AMERICAN SOCIETY OF ADAPTATION PROFESSIONALS

Climate Informed Demography Workshop Report

Prepared By: American Society of Adaptation Professionals
Prepared For: New York State Energy Research and Development Authority
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Workshop Title: Climate Informed Demography Workshop
Workshop Date: December 3, 2020 and December 8, 2020

Workshop Format:

This workshop included two synchronous workshop sessions with panel presentations, moderator led questions, and live questions and answers with the audience. The second day of the workshop included breakout sessions where participants were invited to meet with presenters on specific topics related to climate migration for New York State, specifically, climate impacts, current demographic trends, and community participation and engagement. In addition to the synchronous sessions workshop participants were encouraged to explore resources shared, in advance, by the presenters to be able to arrive to the synchronous sessions with a shared set of knowledge based upon those provided resources.

Coordination with Higher Ground

While planning the workshop it came to ASAP's attention that the workshop dates coincided with another event called the Higher Ground Conference hosted by New Cities. The Higher Ground conference was a three day event described as being "a virtual event to explore and analyze climate adaptation, resilience, and [...]managed retreat away from coastlines, floodplains, and other high-risk areas." Because many people with expertise and interest in the topic of climate migration were already planning to attend this event we decided to meld Day 1 of our Workshop with the Higher Ground conference to reach a broader audience with the lessons on integrated climate and demographic modeling.

Workshop Purpose:

This two-day event convened leading academics and practitioners working on the cutting edge of climate and demography. Workshop attendees gained a deeper understanding of the state of interdisciplinary research on this important topic and what further information and data New York State needs to prepare for climate-driven population changes.

The workshop addressed two aspects of preparing for climate migration into and throughout New York State: Day 1 of the workshop featured a panel on approaches to integrating future climate conditions into population models and an overview of ASAP's new Climate Migration Model Accelerator (CMMA). Day 2 of the workshop convened a practitioner and research panel to discuss the unique climate, economic and demographic characteristics of New York State.

Both days included an opportunity to learn more about the New York State Climate Migration Modeling Accelerator and for prospective teams to meet and develop their program applications.

Workshop Session Day 1: Introduction to Climate Informed Demographic Models

Purpose:

Day 1 of the Climate Informed Demographic Workshop aimed to bring together leading experts on climate informed demography in North America. The workshop format was conceived of through conversations with project partner, Dr. Matt Hauer a leading climate demographer from Florida State University, Anna Marandi, an expert in urban resilience and managed retreat from National League of Cities, and Dr. Vivek Shandas a urban studies and demography expert at Portland State University. To provide a thorough interpretation of the state of the interdisciplinary science of climate informed demography ASAP invited five speakers to join in the panel. Each invited speaker uses a different approach to build an climate informed demographic models. During the panel, the presenters were invited to share an overview of their research and approach and then join a facilitated discussion about the state of this interdisciplinary research, how each approach differs and complements each other, and what areas they are most excited about for further research development and/or application in decision making contexts.

- Joyce Chen, PhD, Ohio State University
- Matt Hauer, PhD, Florida State University
- Bryan Jones, PhD, Baruch College SUNY
- Rachel Jacobson, American Society of Adaptation Professionals
- Vivek Shandas, PhD, Portland State University
- Alex De Sherbinin, Columbia University

Logistics

Day 1 of the Climate Informed Demographic Workshop followed a seminar format with the ¾ of the time dedicated to presentations from a team of experts followed by a question-and-answer session facilitated by a subject matter expert moderator. The program kicked off with a welcome from Beth Gibbons followed by a presentation on ASAP's approach to climate induced migration and the purpose for ASAP undertaking this work presented by ASAP's Deputy Director Rachel Jacobson. Four presentations followed from experts in climate informed demography with each presentation presenting a different methodology for modeling population change. The order of presentations proceeded with Dr. Matt Hauer, Dr. Bryan Jones, Dr. Joyce Chen, Dr. Vivek Shandas. The group was then joined by Dr. Alex De Sherbinin who facilitated a discussion among the panelists and then welcomed and shared questions from the webinar participants.

