UK Health Security Agency
LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE
NIHR | Health Protection Research Unit in Environmental Change and Health at London School of Hygiene and Tropical Medicine
Office for Health Improvement & Disparities
NIHR Health Protection Research Unit in Environmental Change and Health

Migration and Climate Change Workshop: November 2023

Summary Report

Author: Health Protection Research Unit in Environmental Change and Health.

This project is funded by the National Institute for Health and Care Research (NIHR) Health Protection Research Unit in Environmental Change and Health (NIHR 200909), a partnership between UK Health Security Agency and the London School of Hygiene and Tropical Medicine (LSHTM), in collaboration with University College London and the Met Office. The views expressed are those of the author(s) and not necessarily those of the NIHR, UK Health Security Agency, London School of Hygiene and Tropical Medicine, University College London, the Met Office or the Department of Health and Social Care.

Contents

Summary

The UK Health Security Agency (UKHSA) and the National Institute for Health and Care Research (NIHR) Health Protection Research Unit (HPRU) in Environmental Change and Health undertake work to increase the evidence base around the health impacts of environmental change, including the broader health co-benefits of climate action. Communication and dissemination of this evidence is imperative in order to increase understanding around the topic across multiple organisations and ensure that important research findings are disseminated.
A broad range of stakeholder organisations were invited to a day-long workshop, held in November 2023, to share and discuss areas of research work from the HPRU.
The workshop was organised by the the UK Health Security Agency (UKHSA) in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM) and the University College London (UCL).
This report presents an overview of the that stakeholder workshop along with the key messages that emerged.

Introduction and Background

It has long been discussed if and how climate change can drive population movements and migration. Whilst it is universally accepted that average global temperatures are rising, climate change also has other complex and less well understood implications at the local level. In different parts of the world, climate change has been linked to sea level rise, salinization of freshwater supplies, changing flooding and droughts, pest and alien species invasion, changing weather patterns, and extreme events. The most fundamental risks arising from these impacts may be the risk to water and food security and resource provisioning, especially in parts of the world where these fundamentals are already challenged. This can threaten the social and physical wellbeing of local communities, with conflict and population displacement being possible responses. Trapping and immobility are also outcomes of such threats, with those most vulnerable at highest risk.

The relationship between climate change and migration is subject to various complex social, political, cultural, economic, and environmental factors. Due to the multitude of interacting climatic and non-climatic drivers, the exact causal chains and links between climate change and migration are difficult to demonstrate with a specific degree of confidence. While many frameworks of such complexity have been proposed, the interrelatedness of climate change with human migration is highly complex, poorly understood, contested, and thus has been difficult to quantify. This is also greatly compounded by a lack of empirical data and studies, resulting in significant research gaps.

Within the emerging and pan-disciplinary field of Planetary Health, the interlinking of climate and environmental change to migration is identified as a major topic for human health and development, and a key research area. Therefore, any research in this complex area can contribute to inform policies aiming to minimize risks, grasp migration-related opportunities, and ultimately address the underlying causes of vulnerability that might result in climate and environmental change induced migration and/or trapped populations.

Workshop Overview

A one-day day workshop was held in London with hybrid option for those attending overseas.

The beneficaries of this workshop were:

- The public health community,
- The scientific community to inform and plan for multidisciplinary research needs, applied research that translates to public health and policy mobilisation and response,
- The policy and decision makers to discuss development of frameworks for monitoring, data needs and research on climate change and migration
- NGOs and field organisations working with displaced and challenged communities bringing the local context and also to exchange learning and to improve community resilience and adaptation.
- High-level agencies/stakeholders invited to raise awareness of the value of the Climate Change-Migration research.

Workshop Aims and Objectives

Aims were to:

a. Facilitate debate and discussion in the climate change - migration nexus topic, focusing on current knowledge and needs.

b. Work towards an agenda for future research on the climate change - migration attribution, with the goal of informing policy and response.

c. Develop collaborations and plan projects which focus on widening participation from low-income, socio-economically disadvantaged geographic regions, and those most vulnerable to the impacts of climate change.

d. Identify co-operation with local and high-level agencies/stakeholders to understand what needs to be done next and key gaps, while valuing work done on the ground.

Objectives:

a. Define needs and priorities based on current research on this topic and data available.
b. Develop a framework for monitoring and research in the proposed field, in identifying key drivers of migration and attribution of climate change impacts.
c. Discuss a research framework for action based on approaches currently being used and new methodologies needed.
d. Discuss the widening of participation and inclusivity of wider geographies in this agenda.
e.

