

Climate change, health and outdoor workers in urban Vietnam: linking vulnerability, extreme weather and policy

27th January 2025, London, UK



The health impacts of climate change on precarious outdoor workers in megacities in Vietnam

Wellcome Trust Climate Impacts Award

Dr Anh Ngoc Vu (Anh.Vu@natcen.ac.uk)
Project Lead

27 January 2024



Who are these workers?

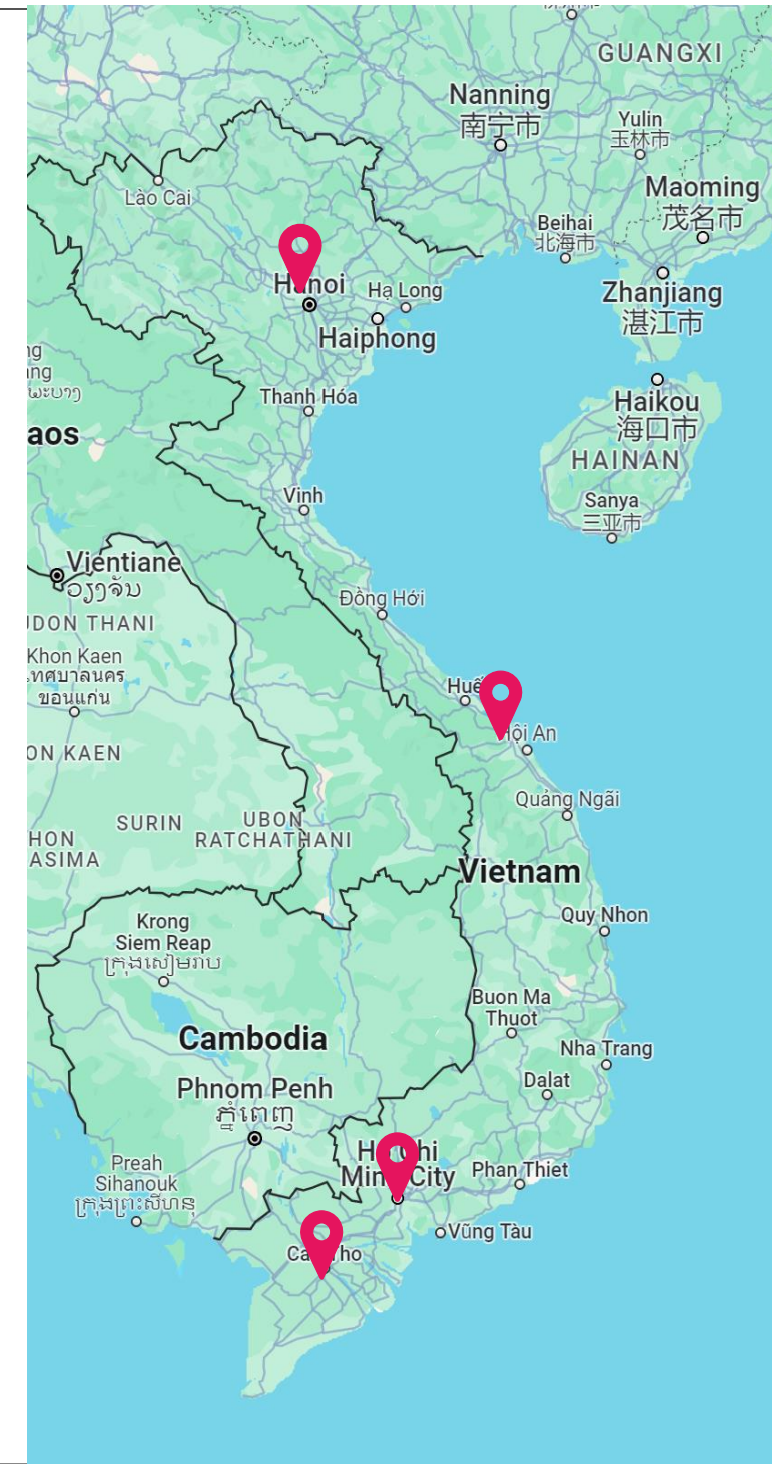
- street vendors,
- construction workers,
- porters, and
- motorbike taxi riders

who play pivotal roles in sustaining urban economies but often experience **multiple marginalisations**.



Project highlights (Feb 2024- July 2026)

- **Research locations:** Hanoi, Danang, Ho Chi Minh City and Can Tho.
- **Target groups:** street vendors, construction workers, porters, and motorbike taxi riders
- **Methodological approach:**
 - Mixed methods
 - Co-construction of evidence with workers
- **Objectives:**
 - (i) Assess exposure levels and health vulnerabilities
 - (ii) Identify adaptive capacities and strategies to climate-related hazards
 - (iii) Influence policies to mitigate climate impacts on outdoor workers' health
- **Goal:** Foster a health-centric approach to climate change adaptation and policy making to safeguard workers' health



Key project outputs

- A **new** evidence base of outdoor workers' climate change-related health risks and their adaptive capacities
 - Intelligent Climate Alert Network for Outdoor Workers **(ICAN) App for workers' health risks**
 - A series of publications (academic, policy-oriented)
 - An **established research agenda on climate change-health-outdoor workers** from a Southern perspective
 - A **policy toolkit**: a guideline for integrating health into climate change response policy to protect outdoor workers' health
 - A **documentary film** about workers' health risks and struggles
 - Enhanced integration **of outdoor workers' health and wellbeing to climate action and policy**
-

 **National Centre
for Social Research**



Dr Anh Ngoc Vu
Project Lead



Melanie Reixach-Wong
Project Manager



Sherman Tai
Senior Researcher



Felicity Kersting
Senior Researcher



Dr Diane Abdallah
Research Director



Dr Katya Tarnovskaya
Senior Researcher

 **University of
BRISTOL**



Prof Jonathan Rigg (Co-lead)
Chair in Human Geography

 **SocialLife**
Khoa học - Nhân bản - Khai phóng



Dr Loc Nguyen
Co-lead



Lan Nguyen
Lecturer



Le Nguyen
Researcher



An Vo
Researcher



Huy Le
Project Assistant



Prof Kinh Van Nguyen
Co-lead



Dr Giang Thu Nguyen
Co-lead



Hung Nguyen Viet
Programme Coordinator

 **Light**
for better LIFE

Three Ethical Issues in researching these workers' health risks

- (1) Risks of reprisal for workers participating in the research
- (2) Intersectional vulnerabilities other than climate change
- (3) Turning academic research into social policy



A project workshop in Ho Chi Minh City

(1) Risks of reprisal for workers participating in the research

- Engage with workers directly to give workers a voice in shaping our evidence base
- But, **empowerment has its risks**
- Workers may face reprisals from authorities or employers, particularly given their lack of legal protections.
- To address these risks, we prioritise safeguarding



Interviewing construction workers for survey at their resting space in a construction site

(2) Intersectional vulnerabilities other than climate change

- Outdoor workers face an interconnected web of vulnerabilities
- Ensure that climate risks do not overshadow these immediate, critical concerns (e.g. daily subsistence)
- We take an intersectional approach, recognising that climate-related risks often exacerbate existing inequalities for these workers.

Beyond silos

Vulnerability to climate change is mainly not about climate change but is a layered, multi-dimensional vulnerability with multiple sources that make people susceptible to the effects of climate change



(3) Translating research into policy

- How to undertake research that frames the issue in a non-reductionist way?
- How to ensure that research is translated into policy recommendations that are attuned to local governance realities?
- How to ensure that these recommendations are communicated, taken seriously and, where appropriate, acted upon?

Research into policy. Why wouldn't you?

- Normatively, research *should* have 'relevance' and 'impact'. It makes academic endeavours meaningful
- Normatively, policy makers *should* take advantage of academic research. It has the potential to improve policy making



Project progress: Where we are now and what's next?

- Less than one-third of the journey completed
- Significant progress made, today we will share some preliminary findings from:
 - ✓ Our systematic review
 - ✓ First quantitative survey, and
 - ✓ In-depth interviews with workers
 - ✓ ICAN app



Stay connected...

- Project website:

<https://climate-health-vietnam.org/>

- The research report published today:

A systematic evidence review of the impacts of climate change on the health of outdoor workers in urban Asia

**National Centre
for Social Research**

**NatCen
International**

A Systematic Evidence Review of the Impacts of Climate Change on the Health of Outdoor Workers in Urban Asia

Authors: Anh Ngoc Vu, Jonathan Rigg, Ekaterina Tarnovskaya, Felicity Kersting, Sherman Tai



Research Paper RP2025/1
January 2025

Thank you!