Lessons Learned through Coordination

Bringing together the right mix of demographic modelers for this workshop required conversations with many experts working on climate informed demography or on the periphery of this emerging interdisciplinary field. Through those information gathering conversations and via a two hour coordination call with the invited speakers the following themes emerged:

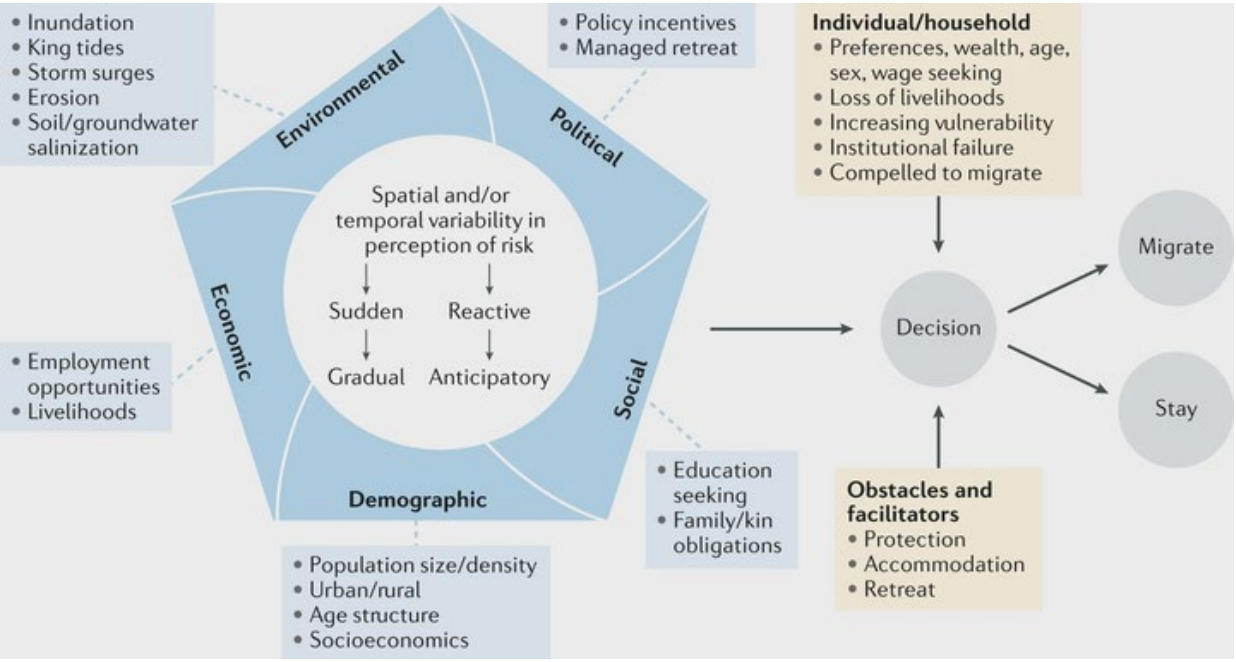
- **There is little to no coordination across researchers working in this new area of science.** While some members of the panel had worked together in the past others have never met one another, despite being familiar with one another's work and researching and writing in a very new and narrow field.
- **There is a lot of experimentation taking place through this interdisciplinary science.** Researchers working on integrating climate change into demographic models are experimenting with various models and approaches to undertake this work. In some cases these approaches build upon one another and in other cases approaches are borrowed from other disciplines including geography, economics, and sociology.
- **Trust building is still needed across this community.** The researchers appreciated having the opportunity to meet one another, discuss their work together, and better understand each other's approach to the work ahead of the live webinar session. While the development of this program was a good first step there is still work left to be done.