Participants

A broad stakeholder audience was invited through a range of UKHSA and HPRU distribution channels. Representatives were included from multiple organisations, including academia and academic organisations.

There were 31 attendees overall, with an almost equal split of males and female attendees (15 males and 16 females).

Representatives attended from the UK, Australia, Italy, Bangladesh, Geneva, Belgium, France, Portugal.
The following organisations were represented: academia: LSHTM, Imperial College, Heidelberg, UCL, Open University, University of Oxford, Welcome Trust, ISDE, UKHSA, Oxford Centre for Migration, Glasgow Migration HubInternational Organisation of Migration (IOM).

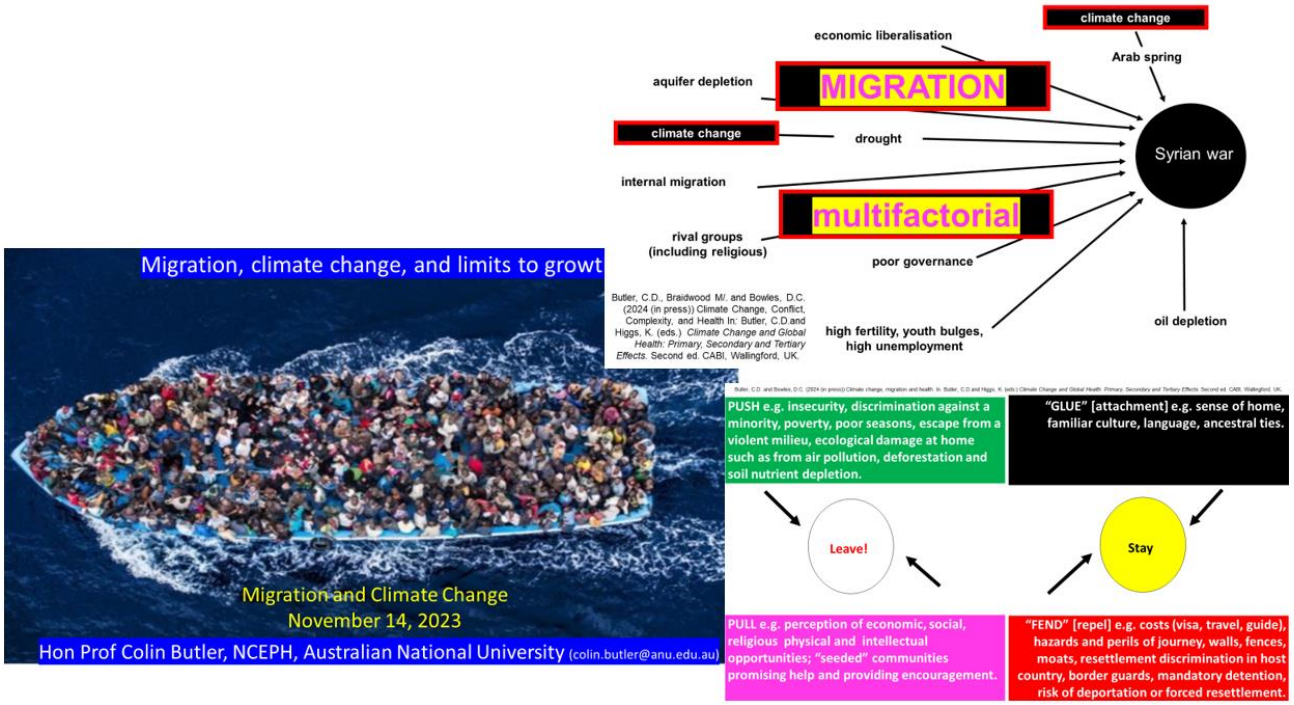
The workshop run was primarily facilitated by the UKHSA Environmental Epidemiology Team, with planning support from HPRU partners. The hybrid option of the workshop was held via Microsoft Teams.

Programme

The full programme is included in Appendix 1, and a summary of the workshop is presented below.