The complexity of climate change exposures on health

The need for stricter evidence

Prof Dann Mitchell

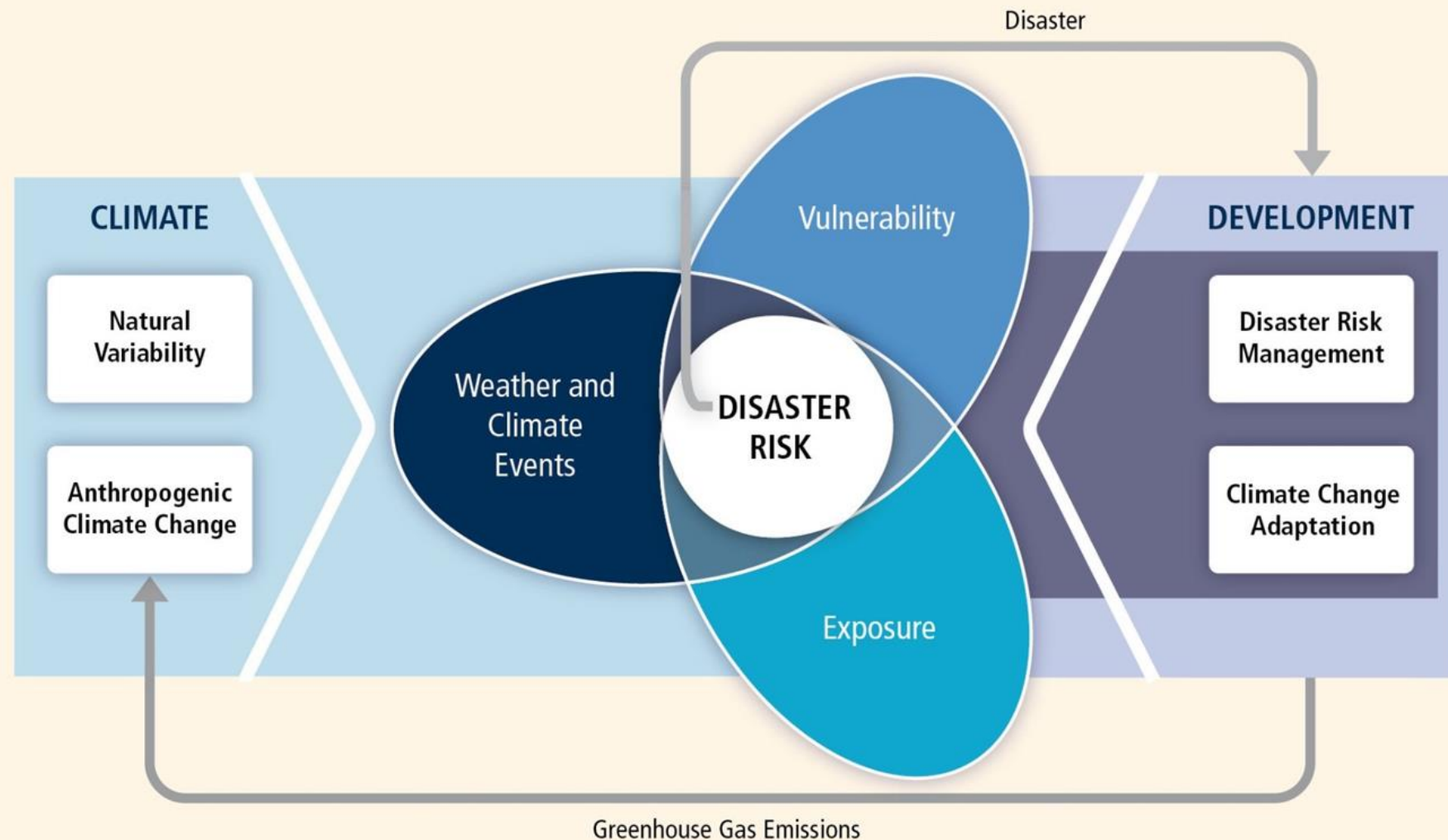
bristol.ac.uk/cabot

[@climatedann.bsky.social](https://twitter.com/climatedann)



Many minds, one mission

Simplifying the nexus of environmental health

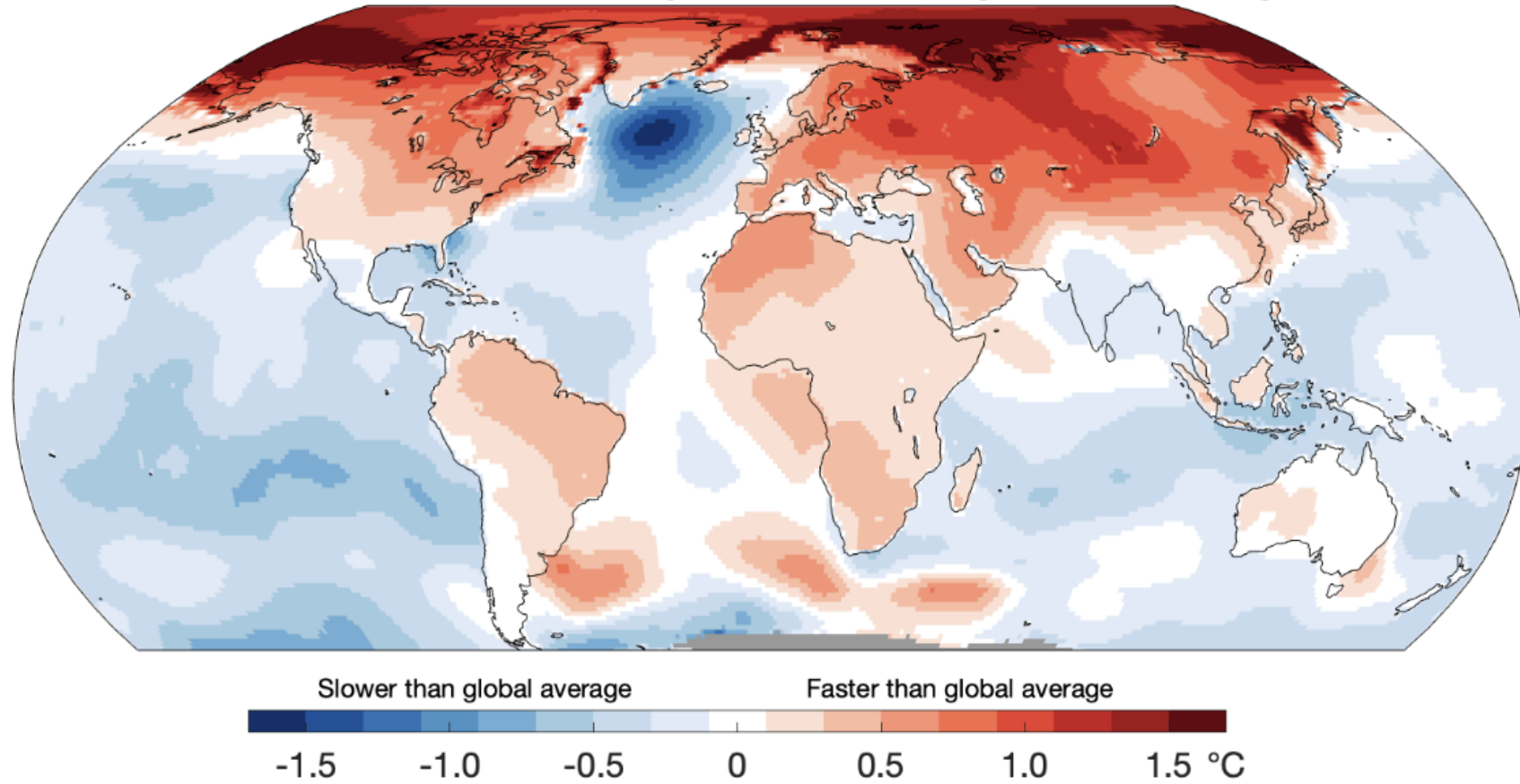


The WHO 'global' position:

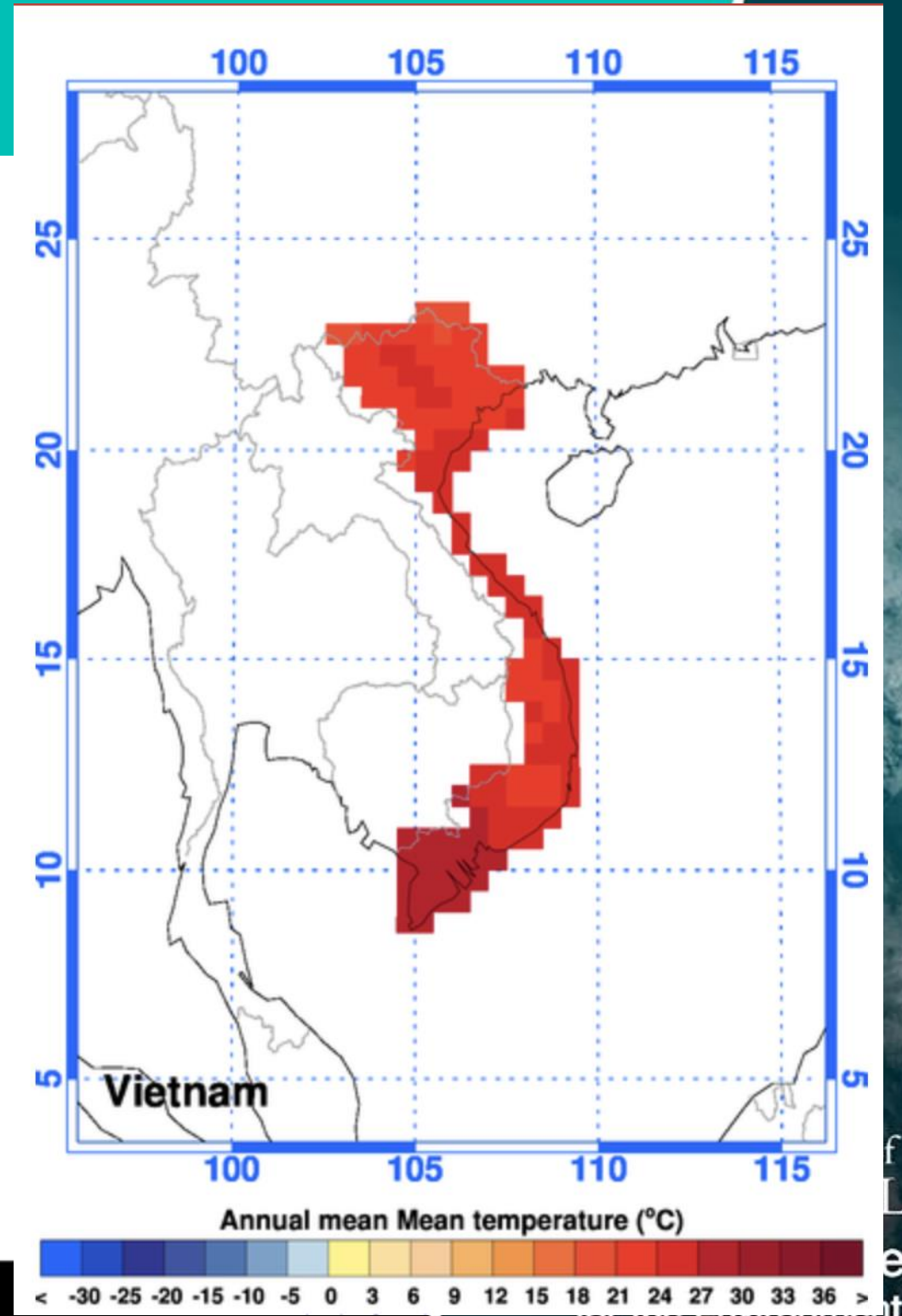
- “Climate change - the biggest health threat facing humanity”
- “Currently, climate change has caused 166,000 additional deaths per year, from malnutrition, malaria, diarrhoea, flooding and heat stress.”