Key Lessons from the Workshop Session Day 1: Introduction to Climate Informed Demographic Models

Each presenter offered an overview of their approach to modeling population change, what challenges they face in their approach, and how they hope to see their work applied to decision making contexts. Key lessons from the experts include:

- **Migration is complex, even if demography is not.** All the presenters concur that predicting human migration is complex. Regardless of the approach being employed individual behavior, political, economic and social conditions, along with climate will influence how people move. Dr. Hauer's presentation pointed out that updating the demographic model itself is not difficult, however knowing the appropriate change variable to add into a demographic model is difficult.
- **Migration should not be treated as an emergency.** The theme of migration being a normal occurrence in human behavior and also an important adaptation strategy was addressed first by Dr. Jones and repeated by Dr. Chen and Dr. Shandas. Dr. Jones stated that migration is a natural occurrence, that managed retreat needs to be included in adaptation and resilience strategy discussions, and that climate impacts are currently outstripping adaptation efforts, reinforcing the need for more adaptation holistically.

- **Impacts of climate migration on receiving communities is under-researched.** More attention is paid to places people migrate away from, rather than places they migrate toward. This was reiterated by the panel in reference to migration at multiple scales. From a global perspective, more research and attention is given to developing countries than developed countries. In the US domestic context more research has been dedicated to understanding how climate migration and managed retreat affect communities directly threatened by climate impacts (and therefore at risk of losing population) than potential climate receiving communities.
- **Models are only one part of preparing for climate induced migration.** The expert panelists all agreed that models are useful tools, but ultimately should only be considered as a single input in research and practice on climate migration. Historic information, scenario planning, story development, and community based research and design provide important inputs to forming a full picture of what climate migration will look like and mean for a region.



Hauer's graphic demonstrates the complexity of variables which contribute to building a climate-informed demographic model.

Workshop Session Day 2: Climate, Demographics & Economics in New York State

Purpose:

Day 2 of the Workshop aimed to bring experts from across New York State together to discuss New York-centric factors which climate modeling teams should be considering when developing their work for the State. The list of invited experts was developed through numerous conversations with experts and community leaders. These conversations eventually brought ASAP to the conclusion to invite a panel of speakers who could provide insights into current and future climate conditions in New York, existing demographic data resources, community perspectives and best practices in engaging communities substantive and consequential ways. Specific areas of expertise reflected on the panel included:

- Climate Experts: Radley Horton, PhD, Columbia University & Art DeGaetano, PhD, Cornell University
- Demographic Insights: Robin Blakely-Armitage, PhD, Cornell University
- Climate Impacts & Community Perspectives: Kristin Marcell, Climigration Network & Kathy Bunting-Howarth, PhD, JD, New York Sea Grant & Cornell Cooperative Extension

Logistics

Day two of the Climate Informed Demographic Workshop included a mix of presentation and engagement methods intended to deepen the conversations taking place between workshop participants. The session began with an introduction and welcome from ASAP Executive Director Beth Gibbons and an overview of NYSERDA's interest in this topic from Amanda Stevens. These introductions were followed by ten-minute presentations from a panel of experts. The presentation order was Dr. Art deGaetano, Dr. Radley Horton, Dr. Robin Blakely-Armitage, Kristin Marcell, and Dr. Katherine Bunting-Howath. A brief question and answer session followed the panel presentations and then the participants broke into small groups based on their interest in a specific aspect of preparing New York State for climate induced migration: climate data, demographic trends, community engagement and participation. At the conclusion of the small groups the group reconvened and were given the option to break into teams to begin developing their Climate Migration Model Accelerator team proposals.

Lessons Learned through Coordination

In addition to the lessons learned from the workshop itself ASAP gained insights into working on climate informed demography for New York State through the one-on-one coordination calls with each presenter and through the 1.5-hour group coordination meeting that took place ahead of the workshop. One clear lesson which emerged from these coordination conversations was that the community of applied researchers is very strong in New York State. From public to private academic institutions there is a strong spirit among the academic community to ensure

their research is usable and useful for decision making in the state and there are platforms dedicated to extending the outputs from the research community into the hands of users.