Key note Presentation

Professor Colin Butler gave the first 30 minute keynote talk, entitled *'Migration, Climate Change and Limits to Growth'* Butlers talk highlighted findings from the global trends forced displacement report in 2022, https://www.unhcr.org/sites/default/files/2023-06/global-trends-report-2022.pdf

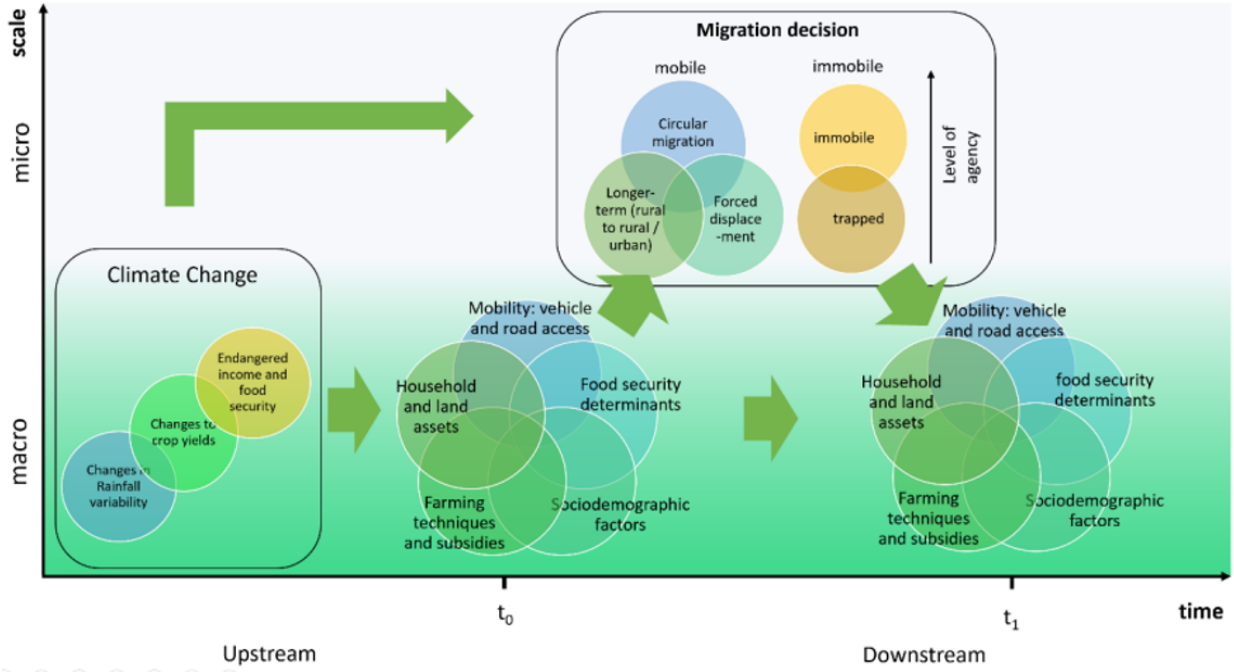


He discussed the multifactorial nature of migration which maybe brought about by liberal economic transitions.
He noted that there are 4 vectors which can affect migration, *push* and *pull*; and *glue* and *fend*. *Push* includes insecurity, discrimination against a minority, poverty, poor seasons, escape from a violent milieu, ecological damage at home such as from air pollution, deforestation and soil nutrient depletion. *Pull* includes perception of economic, social, religious, physical and intellectual opportunities; "seeded" communities promising help and providing encouragement. *Glue* was described as the attachment e.g., the sense of home and ancestral ties, whereas *Fend* is the repellent , e,g. costs of visa etc., or the hazards of the journey. He outlined a number of case studies and highlighted that only focusing on ecological factors is inhibiting the discussion about the drivers and context of migration.

Case Studies

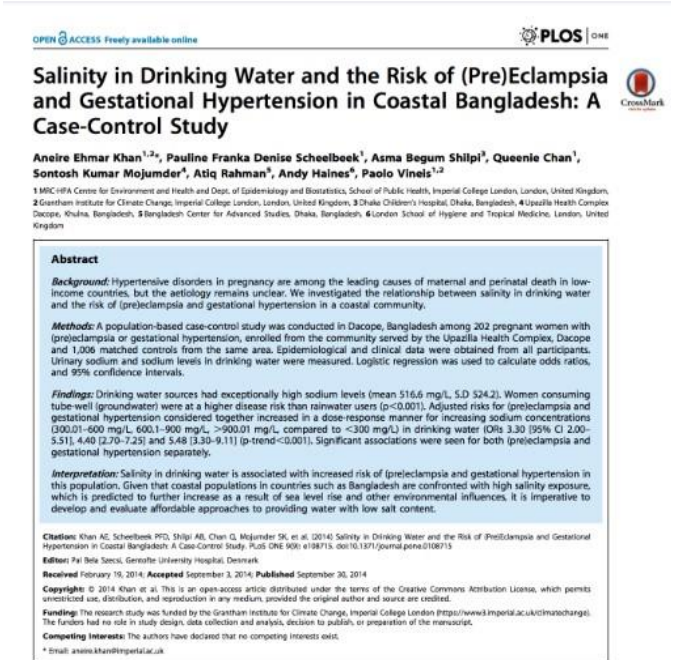
A number of case study examples were presented to showcase examples of migtration scernarious and examples of migration response.