The global picture of a hazard

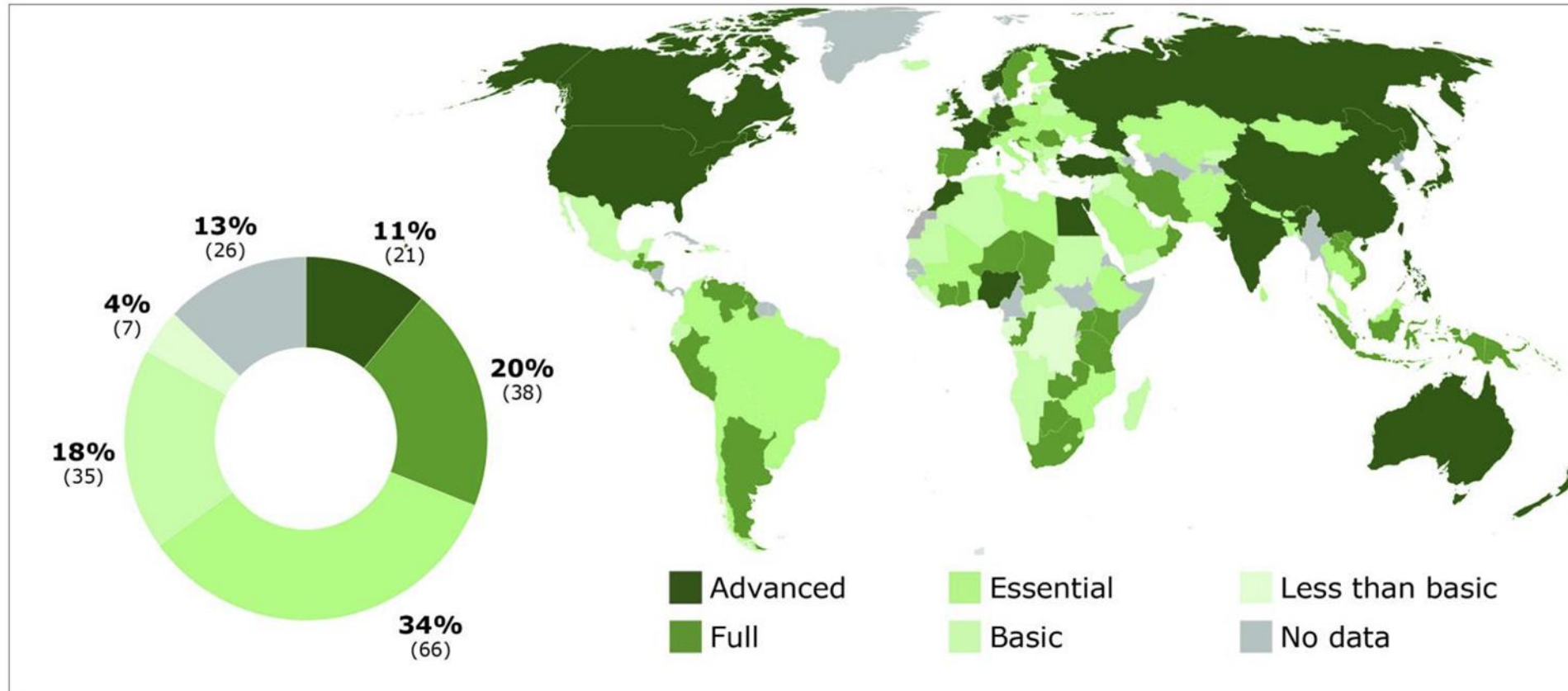
Temperature change relative to global average



(Thanks to Prof Ed Hawkins)



The global picture of a vulnerability



Overview of climate services capacities (not sector specific)

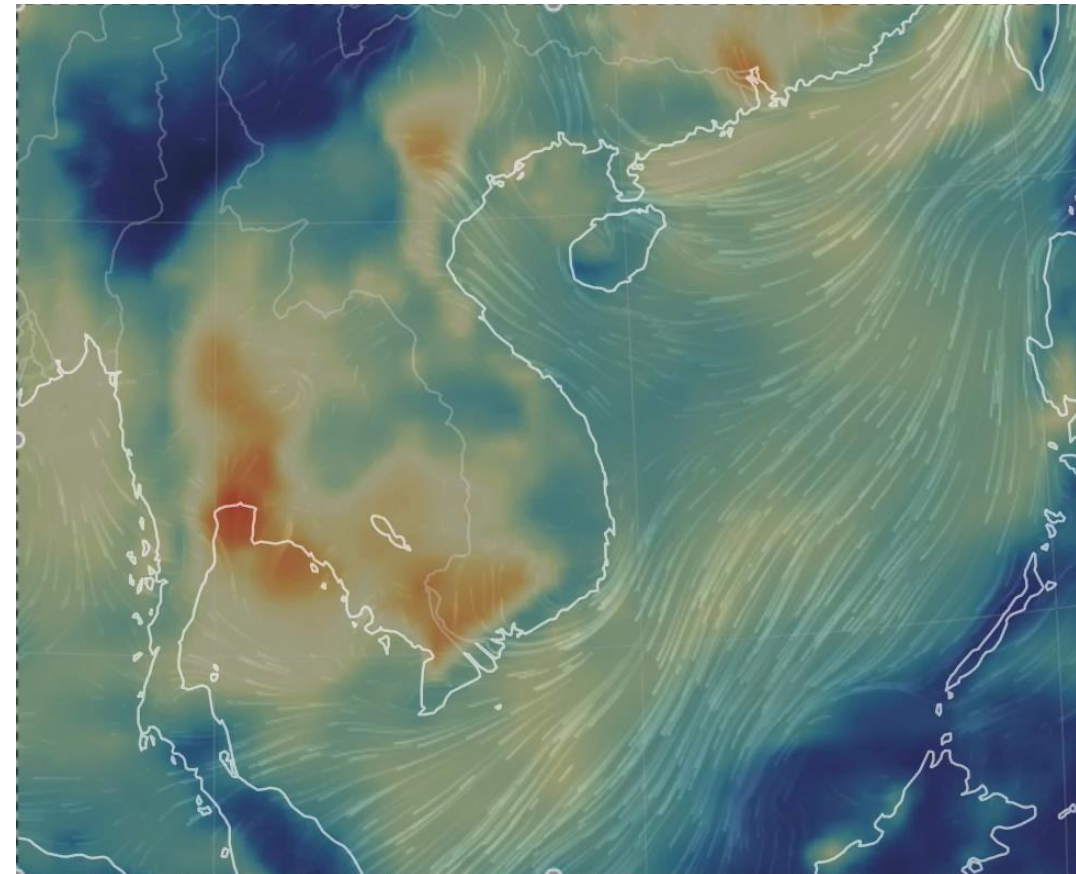
WMO



Exposures in Vietnam

Some examples where exposure is complex:

- Temperature stress
- Infectious diseases
- Air pollution
- Typhoons
- Food security



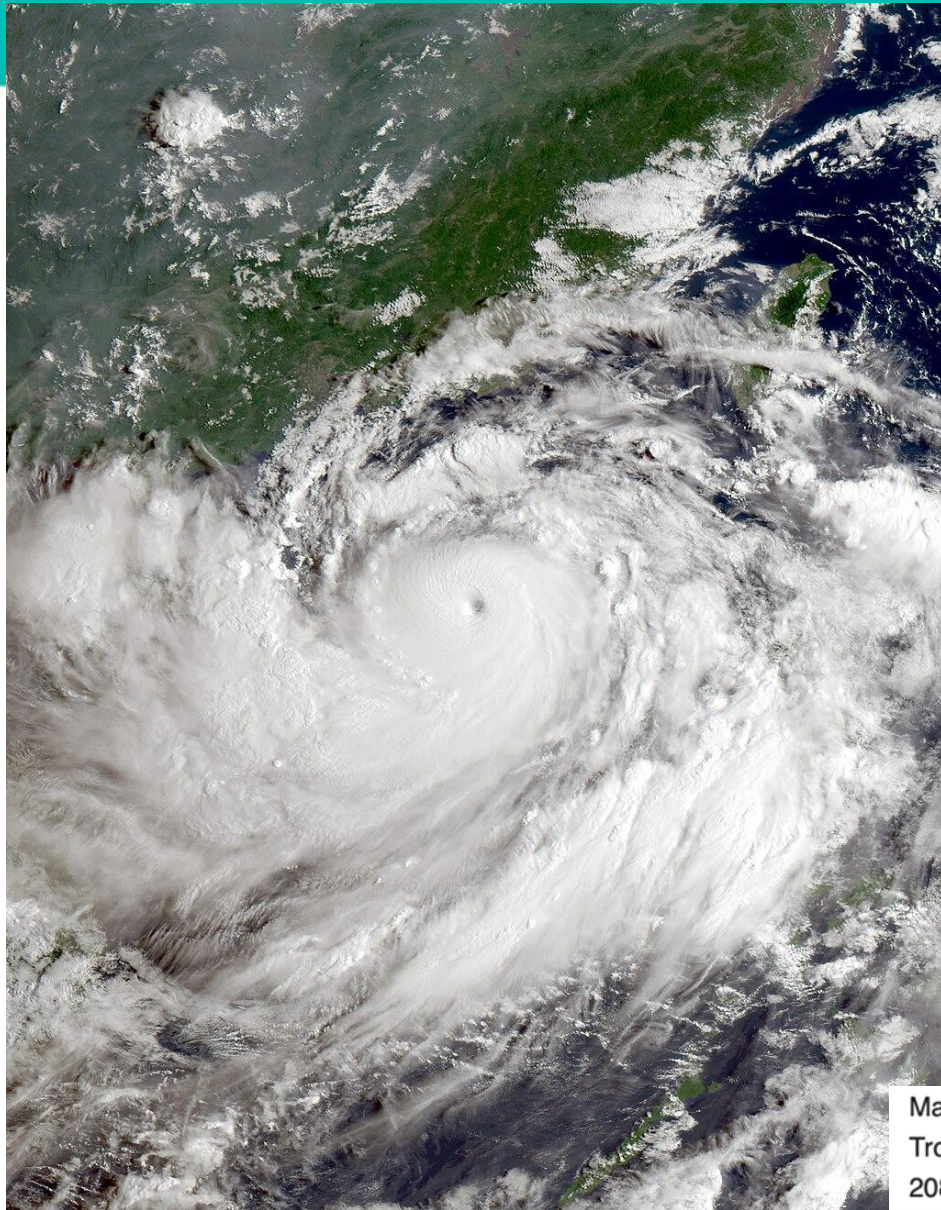
2025	INQUIRER.NET				
GLOBAL NATION	BUSINESS	LIFESTYLE	ENTERTAINMENT	TECHNOLOGY	
ASIA & PACIFIC	AMERICAS	MIDDLE EAST & AFRICA	EUROPE	GLOBAL	

ASIA & PACIFIC

Bangkok air pollution forces 352 schools to close

Agence France-Presse / 02:57 PM January 24, 2025

A case study: Typhoon Yagi (2024)



Map plotting the storm's track and intensity, according to the Saffir-Simpson scale Map key **Saffir-Simpson scale** Tropical depression (≤ 38 mph, ≤ 62 km/h) Tropical storm (39–73 mph, 63–118 km/h) Category 1 (74–95 mph, 119–153 km/h) Category 2 (96–110 mph, 154–177 km/h) Category 3 (111–129 mph, 178–208 km/h) Category 4 (130–156 mph, 209–251 km/h) Category 5 (≥ 157 mph, ≥ 252 km/h) Unknown Storm type Tropical cyclone Subtropical cyclone Extratropical cyclone, remnant low, tropical disturbance, or monsoon depression

Typhoon Yagi (2024)

An example of Hazard, Exposure, Vulnerability...