Key Lessons from Workshop Session Day 2: Climate, Demographics & Economics in New York State

- **Population change is already being considered through scenario planning exercises.** Dr. Bunting-Howarth shared an example from the 2021 Lake Ontario Management Plan development which used scenario planning and in which communities specifically wanted to include scenarios which would include population growth along with other variables of change.
- **New York hosts leading demographic data and information services.** Dr. Blakely-Armitage shared an overview of current population change trends in New York State and in the process demonstrate the user-friendly interface available through Cornell University's providers through Cornell's Program on Applied Demographics.
- **Community perspectives need to be at the forefront of this research.** Kristin Marcell, along with Dr. Blakely-Armitage and Bunting-Howarth all spoke about the importance of engaging with communities at the outset of this work and research so that communities have an opportunity to define the variables that are most important to them as demographic models are being built.

Overall Lessons from The Climate Informed Demography Workshop

Two key messages shared in the presentations during the workshop were that the climate-informed demographic models are still a work in progress and models alone will not provide decision-ready output for community members or policy makers. Modeling approaches may vary from somewhat simple (eg. Hauer's model, which adds climate as a variable to a standard demographic accounting equation) to complex Agent Based Models (ABMs) such as Shandas' approach which attempts to personalize the data of individual characters in the model to gain a better understanding of the type of person who may be migrating, under varied conditions. At this time application of models for decision making are best suited for broad geographies (county scale and higher) and should not be applied, unless paired with effective community engagement approaches. An example of a community engagement process was shared by Dr. Bunting-Howarth in the case of using scenario planning to develop the 2021 Lake Ontario Management Plan.

> "This report shows that if the future matches our assumptions, then you can expect this outcome. But the future may not be like that. In fact, maybe it *shouldn't* be like that. So, what really happens is up to you." - Dr. Bryan Jones

Potential barriers to the success for the climate-informed demographic model teams include short-comings in the interdisciplinary science of integrating climate and demography in US domestic migration, a risk of exposing communities to economic, political and financial threats by articulating potential population changes (loss or growth), and the potential for being overwhelmed by the breadth of potential model approaches and potential indicators which could be integrated into a New York State model.

Key Takeaways for continuing climate in-migration applied research in New York State

- **Invest in multiple forms of modeling**. For the state to have a robust idea of what climate-induced migration could look into and throughout New York State it will be important to invest in multiple models and approaches.
- **Invest in understanding population out trends to see what reverse trends may be.** People tend to migrate following family and other strong social relationships. One potential pathway for understanding migration into and within New York State is to follow readily available census data to see where people have historically moved.
- **Expect uncertainty.** Climate induced migration is very difficult to predict and it is difficult to demonstrate the significance of climate in an individual's choice to relocate. Uncertainty is going to be a major consideration as practitioners attempt to translate research findings to application. Uncertainty on the climate side can be managed with ensemble models application, but uncertainty on the human behavior side is more difficult to resolve.
- **Downstate has identified risk, but upstate has risks too.** Drs. Horton and DeGaetano's presentations both point out that while the climate risks faced by Long Island, New York City and downstate New York tend to dominate the headlines, more extreme precipitation events leading to increased flooding and significant infrastructure damage pose significant threats to communities across the state.
- **Understanding climate drivers from outside the state is necessary.** While New York State amenities (including a temperate climate and water abundance) may attract people to the state, to effectively predict the impacts of climate-induced migration it will be necessary to define and identify thresholds that will cause people to move away from climate threats. The leading example of this currently is Dr. Hauer's climate migration model which uses Sea Level Rise as its driver based on areas of complete inundation by 2100.

Workshop Resources Appendices

1. Complete Climate Informed Demography Workshop Slides
2. The Climate Informed Demography Workshop Speaker Overview and Resources
3. ASAP Climate Migration Resource List In-Migration
4. ASAP Climate Informed Demography Workshop recordings