The first was a case study from Malawi given by Dr Ariana Zeka. She highlighted the complexity of the climate change - migration nexus and focused on the impacts of climate change on crop yield and food security, and how these in return affect migration agency.



A conceptual model exploring the relationships between climate change and migration in the context of Malawi. Source: Parrish et al. 2020. IJERPH

A case study from Bangladesh was presented by Dr Aneire Khan. Khan's presentation highlighted the rising sea levels impact on the salinity drinking water and agriculture, and the health impacts in the affected populations.



OPEN ACCESS Freely available online PLOS ONE

Salinity in Drinking Water and the Risk of (Pre)Eclampsia and Gestational Hypertension in Coastal Bangladesh: A Case-Control Study

Aneire Ehmar Khan[1,2]*, Pauline Franka Denise Scheelbeek[1], Asma Begum Shilpi[3], Queenie Chan[1], Sontosh Kumar Mojumder[4], Atiq Rahman[5], Andy Haines[6], Paolo Vineis[1,2]

1 MRC-HPA Centre for Environment and Health and Dept. of Epidemiology and Biostatistics, School of Public Health, Imperial College London, London, United Kingdom, 2 Grantham Institute for Climate Change, Imperial College London, London, United Kingdom, 3 Dhaka Children's Hospital, Dhaka, Bangladesh, 4 Upazilla Health Complex Dacope, Khulna, Bangladesh, 5 Bangladesh Center for Advanced Studies, Dhaka, Bangladesh, 6 London School of Hygiene and Tropical Medicine, London, United Kingdom

Abstract

Background: Hypertensive disorders in pregnancy are among the leading causes of maternal and perinatal death in low-income countries, but the aetiology remains unclear. We investigated the relationship between salinity in drinking water and the risk of (pre)eclampsia and gestational hypertension in a coastal community.

Methods: A population-based case-control study was conducted in Dacope, Bangladesh among 202 pregnant women with (pre)eclampsia or gestational hypertension, enrolled from the community served by the Upazilla Health Complex, Dacope and 1,006 matched controls from the same area. Epidemiological and clinical data were obtained from all participants. Urinary sodium and sodium levels in drinking water were measured. Logistic regression was used to calculate odds ratios, and 95% confidence intervals.

Findings: Drinking water sources had exceptionally high sodium levels (mean 516.6 mg/L, S.D 524.2). Women consuming tube-well (groundwater) were at a higher disease risk than rainwater users (p<0.001). Adjusted risks for (pre)eclampsia and gestational hypertension considered together increased in a dose-response manner for increasing sodium concentrations (300.01–600 mg/L, 600.1–900 mg/L, >900.01 mg/L, compared to <300 mg/L) in drinking water (ORs 3.30 [95% CI 2.00–5.51], 4.40 [2.70–7.25] and 5.48 [3.30–9.11] (p-trend<0.001). Significant associations were seen for both (pre)eclampsia and gestational hypertension separately.

Interpretation: Salinity in drinking water is associated with increased risk of (pre)eclampsia and gestational hypertension in this population. Given that coastal populations in countries such as Bangladesh are confronted with high salinity exposure, which is predicted to further increase as a result of sea level rise and other environmental influences, it is imperative to develop and evaluate affordable approaches to providing water with low salt content.

Citation: Khan AE, Scheelbeek PFD, Shilpi AB, Chan Q, Mojumder SK, et al. (2014) Salinity in Drinking Water and the Risk of (Pre)Eclampsia and Gestational Hypertension in Coastal Bangladesh: A Case-Control Study. PLoS ONE 9(8): e104713. doi:10.1371/journal.pone.0104713

Editor: Pal Bela Szecsi, Gentofte University Hospital, Denmark

Received February 19, 2014; **Accepted** September 3, 2014; **Published** September 30, 2014

Funding: The research study was funded by the Grantham Institute for Climate Change, Imperial College London (http://www3.imperial.ac.uk/climatechange). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: The authors have declared that no competing interests exist.