What are we missing?

nature

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(Mitchell, Nature, 2025)

[nature](#) > [world view](#) > article

WORLD VIEW | 21 January 2025

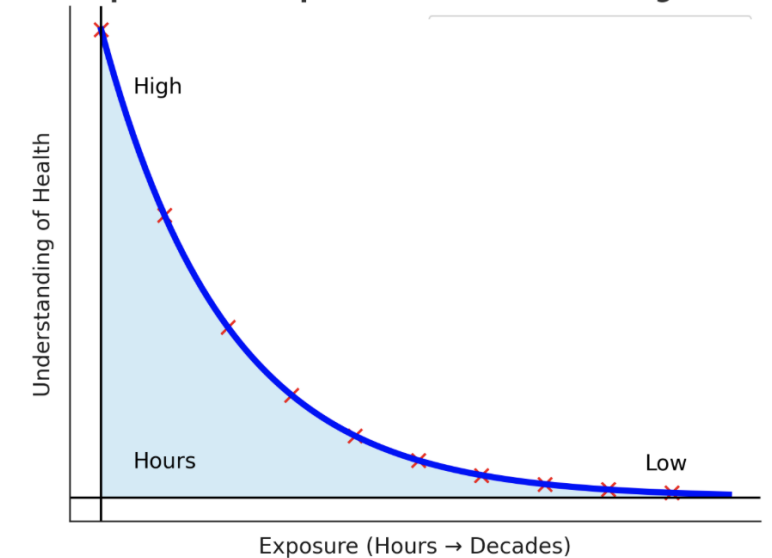
Why we still don't know the mounting health risks of climate change



Persistent exposure to heatwaves, droughts, wildfires and more will take a toll on people's bodies. We must learn how this will manifest.

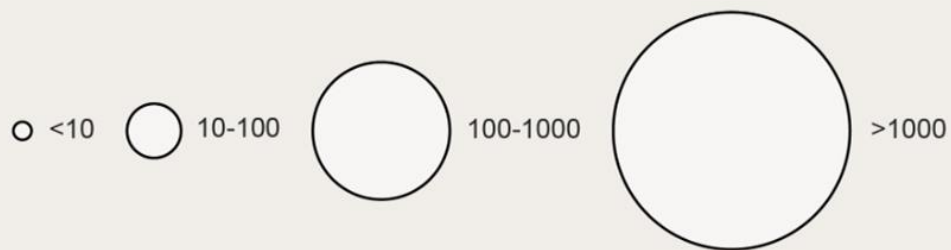
By [Dann Mitchell](#) ✉

Relationship Between Exposure and Understanding of Health Risk



Pooling expert knowledge

Present-day deaths per year



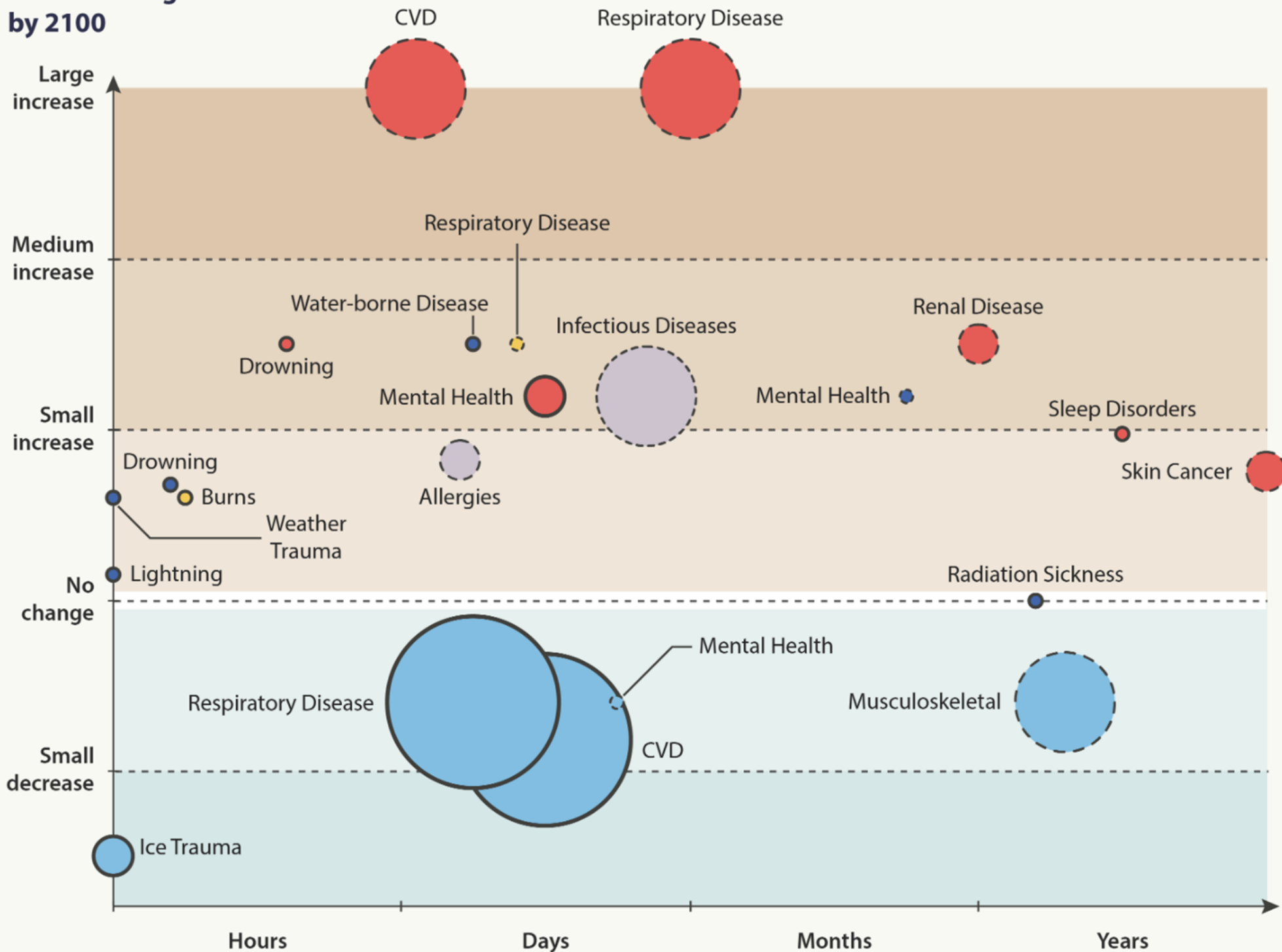
Climate hazard

- Cold
- Wildfire
- Heat/Drought
- Storms/Flooding
- Compound

Consensus

- High
- Lower

Hazard change by 2100



(Mitchell et al, 2024; Lancet Planetary Health)

Temporal exposure of health outcome

[nature](#) > [commentary](#) > article

Commentary | Published: 27 February 2003

Liability for climate change

[Myles Allen](#) 

[Nature](#) **421**, 891–892 (2003) | [Cite this article](#)

8723 Accesses | **331** Citations | **261** Altmetric | [Metrics](#)

Will it ever be possible to sue anyone for damaging the climate?

Author information

Myles Allen: He is writing here purely in his capacity as the chap at number 73 who was after some sandbags on Saturday 4 January.

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The need for stricter evidence



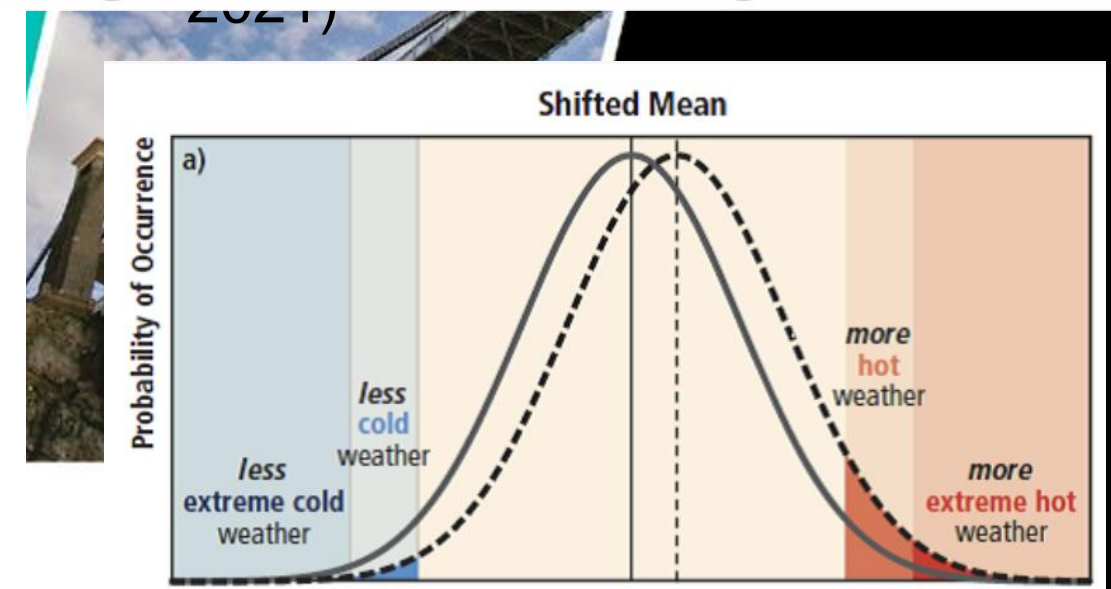
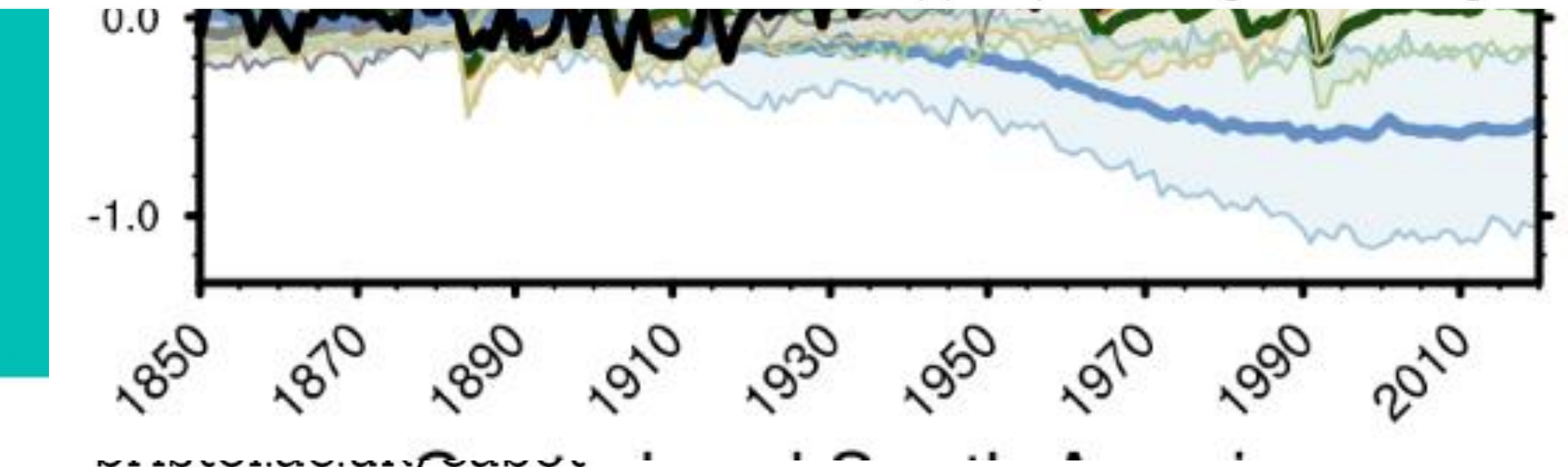
What is detection and attribution?



