Bradford Seminar: Global migration flows in a changing climate

Professor Robert McLeman
Department of Geography & Environmental Studies
Wilfrid Laurier University

This presentation has numbered slides
Overview

• Key risks (IPCC language)
• Future projections & scenarios
• Implications for the US and Canada
• International policy options
from The Internationalist and International Institutions and Global Governance Program

How Should the World Respond to the Coming Wave of Climate Migrants?

Nations should use existing international institutions, instruments, and laws to protect and assist vulnerable populations, while mobilizing foreign aid to help communities in the developing world absorb the coming wave of environmental migrants.

Blog Post by Stewart M. Patrick

March 16, 2020
Could climate change herald mass migration?

Climate change and drought in the U.S. Southwest could one day prompt mass migration to the Great Lakes.

The unseen driver behind the migrant caravan: climate change
Weather/climate-related displacements already happen

Map = displacements recorded in 30 days prior to March 18;

blue = weather/climate-related
Global climate/weather related displacements, 2018
New weather-related displacements, 2018, by country

- Myanmar: 298,000
- Kenya: 336,000
- Afghanistan: 435,000
- Somalia: 547,000
- Nigeria: 613,000
- Indonesia: 853,000
- United States: 1.2m
- India: 2.7m
- China: 3.8m
- Philippines: 3.8m
New weather-related displacements, 2018, by country

Key source countries of immigration to Canada
We already receive environmental migrants...

• Their numbers are currently small, and they are embedded with larger flows of immigrants
The ‘big 3’ existing risks

Floods

Storms

Droughts

... plus emergent risk of wildfires
Floods

- Most often result in temporary, rural-urban migration within countries
- Permanent relocation occurs when houses/livelihood assets are destroyed and cannot be replaced
Extreme storms

Migration & displacement outcomes depend on:
- Extent of damage to housing and infrastructure
- Response of authorities

Puerto Rico, post-Hurricane Maria
- An estimated 140,000 Puerto Ricans relocated to the continental US in the year after Hurricane Maria (Sept 2017)
- Most went to Orlando, New York City (which already had large Puerto Rican communities)
Droughts

- Limited migration at outset, people adapt in other ways
- First migration response = young adults move in search of wages
- As conditions persist, out-migration from affected areas accelerates
Water-scarce regions
Next big risk...
Projected mean sea level rise

From IPCC SROCC 2019

RCP 8.5 scenario

RCP 2.6 scenario

Global mean sea level change relative to 1986–2005
Effects of mean sea level rise (MSLR)

- Amplifies the coastal impacts of storms, floods, king tides, salinization of soil and ground water
- Eventually inundates lowest lying areas
- By 2100 over 1 billion people will live in the Low Elevation Coastal Zone (areas <10m above sea level)

Hauer et al 2019
Communities already at risk

How much does it cost to relocate exposed communities?
Example 1: Relocations after Hurricane Sandy

- After Hurricane Sandy (2012), US$300,000,000 was spent to buy out 1,300 damaged shoreline homes
  = average of US$230,000 per home

Marino 2018
At that price, what would it cost to buy out at-risk homes in Miami?

• By year 2045, up to 12,000 Miami homes may need to be abandoned
• Based on Sandy costs, total amount of $ needed would be US$2,760,000,000
Example 2: Organized relocation of Isle de Jean Charles, Louisiana

• Proactive relocation of small island community disappearing from rising seas, coastal wetland erosion, subsidence

Isle de Jean Charles, LA
https://www.youtube.com/watch?v=RM31-dQW23
Cost of proactive relocation

- 80 residents of Isle de Jean Charles are being moved by the state of Louisiana to an inland site
- A total of US$48 million is allocated to this project (or $600,000/resident)
- An estimated 7 million Americans live in high-risk areas like Isle de Jean Charles
- At $600k/resident, the cost to relocate all 7 million at-risk Americans would be US$4,200,000,000,000
- Roughly = entire US government budget for 1 year

http://isledejeancharles.la.gov/news
Modeling migration patterns in the USA under sea level rise

Caleb Robinson, Bistra Dilkina, Juan Moreno-Cruz

Published: January 22, 2020 • https://doi.org/10.1371/journal.pone.0227436

Abstract

Sea level rise in the United States will lead to large scale migration in the future. We propose a framework to examine future climate migration patterns using models of human migration. Our framework requires that we distinguish between historical versus climate driven migration and recognizes how the impacts of climate change can extend beyond the affected area. We apply our framework to simulate how migration, driven by sea level rise, differs from baseline migration patterns. Specifically, we couple a sea level rise model with a data-driven model of human migration and future population projections, creating a generalized joint model of climate driven migration that can be used to simulate population distributions under potential future sea level rise scenarios. The results of our case study suggest that the effects of sea level rise are pervasive, expanding beyond coastal areas via increased migration, and disproportionately affecting some areas of the United States.
MSLR impacts on US population – high SLR scenario

Assumes 1.8m MSLR by 2100

Blue counties lose population

Redness indicates number of additional migrants received
Projections of future climate-related displacement