* Email: aneire.khan@imperial.ac.uk

Original Contribution

Neurodevelopmental Outcomes in Children Born to Climate Refugee Mothers in Bangladesh: Experiences from Cyclone Aila

*Khan NZ[1], Muslima H[2], Shilpi AB[3], Majumder SK[4], Khan AE[5]

Cyclone Aila hit the South-West coast of Bangladesh in May 2009, when in Dacope Upazilla over 50,000 people were left homeless as climate refugees (CRs) for over two years. We determined neurodevelopmental status of children born as CRs compared to their non-Climate Refugee (NCR) counterparts. Pregnant mothers were enrolled from May 2009 to April 2010 in entire Dacope in a study which profiled their health conditions. From among these mothers, 12 months post-Aila 267 CR mother-child dyads, and 552 NCR mother-child dyads were enrolled to assess their children's neurodevelopmental outcomes. There were significantly more landless families among CRs compared to NCRs (p value=0.0001; OR=1.86, 95% CI: 1.37-2.51). The mean±SD age at assessment of CR children was 8.52±4.57 months compared to a mean age 9.09±4.13 months of the NCR children (p=0.610). Neurodevelopmental Impairments (NDIs) were three times higher in the former (21.3%), compared to the latter (7.4%) group (p=0.0001; OR 3.83, 95% CI: 2.16 - 5.21). Specifically, expressive language (p value 0.002; OR 2.86, 95% CI: 1.46 – 5.57) and gross motor functions (p=0.007; OR 2.27, 95%CI 1.22 - 4.20) were the most significantly affected areas of impairment. Children born to CR mothers had a three times higher proportion of NDIs. The findings are of concern as in Bangladesh large populations are forced to leave their homes and become CRs annually. Optimum antenatal care of pregnant women as well as their offsprings within refugee situations needs to be ensured to prevent NDIs and poor quality of survival.

[Mymensingh Med J 2016 Oct; 25 (4):]

Key words: Cyclone, Refugee, Pregnancy, Children, Neurodevelopment

Introduction

Natural disasters are common in Bangladesh, including yearly floods and cyclones, especially in coastal areas[1]. Large populations are forced to leave their homes and take temporary refuge in safer areas, sometimes for substantial lengths of time[2]. A previous study from Bangladesh has reported significant rise in post-flood disabilities in children[1]. We report here the neurodevelopmental outcomes of children born to climate refugee (CR) mothers after a severe cyclone hit a coastal population of the country.

On 25 May 2009, Cyclone Aila hit a south-west coastal area of Bangladesh[3]. In one administrative sub-district (i.e. Dacope Upazilla within Khulna district) a tidal river embankment broke and the entire population (estimated to be over 50,000) had to take refuge on another eastern river entire Dacope Upazilla to determine the effects of climate change on their overall health[4,5].

1. *Professor Naila Zaman Khan, Professor and Head, Department of Pediatric Neuroscience, Bangladesh Institute of Child Health, Dhaka Shishu (Children's) Hospital, Dhaka, Bangladesh; naila.z.khan@gmail.com*
2. *Dr Humaira Muslima, Senior Research Associate, Department of Pediatric Neuroscience, Dhaka Shishu (Children's) Hospital, Dhaka, Bangladesh*
3. *Dr Asma Begum Shilpi, Senior Developmental Therapist, Department of Pediatric Neuroscience, Dhaka Shishu (Children's) Hospital, Dhaka, Bangladesh*
4. *Dr Santosh K Majumder, Consultant in Obstetrics and Gynecology, Upazilla Health*