It is unequivocal that human influence has warmed the atmosphere, ocean and land since pre-industrial times. Combining the evidence from across the climate system increases the level of confidence in the attribution of observed climate change to human influence and reduces the uncertainties associated with assessments based on single variables. Large-scale indicators of climate change in the atmosphere, ocean, cryosphere and at the land surface show clear responses to human influence consistent with those expected based on model simulations and physical understanding. {3.8.1}



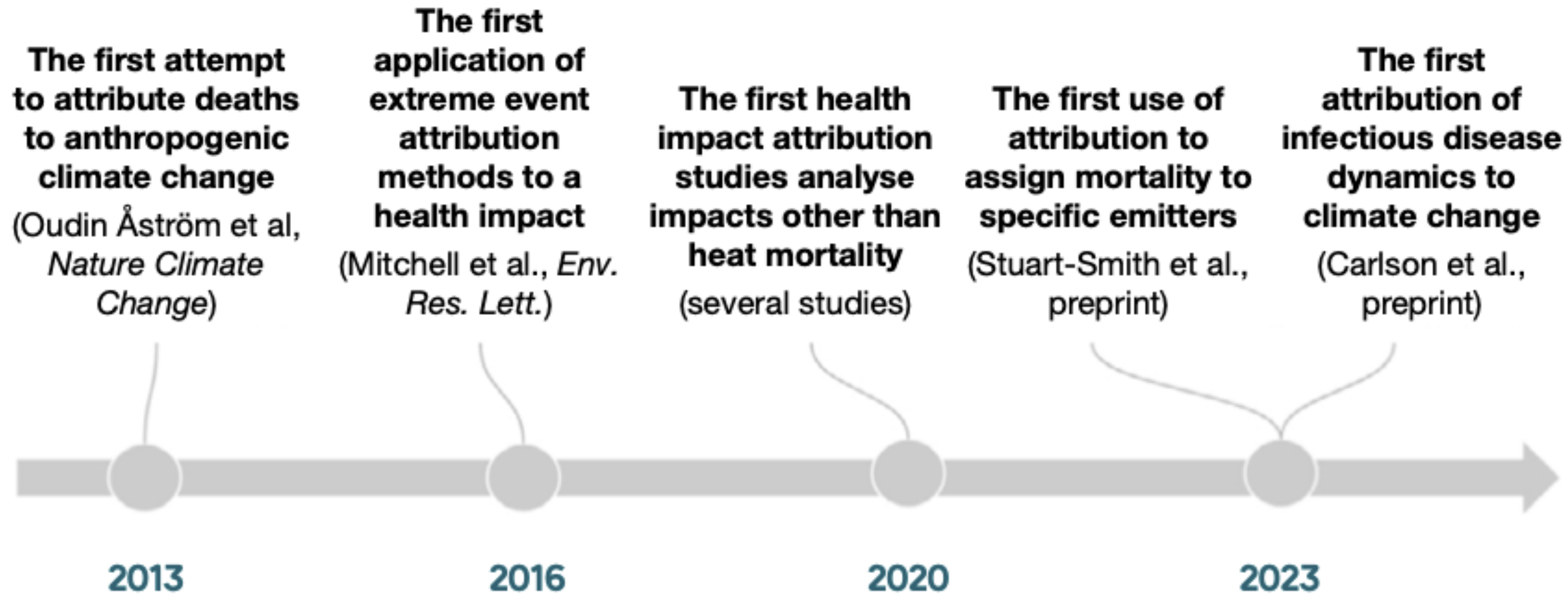
Human-induced greenhouse gas forcing is the main driver of the observed changes in hot and cold extremes on the global scale (*virtually certain*) and on most continents (*very likely*). It is *likely* that human influence, in particular due to greenhouse gas forcing, is the main driver of the observed intensification of heavy precipitation in global land regions during recent decades. There is *high confidence* in



Health attribution is a new field



A brief history of health impact attribution

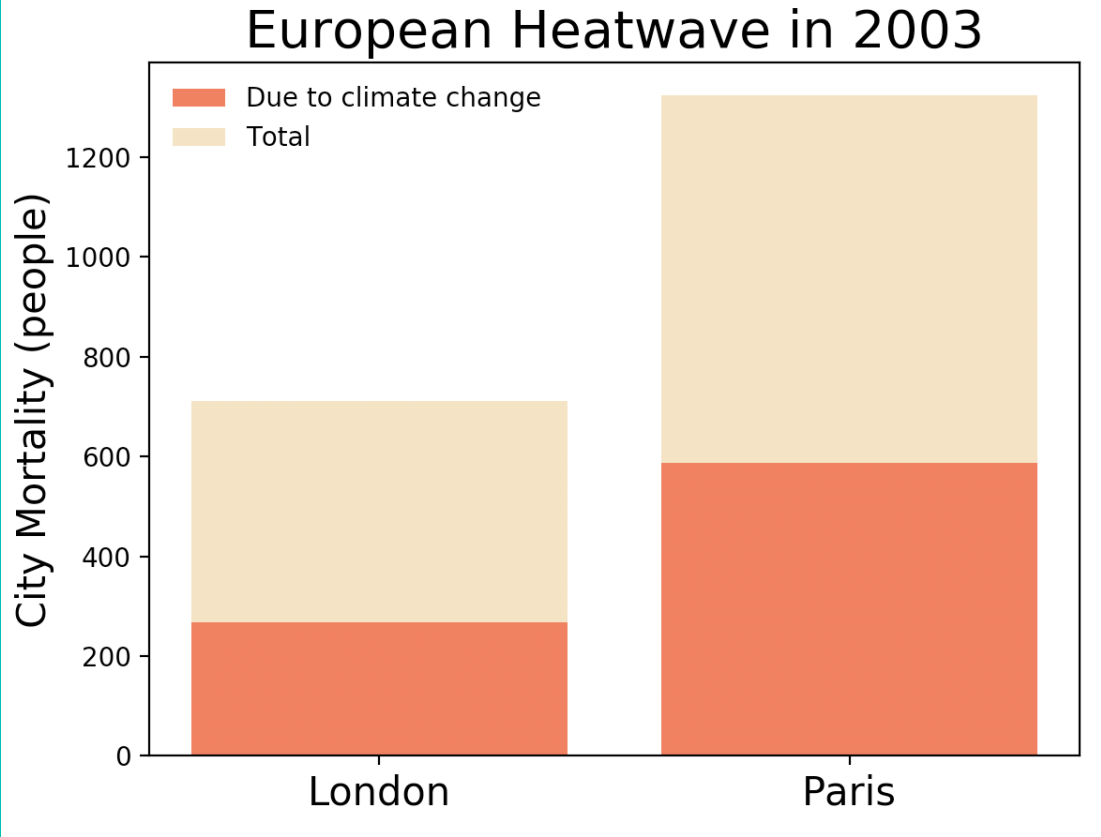


Schematic from Carlson et al, 2024

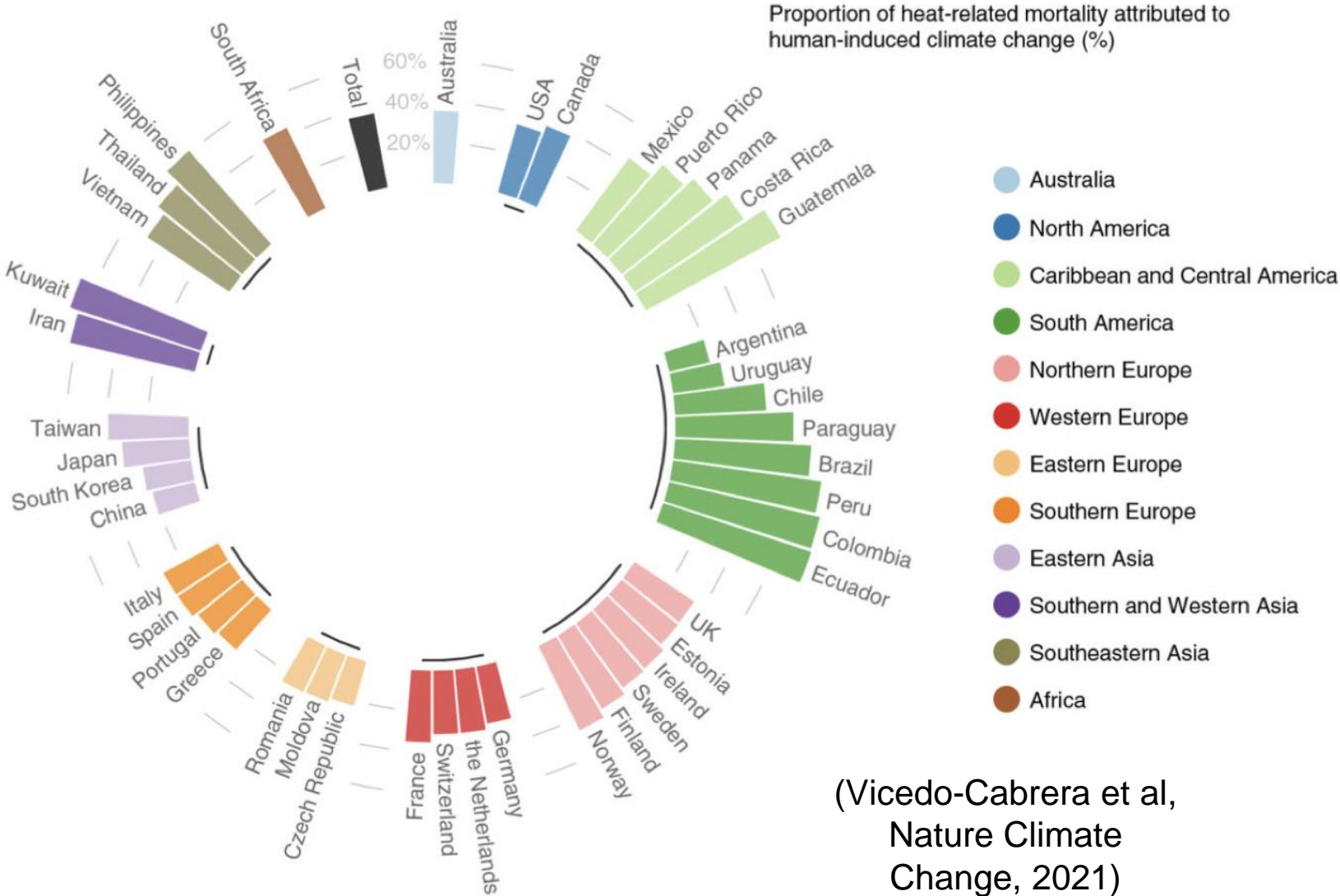


Example of heat-mortality and climate change

What's happened in the past?