World Bank report, 2018
Future climate-related migration & displacement depends on 3 factors

1) Future changes in key climatic risks
2) Future development trajectories in low- and middle-income countries
3) Future international migration policies
1) Future climate scenarios

- Scientists used standardized scenarios known as “Representative Concentration Pathways” (RCPs)
- Reflect outcomes of 4 different possibilities for future global greenhouse gas emissions
RCPs

• RCP 2.6 = assumes GHG emissions start falling immediately and reach zero later this century (leads to global warming of +0.9° to 2.4°C by year 2100)
• RCP 4.5 = GHG emissions stabilize by 2040 and then start falling (still achievable; leads to warming of +1.7° to 3.3°C by 2100)
• RCP 6 = GHG emissions grow until 2080 and then start falling (achievable, leads to warming of +2.0° to 3.8°C by 2100)
• RCP 8.5 = GHG emissions grow throughout this century (leads to warming of +3.2° to 5.4°C by 2100)

From IPCC SROCC 2019
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Almost unachievable now

We are currently on RCP 6/8.5 pathway
Climate-migration risks by RCP for 2050-2100

**RCP 2.6**
- Flood, storm & drought risks remain roughly the same as now in most regions
- Changes are incremental in nature

**RCPs 6 & 8.5**
- Increasing flood & storm risks in East & SE Asia
- Increasing storm risks in South Asia, Latin America & Caribbean under RCP8.5
- Increasing drought risks in North, West & Southern Africa, Middle East
- Potential increase in flood risk in East Africa

McLeman 2019
2) Future socio-economic development

- Scientist use standardized scenarios called the “Shared Socioeconomic Pathways” (SSPs)
- Assumption is that demographic, economic and social factors influence the ability to mitigate GHG emissions and to cope with/adapt to the negative impacts of climate change
SSPs

• SSP1: A cooperative future where the UN Sustainable Development Goals (SDGs) are met
• SSP2: “Middle of the road” (mid-range progress is made toward SDGs)
• SSP3: Fragmentation: Countries are self-interested and avoid cooperation, are often in conflict with one another
• SSP4: Inequality: international community divides into have and have-not countries, with high rates of socio-economic inequality within nations
• SSP5: Current status quo persists, socio-economic development tied to fossil fuels
Effects of SSPs on climate-related migration, 2050-2100

- SSP1 (sustainability) reduces future migration & displacement by facilitating other forms of adaptation
- SSP2 (middle-of-the-road) and SSP5 (status quo) lead to rates of migration & displacement that vary by region/country
- SSP3 (fragmentation) and SSP4 (inequality) amplify the number of people who migrate and are involuntarily displaced; also generate large numbers of people “trapped” in high-risk locations

McLeman, 2020 in press
3) Migration policy options

• 1. Managed migration: actively facilitate safe & regulated movement between countries, make it easy to remit money

• 2. Status quo: a global hodgepodge of migration policies and approaches

• 3. Control & criminalize: countries fortify borders and actively discourage migration except for highly skilled/high income individuals
3) Migration policy options

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Current migration policy trajectory in many countries...

USA-Mexico border

India-Bangladesh border
A key long-term interest for Canada + USA

Managed, orderly immigration of young people

• Reasons are slightly different for Canada and USA

• For Canada = preventing population decline

• For USA = meeting labor market needs
Canada’s long-term interest

Managed, orderly immigration of young people

• Immigration has been the primary driver of population growth in Canada since the 1990s
• After 2050, share of Canadians 65 or older = 20-25%
• In the absence of immigration, Canada’s population declines and ages rapidly after 2050

Statistics Canada, 2019
USA’s long-term interest

Managed, orderly immigration of young people

• Immigrants currently make up 17% of the US labor force

• Immigrants and their children will be needed to maintain future US workforce as Baby Boomers and Gen Xers retire
Where the young people are

Source: PRI
Where future climate displacement risks are likely to grow

Source: PRI
International climate policy questions

• Will Canada meet its commitments under the Paris Agreement?
  
  Answer = no, not even close

• Nor will the rest of the world

Countries in green = on track to meet Paris Agreement
Legal questions

• We are going to receive refugee claims by people citing climate change as a reason for fleeing: How will we manage these?
International development policy questions

Will we meet the UN Sustainable Development Goals?

• It’s the best way to avoid widespread climate-related displacement at this point
Low-lights from the 2019 SDG progress report
International development policy questions

• Will we increasingly target assistance to areas at high climate-displacement risk?

• Will we increase development assistance spending generally?

• Development spending can reduce distress migration/displacement, but does not necessarily reduce overall migration rates
International migration policy questions

• Will high-income countries adopt and implement the *Global Compact on Safe, Orderly and Regular Migration*?

• It provides a logical blueprint for making all forms of migration – including climate migration – safer for migrants, and beneficial for sending & receiving communities
Discussion?
Thanks! Merci!

Professor Robert McLeman  
Department of Geography & Environmental Studies  
Wilfrid Laurier University  
rmcleman@wlu.ca