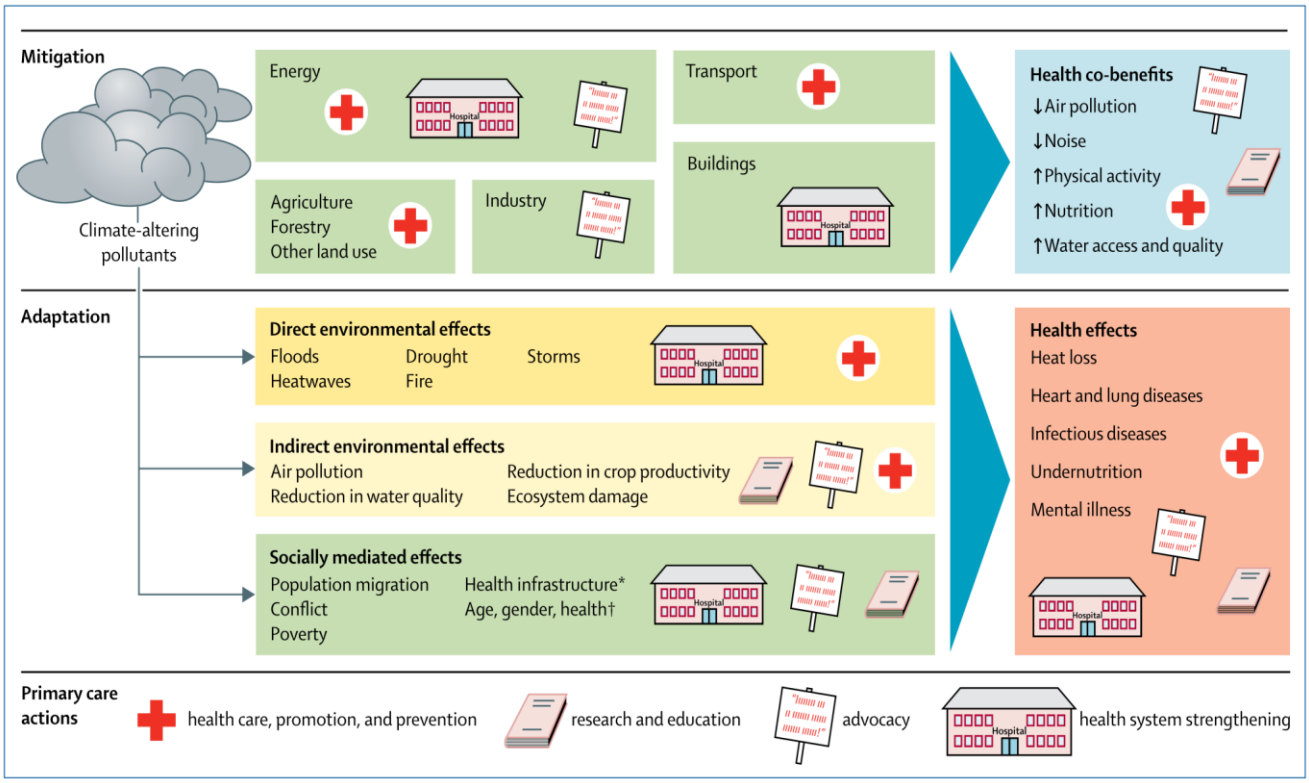
A case study of response in Italy was given by Professor Paolo Vineis where he discussed the migration situation in italy, and the conditions of migrants in the receiving country. He

highlighted the need for implementation of humanitarian corridors which allow migrants to integrate faster.

More vulnerable occupationalsegments

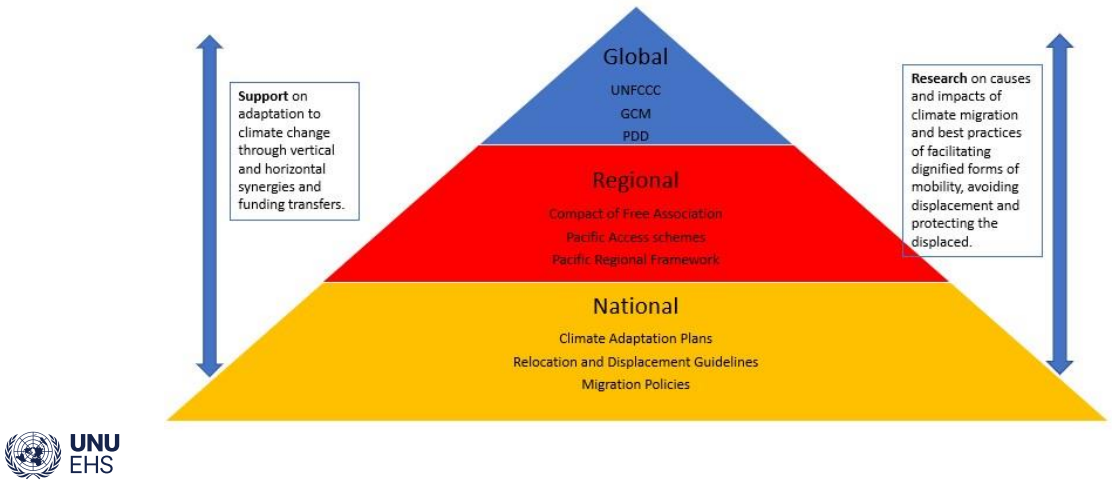
Dr Stacey Heath gave an overview of a case study of contextual factors of migration in Ghana.