(Mitchell et al, ERL, 2016)



(Vicedo-Cabrera et al, Nature Climate Change, 2021)

Example of heat-mortality and population change

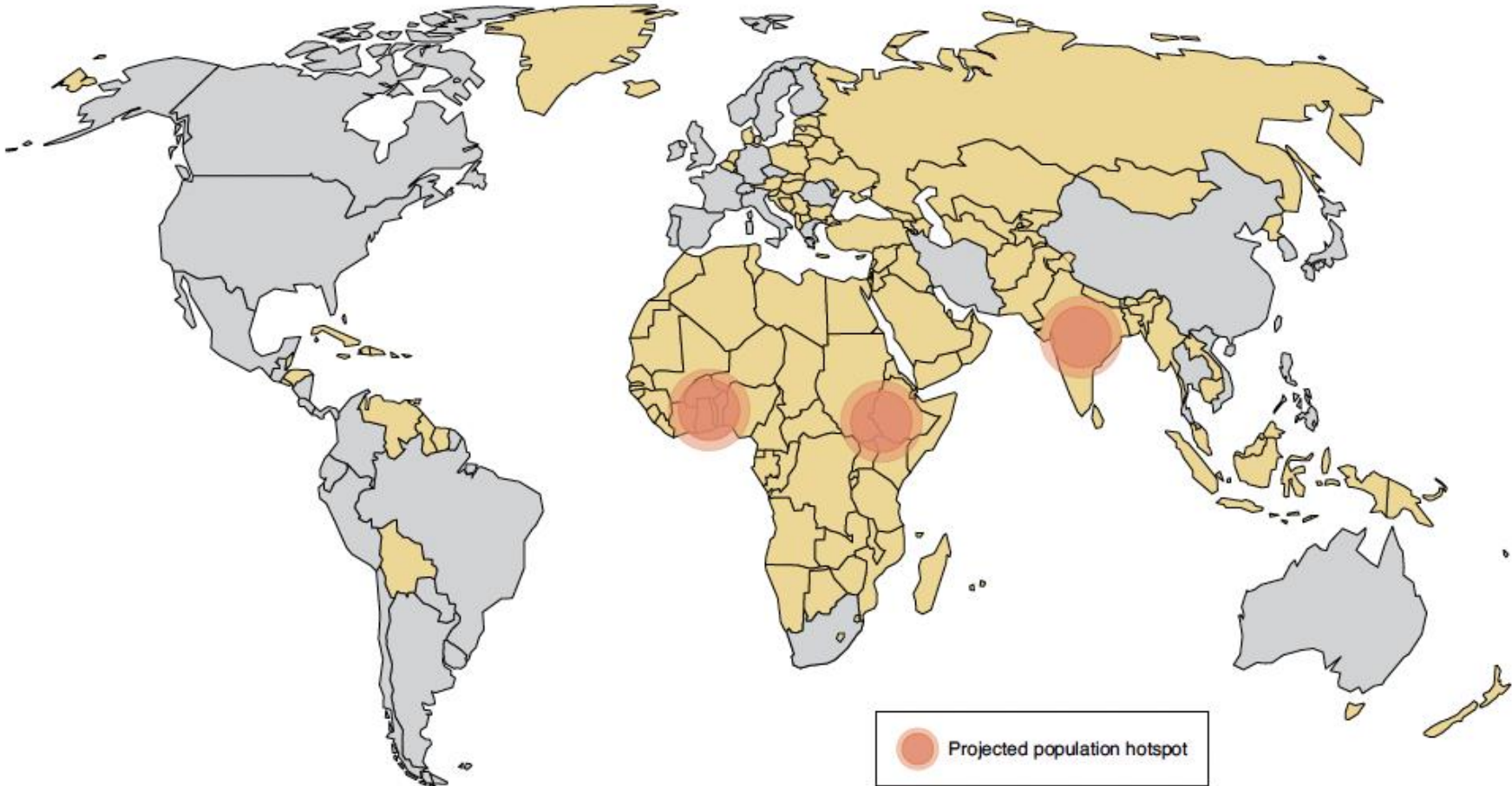


Fig. 1 | Global map of missing mortality data and projected population hotspots. Countries where daily mortality data could not be obtained by Vicedo-Cabrera et al.³ include most of Africa and the tropics (yellow regions). Grey regions show where data were obtained. Red circles show the three largest hotspots for projected future population increases over the next 50 years, which all coincide with locations where no daily mortality data exists.

(Mitchell, 2021, Nature Climate Change)

How has this been used in a court of law?



PRESS RELEASE

Court sides with youth in historic climate case against Ontario

bristol.ac.uk

October 17, 2024

Seven climate change activists are leading the first lawsuit of its kind in Canada.

European court rules human rights violated by climate inaction

🕒 9 April · 💬 Comments



Climate

Climate victims file criminal case against bosses of oil firm Total

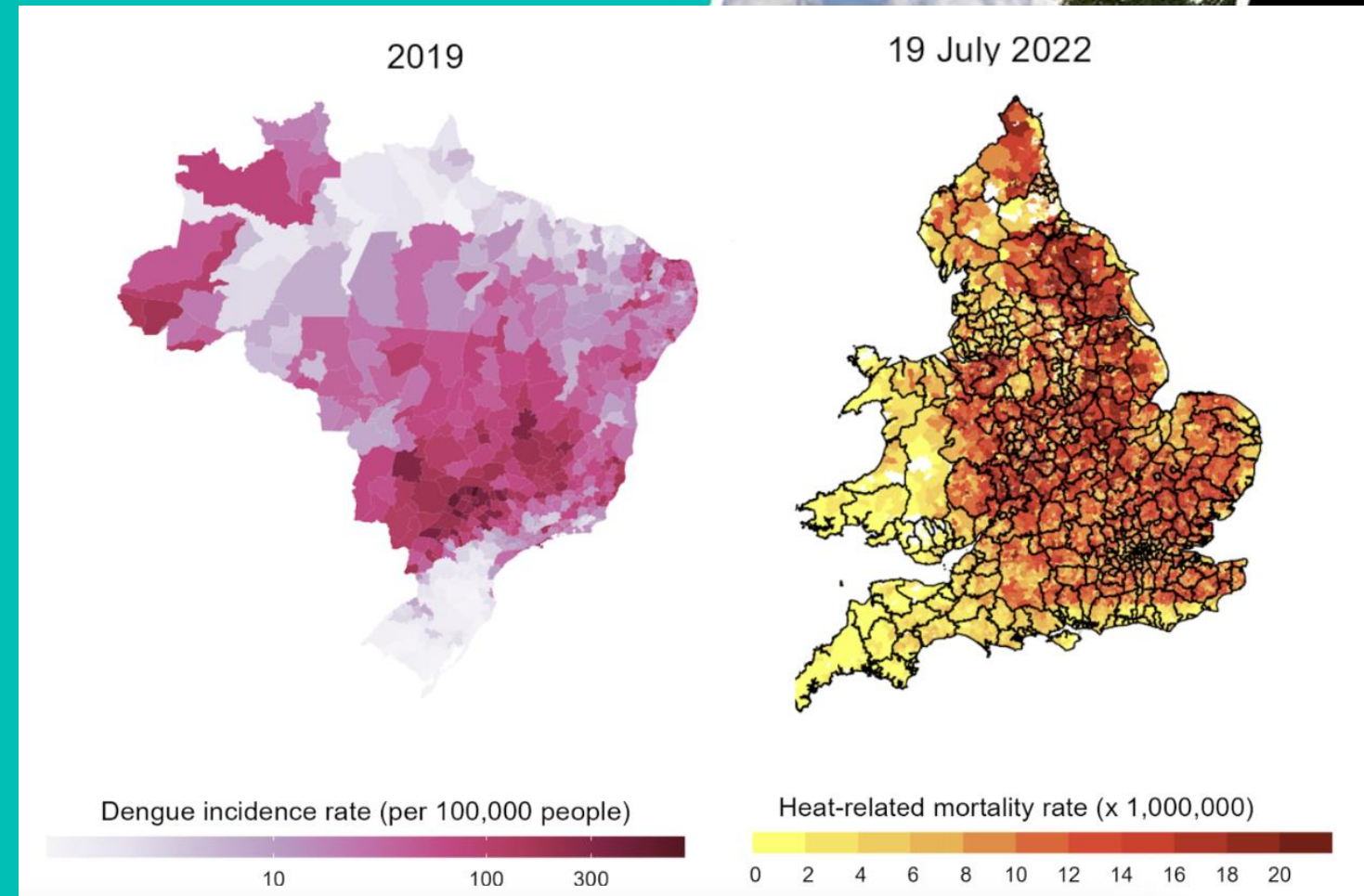
Case alleges French company's exploitation of fossil fuel contributed to deaths of victims in extreme weather disasters



