≤0.05) of being food secure. Although the aim of the study is not to generalize these findings, the indication of the potentiality of improving food security through an adequate utility of mechanized agricultural technologies is profoundly significant. There is a need for programs that improve the accessibility of the rural poor to vital productive resources amid escalating environmental change.

Sub-Saharan Africa's response to climate change, an analysis of juxtaposing laws in three selected countries.

Iman Lalani, University of Toronto-Mississauga

Despite Sub Saharan Africa (SSA) only producing 4% of global carbon dioxide emissions, it remains one of the planet's most vulnerable regions to climate change. As a result of climate change, the region is experiencing temperature rises, variations in rainfall intensity, an increase in desertification, a greater number of extreme weather events, higher rates of disease transmission and reductions in biodiversity. These projected impacts have significant social and economic costs with dire consequences for human capital and economic development. SSA's colonial history of exploitation and extraction has created structural disadvantages for the region which have hindered its adaptive capacity. The process of ecological imperialism is still evident today as the privatization of property, extraction of resources, establishment of monocultures and distinction between humans and the environment continues. Moreover, the colonial frameworks used to protect the environment prevail through the presence of national parks, creation of environmental conventions, and the strong ties that remain between colonies and their previous colonizers. Employing a neocolonialist framework, this paper undertakes analyses of laws currently implemented by South Africa, Ghana and Kenya. While each country has a law intended to combat climate change or protect the environment, such laws exist concurrently with contradictory laws that facilitate resource extraction, environmental degradation, and the marginalization of indigenous populations. The paper presents findings and makes recommendations around ongoing neo-colonial relations, the commodification of everything approach via capitalist exploitative mechanisms, and the maintenance of hierarchies and colonial governance structures all of which make it difficult for SSA to tackle climate change.

Climate Change and Precarious Livelihoods among Women in Coastal Jamaica

Shenika McFarlane-Morris, Church Teachers' College
Co-authors: Megan Heckert (West Chester University of Pennsylvania), Hadjer Ahner (West Chester University of Pennsylvania)

Climate change poses severe threats to the food security, environmental stability, health and prosperity of Small Island Developing States. Even though women bear unequal gendered impacts of climate change, there is limited research on how it affects them and their livelihoods (see for example, Alam, Bhatia,Mawby, 2015). Using Jamaican coastal communities as case studies, where single parent families are prevalent (nearly 50% of households are headed by females, according to the Planning Institute of Jamaica, 2012) we approach this study with a two-pronged objective. Firstly, to compare the level of environmental exposure of these communities to climate change- particularly-sea level rise, coastal erosion and more intense storms- and secondly, to analyse the economic precariousness that these environmental dynamics create for women. Preliminary data was collected through a feminist research approach, where in-depth interviews were the primary methods of data collection. The focus was on these women's roles within their households and their perceptions and experiences with the ensuing challenges of climate change and how they dynamize these roles. We also used GIS to model the locations of these economic activities, showing which ones are the most vulnerable. The research found that there is a clear gendered division of labour, with the men traditionally being the ones to do the fishing and fixing the boat engines but in the past two decades the women have moved away from staying at home to carving out livelihoods for themselves through scaling, cleaning and the selling of fish as well as working in seafood restaurants on the shore. This is consistent with other studies of climate change vulnerability in Jamaica (Baptiste & Kinlocke, 2016). With the majority of these women being unmarried with children, they have become highly reliant on these economic activities to sustain themselves and their families. However, the rising sea level (at a rate of 3mm/year, United Nations Environmental Programme, 2018), combined with more intense storms have made these women uncertain about their future in coastal livelihoods. Climate change is exacerbating the cycle of poverty among women through such events as loss of property; disruption in fish-selling and costs for mitigation against coastal flooding. This paper calls for empowerment opportunities for these women, including increasing their literacy and acquiring additional job skills which will be useful in adapting to survive and care for their dependents.

SESSION 12: CASE STUDIES OF COMMUNITY, HEALTH, AND FOOD

Saturday November 13, 2021 | 2:00 to 3:30 p.m. EST

Chair: Dong Liu

Access to Pubic Healthcare Facilities in Rural Areas of Yewa South Local Government Area, Ogun-State, Nigeria.

Vincent Uwala*, The Federal Polytechnic, Ilaro.
Co-author: Olurotomi O. Sodiya (The Federal Polytechnic, Ilaro, Nigeria)

This study evaluates access to public healthcare facilities in rural areas of Yewa South Local Government in ensuring improved access to healthcare services in the area. Primary data were sourced from structured questionnaire administered on 186 household-heads and 15 personnel of public healthcare facilities in the area. In addition to the use of questionnaire to elicit data from household-heads and government officials. Global Positioning System was used to pick the geographic coordinates of existing public healthcare facilities. Quantitative data analysis was descriptive (frequency & percentages) and Geographical Information System (GIS) analysis tools such as nearest neigbour ratio (NNR), buffering, overlay and query. The study identifies 15 functioning and 2 moribund primary public healthcare facilities. Spatial pattern of the facility reveals a random distribution pattern with nearest neighbour index value (Rn) of 1.02. Analysis of availability dimension of accessibility established that there is an acute shortage of healthcare personnel. Physical accessibility in the area was satisfactory, however, affordability and acceptability dimensions of accessibility to healthcare in the study area needed to be improved upon. It is, therefore recommended the rehabilitation of moribund and non-functioning healthcare facilities, empowerment and poverty reduction, employment of healthcare personnel, and suggested optimum number and suitable locations of additional healthcare facilities required.