Dr Paolo Lauriola discussed the role of primary, secondary and tertiary health system integration for prevention, when supporting migrants, particularly in preventing infectious, environmental, and climatic risks associated with unfavorable socio-economic conditions that lead to migration. He noted that the relationship between social and health professionals and the local communication system must be strengthened to improve information for citizens. Referring to the WHO model for primary and community health role in response and prevention under climate change pressures (figure below), he illustrated with current pilot studies applying such model in south of Italy (Calabria).



Case studies of response in the pacific given by Dr Robert Oakes, which highlighted the need for a both top down and bottom-up approaches in identifying the risks for migrants.

Conclusion - Need for top down and bottom-up approaches



UNU EHS

A case study from Pakistan given by Dr Wasif Shah, showcased the example of the role of integrated surveillance systems in informing public health agencies in support actions that prepare and respond.

Panel Discussion: ‘What now? Policy & Research: perspectives and strategies’

An expert panel discussion then took place to sumamrise and discuss key issyes. The panel comprised of Dr Soumyadeep Banerjee, Dr Paulo Lauriola, Dr Robert Oakes, Dr Stacey Heath, and was chaired by Dr Ilan Kelman, Ms Martina Castiglioni.

Key messages from Panel discussion

- The assumption in the West that migration is a problem highlights the need for a more humanistic approach in these discussions, especially when it is the more affluent countries that are more likely to have emigrants.
-The way we frame migration and migrants is also crucial.
- The importance of how political identification shapes many beliefs and stances on both climate change and migration (even as separate identities)
- Often migration experts or public health specialists dealing with the frontline of response are not included on planned migration initiatives and remittance plans. Therefore, there are very few case studies on the impact of remittances on economic growth. The few studies there are focus on internationally settled migrants only, not internal migration which is more common.
- The need to strengthen the evidence, and overcome the difficulty in the framing of climate change, mediating pathways and migration issues

Roundtable Discussions

Questions for small group consideration

Following a lunch break, roundtable discussions took place in small groups. During thelement of the workshop, there were several discussions that centred on the following questions:

1. Is it possible to examine the multifaceted nature of the drivers of migration and displacement, and is it possible to disentangle climate as a driver?
2. What are the common elements among the non-climatic drivers of migration?
What evidence is needed to assist in informing and influencing actions in relation to climate change-migration and displacement nexus?
3. How can local knowledge inform actions and strategies for prevention and mitigation of climate-related migration and displacement?
4. What informs the development of research capabilities and capacities for monitoring and predicting population mobility, and with the ability to identify vulnerable population groups?
5. How can researchers explore what makes a place ‘uninhabitable’?

6. Is it possible to divide climatic drivers of migration into those associated with and without anthropogenic climate change? Would this matter?
7. Are there any common elements among the non-climatic drivers of migration, and, if so, are any of these amenable to intervention? Is there anything the research community can or should do to contribute to this debate?
8. How can research inform regional and global strategies for humanitarian and comprehensive planning in favor of people who are facing forced migration and displacement?
9. What does research community mean by population 'trapping'? Are there any drawbacks from using this definition?

Small Group discussion Feedback

The workshop concluded with feedback being provided by each group on the small group discussions. Some of the key issues that emerged from all the all group discussions are summarised as follows.

It was considered important how scientific, policy, response and other communities frame migration and migrants. The importance of politics and the political identification shape the beliefs and stances on both climate change and migration. In many scenarios it is a pertinent question to ask is, does it matter? And if so, "*to whom, for whom, and to what end*"?

The involvement of different disciplines and cross-sectoral collaborations is required when framing issues, developing evidence, and informing the response. More is required to ensure all relevant structural, social, and political drivers are accounted for, and avoiding the risk of reducing the complexity of how and why migration occurs to simply 'climate'.

Public health or improved wellbeing should not be controversial, it could be a more politically expedient entry point, or framework for research and interventions compared to those aligned with climate change, migration (or for that matter, loss and damage and human rights approaches). Whether research is focused on the people and communities moving, staying, or hosting it is important to give health/wellbeing a central focus.