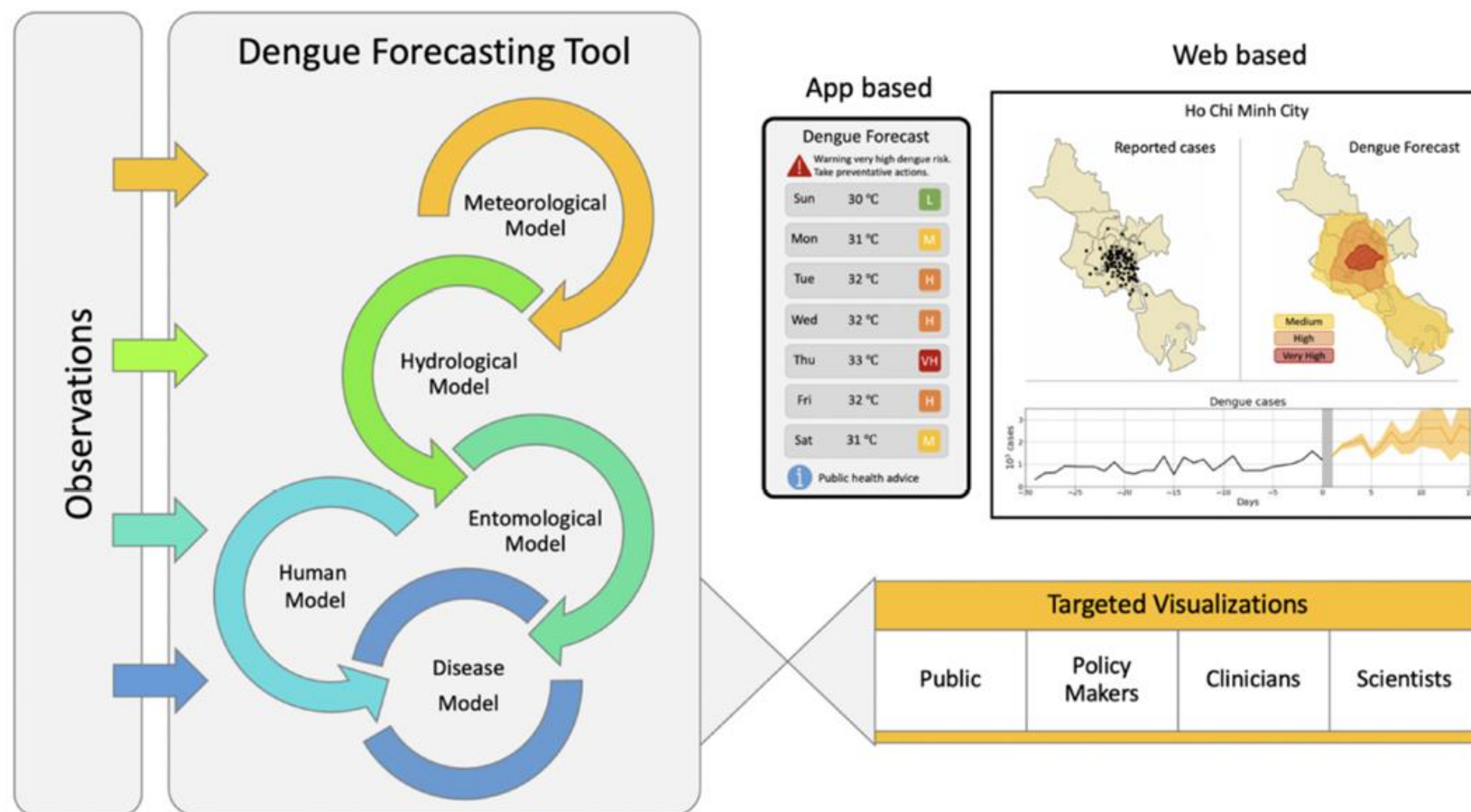
Where next for climate attribution and health?



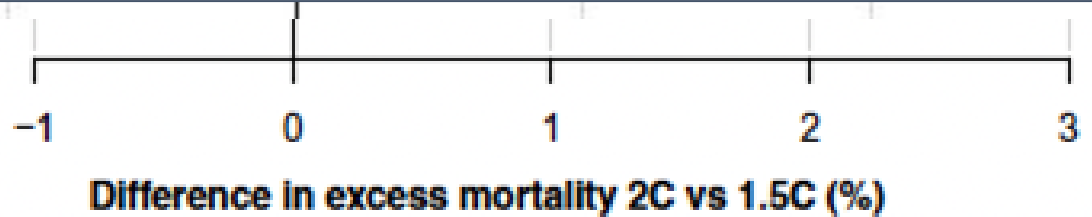
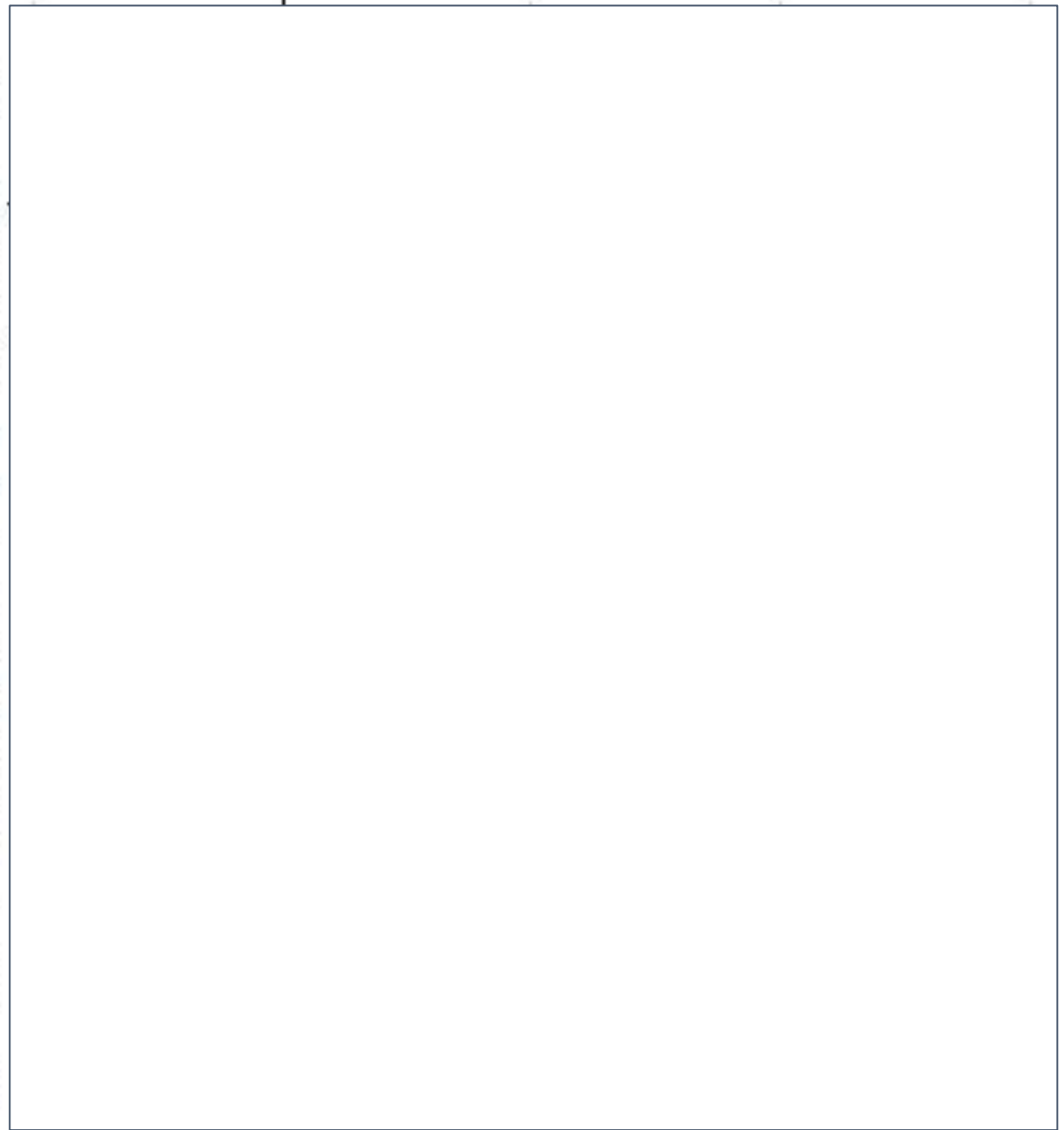
- Consideration of other climate-sensitive diseases
- Health indicators beyond mortality
- Isolating inequalities
- Integration into national adaptation plans
- Attribution beyond total greenhouse gases



Dengue Advanced Readiness Tools



Country	Region	Country
	North America	Canada
		USA
	Central America	Mexico
	South America	Brazil
		Chile
	North Europe	Finland
		Ireland
		Sweden
		UK
	Central Europe	Czech Republic
		France
		Moldova
		Switzerland
	South Europe	Italy
		Spain
	East Asia	China
		Japan
		South Korea
	South-East Asia	Philippines
		Taiwan
		Thailand
		Vietnam
	Australia	Australia



(Vicedo-Cabrera et al, 2018, Climatic Change)

Break Time!

The next session will begin at
11:30 AM



- **The Value of an Ethics Lens**

- **Michael Parker**

- **Climate change, health and outdoor workers in Urban Vietnam**

Overview: an ethical landscape

- Structural factors – global justice as an ethical issue in climate change vulnerability
- Research ethics – a framework
- Ethics in the practice of research – the nature and scope of researcher responsibility
- Ethics as an object of study – The moral lives of Vietnamese outdoor workers

Overview: an ethical landscape

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1.A Preliminary Framework for Research Ethics

- 1. Informed consent
- 2. Harms/benefits to participants
- 3. Benefits to future people
 - The value and usefulness of the research
 - Scientific or methodological validity

A Preliminary Framework for Research Ethics

- 1. Informed consent
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A Preliminary Framework for Research Ethics

- 1. Informed consent
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 - The value and usefulness of the research
 - Scientific or methodological validity
- Key question: how are these concerns balanced or judged?

A note on ethics with 'vulnerable' groups

- There has been a major shift in bioethics in the past two decades from a position in which vulnerable groups should generally be excluded from research on ethical grounds
 - Pregnant women, children, people with diminished capacity
- To one in which it is the exclusion of such groups that requires justification
- Rather than being protected **from** research, such groups should be protected **through** research
- This has been combined with a shift away from broad 'groups' to looking at the intersectional vulnerabilities of specific people or populations

Making research ethics relevant to low-income settings

- But, is an approach to research ethics placing primary importance on consent and harms to participants appropriate for low-income settings?
- How much ethics work can **consent** be expected to do?