Alcohol consumption as a socio-cultural determinant of food insecurity in northern Ghana
Kamaldeen Mohammed, Western University

The consumption of local alcoholic beverages is on the rise in Ghana. Alcohol misuse is acknowledged to affect productivity, health, and food security. That notwithstanding, the link between alcohol consumption and the food insecurity plaquing smallholder farmers is underexplored in northern Ghana. Using a cross-sectional survey in the Upper West region of Ghana (n = 1100), this paper examined the association between alcohol consumption and household food insecurity. Results indicated that the odds of a household being severely food insecure was about four times higher if the household head consumed alcohol daily (OR = 3.81; p≤0.001) compared to households where the household head did not consume alcohol. Similarly, the odds of a household being severely food insecure was two times higher if the household head consumed alcohol once a week (OR = 2.32; p≤0.001) compared to households where the household head did not consume alcohol. Other significant predictors of household food insecurity included no education, joint household decision-making, being poor and post-harvest loss. This paper demonstrates that excessive alcohol consumption negatively impacts household food security. Policies that seek to improve household food security in smallholder context need to mitigate alcohol misuse and the negative impacts on household food security.

The rise of illicit Chinese small-scale gold mining in Ghana: exploring local pull factors
Richard Kumah, Queen's University

Recent proliferation of Chinese gold seekers into Ghana's artisanal and small-scale gold mining (ASM), an indigenous mining space reserved by law for Ghanaian nationals has received extensive media and scholarly coverage due to increasing socio-environmental damage, with competing causal factors being advanced for driving successful Chinese infiltration. However, rarely are key local stakeholders including the so-called illegal miners themselves asked explicitly why they engage in this informal mining 'partnerships' with the Chinese. Using qualitative case studies including in-depth interviews and drawing on data from legislation and media discourses, I find that concerns relating to inequitable mineral wealth distribution, inadequate state support for local miners, inequitable land regimes as well as corruption are local pull factors underpinning Chinese proliferation in this local mining branch. These findings to a larger extent provide a counter-narrative to the regnant discourse of criminality and use of force, the traditional approaches to illegal mining in Ghana. They suggest that illegal small-scale mining needs to be seen as a social and environmental justice issue. Thus, until policy thinking is attuned to address these distributional and procedural inequities that marginalises ASM in comparison to their large-scale mining counterparts, efforts to improve the social and environmental performance in the former will continue to be ineffective.

Rural Youth Narratives of Accessibility and Social Change in Kaasa, Northern Ghana.
Lina Adeetuk, Brock University

The objective of my MA thesis project is to critically analyze the lived implications of the newly constructed Kaasa-Zogsa Road for the lives of youth (18-35) living in a village (Kaasa) in Builsa North District of Northern Ghana. I am interested in youth's perspectives on the road-building process (i.e., LIPW model) and the implications of the completed road for their material and social wellbeing. My research responds to calls to examine the uneven and differential social and economic implications of rural road construction and changes to mobility/accessibility at the local scale. One group within rural developing communities whose experiences and practices may differ from the aggregate picture, and whose perspectives on road construction, accessibility and mobility have been virtually unexamined, is youth (Porter & Turner, 2018; Porter et al., 2007; Waldie, 2014). Although much development literature acknowledges the demographic significance of youth, they remain largely invisible, if not dismissed and denigrated, in much development practice at the local level, at least in sub-Saharan Africa. Primary data for this project has been collected using in-depth qualitative phone interviews with (a) a sample of 15 youth from Kaasa, (b) the road-building project supervisor, and (c) the local assemblyman. For this conference, I will be presenting an overview of my research and analysis of one of my research questions, framed as "What are the important material and social implications of the Kaasa-Zogsa Road among residents of Zogsa, especially youth?"

The Causes and Effects of Fire Disasters on Urban Market Facilities in Ondo State, Nigeria
Usman Jimoh & Olagoke Awodumi, University of Ibadan

This study examines the causes and effects of fire disasters on urban market facilities in Ondo State, Nigeria. Case study research design was employed for this study. Data for this study was sourced from the Ondo State Ministry of Economic policy Research and Statistics, and Ondo State Fire Service provided the data that was utilized for the study. Purposive sampling technique was used to select Ondo state in Nigeria. This was due to high incidence of fire out break occurrence in the area, with specific reference to 2019 being the year that had the most occurrence, provided the focus of the study. Issues that were raised include; fire outbreak, number of person injured, the number of death and estimated value of properties lost. Data were analysed using descriptive statistic wire graph. The study revealed that fire incidence was at its peak in January and lowest in August. There was no case of death recorded in the study area. Meanwhile, the property lost was highest in February with estimated value of 82 million naira. Personal safety measure and public enlighten program should be encouraged.

COVID-19 AND GEOGRAPHIES OF ACADEMIC WORK

Saturday November 13, 2021 | 4:00 to 5:00 p.m. EST

Chair: Michael Buzzelli

Panelists: Wayne Forsythe (Ryerson University); Vivian Kong (Western University); Ben Klar (Western University); Ebenezer Narh (Western University)

Virtual Event Assistant: Haley Everitt

Description: How will Geography and academic work generally evolve as a result of the COVID-19 pandemic? Is teaching changed forever? Is remote research viable? Some might say the pandemic forced us to finally critically examine what we do and how we do it. Is this ‘rethink’ for the better or could we lose the strengths and positives of our work? Panelists will share their views and experiences on what this all means for the future of Geography and the academic enterprise.