A common element among non-climatic drivers of migration is poor governance. Current government policies in many nations are badly formulated and perversely focused. Climate impacts including migration and mobility are not equal opportunities phenomena, but are always socially constructed.

Local knowledge is essential for any effective work in this area, and the need for a more people, human-rights approach in this field. This would also involve centralising indigenous knowledge and perspectives, amplifying their platforms and ensuring more representation from indigenous groups and gendered perspectives in these conversations. Research capabilities could be strengthened by amplifying of local voices and giving migrants a voice would be key in identifying vulnerable population groups.

Defining 'Habitability' needs to consider inter alia cultural, social, and economic dimensions distinct from and interacting with the environmental, through measurable impacts and the

perception of affected people. Uninhabitability is a complex process that occurs over time with different mechanisms and pathways; a clear taxonomy is needed to define it.

Acknowledgements

We would like to thank the following people who contributed to organisation, running of and/or write-up of the event:
Organising Committee:
Ariana Zeka (UKSHA),
Colin Butler (Australian National University – ANU, Canberra),
Ilan Kelman (UCL)

Scientific Secretariat:
Neelam Iqbal (UKHSA)

Scientific Support:
Valentina Guercio (UKHSA),
Adrian Lee (UKHSA),
Obiageli Onyekpe (UKHSA)

- Shakoor Hajat (LSHTM),
- Raquel Duarte-Davidson (UKHSA)
- Dr Kerry A Broom (HPRU Knowledge Mobilisation Manager, UKHSA)

This project is funded by the National Institute for Health and Care Research (NIHR) Health Protection Research Unit in Environmental Change and Health (NIHR 200909), a partnership between UK Health Security Agency and the London School of Hygiene and Tropical Medicine (LSHTM), in collaboration with University College London and the Met Office.

The views expressed are those of the author(s) and not necessarily those of the NIHR, UK Health Security Agency, London School of Hygiene and Tropical Medicine, University College London, the Met Office or the Department of Health and Social Care.

Appendix 1

Migration and Climate Change workshop 14th November 2023 **9:00-16:00**		
9:00	**Registration and Coffee/Tea**	
9:20	Welcome talk	Dr Ariana Zeka Organising Committee Chair
9:30	Keynote	Professor Colin Butler *'Migration, Climate Change and Limits to Growth'*
10:00	Case studies of migration	Dr Ariana Zeka *'Climate Change and Migration nexus in Malawi'*
10:10	Case studies of migration	Dr Aneire Khan *'Climate change, and freshwater salinization and security in Bangladesh'*
10.20	Case studies of response	Professor Paolo Vineis *'Climate change and migration in Italy'*
10:30	Discussion	Chaired by Professor Ilan Kelman
10:50	Case studies of migration	Dr Stacey Heath *'Integrating psycho-social impacts into climate adaptation strategies: Lessons from climate-driven relocation in Ghana'*
11:00	Case studies of response	Dr Paolo Lauriola *'Health care integration for supporting vulnerable populations, particularly migrants in Italy'*
11:10	Discussion	Chaired by Dr Ariana Zeka
11:30	**Break**	
11.50	Case studies of response	Dr Robert Oakes *'Climate migration and agency in the Pacific'*
12:00	Case studies of response	Dr Wasif Shah *'Flood emergency and International Health Regulations policy response: UKHSA perspective from Pakistan'*
12:10	What now? Policy & Research: perspectives and strategies Panel discussion	Dr Soumyadeep Banerjee Dr Paulo Lauriola Dr Robert Oakes Dr Stacey Heath Chaired by Professor Ilan Kelman
12:30	**Lunch**	
13:20	Set up the afternoon	Neelam Iqbal
13:30	Roundtable discussions	Assigned rapporteur for each of the roundtables
15:00	Reports on roundtable discussions	Feedback from all

16:00	Closing remarks	Dr Ariana Zeka

About the UK Health Security Agency

UK Health Security Agency (UKHSA) prevents, prepares for and responds to infectious diseases, and environmental hazards, to keep all our communities safe, save lives and protect livelihoods. We provide scientific and operational leadership, working with local, national and international partners to protect the public's health and build the nation's health security capability.

UKHSA is an executive agency, sponsored by the Department of Health and Social Care.

Version 1

Prepared by: Kerry A Broom, Neelam Iqbal, Ariana Zeka.

Published: ??
Publishing reference: GOV-2024