Ethical Benchmarks for Research in LMICs

- **Collaborative partnership**
- **Social value**
- Scientific validity
- Fair selection of study population
- Favourable risk-benefit ratio
- Independent review
- **Informed consent**
- **Respect for recruited participants and study communities**

Collaborative partnership

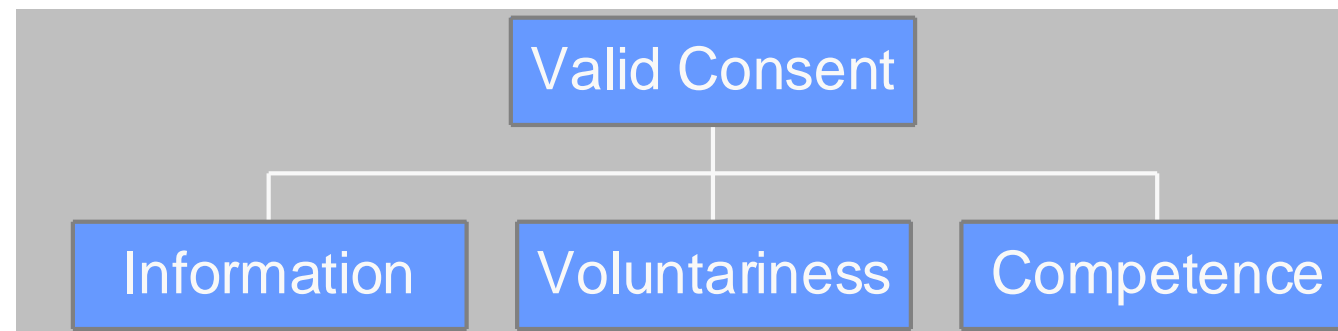
- Develop partnership (co-production)
- Share responsibilities for determining problem, assessing value, planning, conducting, oversight, integration
- Respect community values, culture, tradition, social practices
- Develop capacity to become true partners
- Ensure that participants benefit from research
- Share fairly any financial or other rewards

Social value

- To what extent does the proposed research have locally relevant social value?
- Assess the importance of the health problems being investigated and the prospective value of the research for each of the beneficiaries
- Specify the beneficiaries of the research
- Enhance the value of the research for each of the beneficiaries through dissemination of knowledge, product development, long-term research collaboration, and/or health system improvements.

Valid consent

- A subject's consent can authorise risks that would otherwise be unjustified
- Why is valid consent important?
- What is Valid consent?



- What are the challenges to voluntariness and/or competence?

Valid consent

- Involve the community in establishing recruitment procedures and incentives
- Disclose information and obtain consent in culturally and linguistically formats
- Implement supplementary community and familial consent procedures where culturally appropriate
 - The challenges of community consent where the group is marginalised
- Ensure freedom to refuse or withdraw

Respect for study communities

- The ethics of research reaches out beyond individuals and families, to the 'community'
- Ensuring research doesn't undermine community structures or services
- What are the responsibilities of research institutes?
- What in your view would be required for respect for study community?
- What is the study community in diverse urban context?
Who should decide?

“Researchers ... should engage potential participants and communities in a meaningful participatory process that involves them in an early and sustained manner in the design, development, implementation of research, design of the informed consent process, monitoring of the research, and in the dissemination of results.” CIOMS Guidelines 2016

Framework Revisited

- 1. Respect for persons
 - Includes informed consent, assent and 'dignity'
- 2. Harms/benefits to participants
 - Including social harms
 - Compensation/reimbursement
- 3. Benefits to future people
 - Scientific/methodological validity
 - Social value
 - The risks of not doing research
- 4. Respect for communities and groups
 - Distribution of benefits, historical and social injustices, exploitation
 - Appropriate community engagement/co-production
- How are these concerns balanced or judged?

2. Ethics on the research frontline

- Not everything is covered by REC process
- There has been increasing interest in understanding the ethical challenges that arise in the day-to-day work of researchers or research staff
- What does valid consent mean with this particular person?
How much understanding is required? How to judge?
- Encountering vulnerability: What is the nature and scope of their responsibilities when they witness hardship or could help?
- Understanding ‘moral distress’ and its effect on research staff

3. Investigating the moral worlds of outdoor workers

- Whilst vulnerability is a key aspect of outdoor workers' experience, so too is 'agency'
- Outdoor workers will inevitably be committed to a number of potentially conflicting values, commitments, and priorities.
- Many of these difficult decisions will have an important moral component e.g. between own health and needs of family.
- How do they make such choices? To what extent are outdoor workers a moral community with shared ethical concerns.

3. Investigating the moral worlds of outdoor workers

It is likely that their thinking on these issues will fall into something like the following themes – but they might not.

- Harms and benefits
- Responsibilities and obligations
- What kind of person to be: Integrity, dignity, etc.

How might local traditions of moral thinking be relevant?

What does 'local' mean in diverse urban environments?

- Thank you

- Michael Parker

- Climate change, health and outdoor workers in Urban Vietnam



CO-CONSTRUCTING EVIDENCE THROUGH COMMUNITY-BASED NETWORK RESEARCH AND PARTICIPATORY METHODS:

A methodological approach to the impact of climate change on outdoor workers' health

Nguyen Duc Loc
SocialLife Research Institute

Key questions we need to address

The journey begins with fundamental questions:

1. Why are outdoor workers particularly vulnerable to climate change, and how does this affect their daily lives?
2. What makes these workers 'invisible' in traditional research, and why do conventional methods fall short?
3. How can we develop research approaches that respect workers' realities while maintaining academic rigor?
4. What role can community-based networks play in building bridges between researchers and workers?
5. How do we ensure our research creates lasting value for both the academic community and the workers themselves?"

→ We will demonstrate how **co-constructing evidence with communities can lead to more meaningful and impactful** research outcomes.

Precarious outdoor workers:

The most vulnerable among the vulnerable social groups

Characteristics

Social vulnerability: Disadvantaged populations facing poverty, migration status, older age, and educational barriers.

Employment status: Informal jobs without fixed employers, self-employed/gig workers, no contracts or protections, no social security benefits.

Working conditions: Outdoor environment with weather exposure, long irregular hours, daily income dependency, high physical demands, limited safety measures.

Healthcare access barriers

Economic barriers: Limited savings, no health insurance, high out-of-pocket expenses, cannot afford missed workdays.

Practical barriers: Clinic wait times, inconvenient hours, customer loss concerns, no sick leave.

Precarious outdoor workers: Hidden from policy and research discourse

Why are they “invisible”?

Statistical invisibility

- Not captured in official labor statistics
- Informal nature of work
- No formal registration systems
- Difficult to track and count
- Mobile and changing work locations

Policy blind spots

- Fall outside formal labor frameworks
- Limited representation in policy making
- Lack of formal organization/unions
- No official advocacy channels
- Complex employment status

Precarious outdoor workers: Research challenge

Data collection difficulties

- Scattered and mobile populations
- Irregular working hours
- No fixed workplace
- Limited trust in researchers
- Hard to establish contact

Methodological issues

- Traditional research methods don't fit
- Time constraints for participation
- Language and literacy barriers
- Limited research funding
- Lack of long-term follow-up



Research design barriers

- Difficult to track health histories
- No medical records
- Limited access to participants
- Inconsistent availability
- Multiple health risk factors

Research participation challenges

- Cannot afford time off for research
- Fear of income loss
- Distrust of formal institutions
- Privacy concerns
- Limited health literacy

What is an effective approach to research climate change impacts on precarious outdoor workers?

Co-constructing evidence:

Approach for climate change impact on outdoor workers in Vietnam

What is Co-construction?

Core principles

- Integration of traditional anthropological methods
- Sustainable community development practices
- Context-sensitive approach
- Participatory research methodology

Key features

- Beyond simple data collection
- Trust-building focus
- Mutual understanding development
- Adaptation to Vietnam's unique context

Trust takes years to build but can be lost instantly if not handled with care.

Methodological approaches: Building trust and understanding

This approach is especially valuable in studying health risks because it:



Research methods based on **social networks and participant observation** not only help overcome challenges in studying vulnerable groups but also create sustainable value for both researchers and communities.

Methodological approaches: Building trust and understanding

Base on social networks

Building trust: working through trusted community members, participating in community activities, respecting local culture and customs, creating a natural communication environment.

Ensuring sustainability: developing balanced collaborative relationships, sharing research benefits with the community, maintaining regular contact, supporting local capacity development.

Value of participant observation method

Creating opportunities to gain deep understanding of socio-cultural contexts, collecting data in natural settings, identifying latent power relationships, discovering issues that cannot be gathered through interviews.

How to conduct research effectively

Phase 1 Entering the community

1

Phase 3 Carrying the message into dialogue

2

3

Phase 2 From strangers to acquaintances

Phase 1 Entering the community

- Identifying community builders
- Understanding socio-cultural characteristics
- Developing appropriate approach strategies
- Establishing initial communication channel



A meeting with the motorcycle taxi drivers in Da Nang, 13/05/2024.



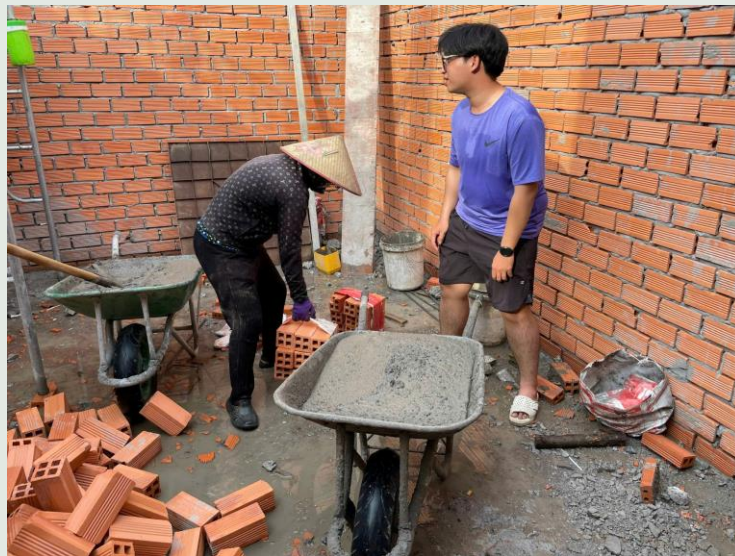
A meeting with a street vendor in Can Tho, 09/12/2024



The researchers visited a construction worker at the construction site in Ha Noi, 31/07/2024

Phase 2 From strangers to acquaintances

- Participating in community activities
- Building trusting relationships
- Understanding needs and interests
- Adjusting methods based on feedback



The researcher is laying bricks alongside the construction workers at the construction site in Binh Tan District, Ho Chi Minh City, 09/05/2024.



The researchers looked after a street vendor's fruit cart while the vendor made deliveries in Ho Chi Minh City on 08/11/2024.



The researcher captured a shared moment with a recyclable materials collector in Da Nang, 16/04/2024

Phase 3 Carrying the message into dialogue

- Conducting formal data collection
- Organizing group discussions
- Sharing and validating research results
- Building action plans with the community



A focus group discussion was held in District 12, Ho Chi Minh city on 30/12/2024.



A focus group discussion was held in District 1, Ho Chi Minh city on 08/12/2024



The researchers conducted an interview with a female ride-hailing motorcycle driver at her boarding house in District 12, Ho Chi Minh City, 16/01/2025

Implementation steps



Identify research areas

Select areas with many outdoor workers who are at risk of being affected by climate change.



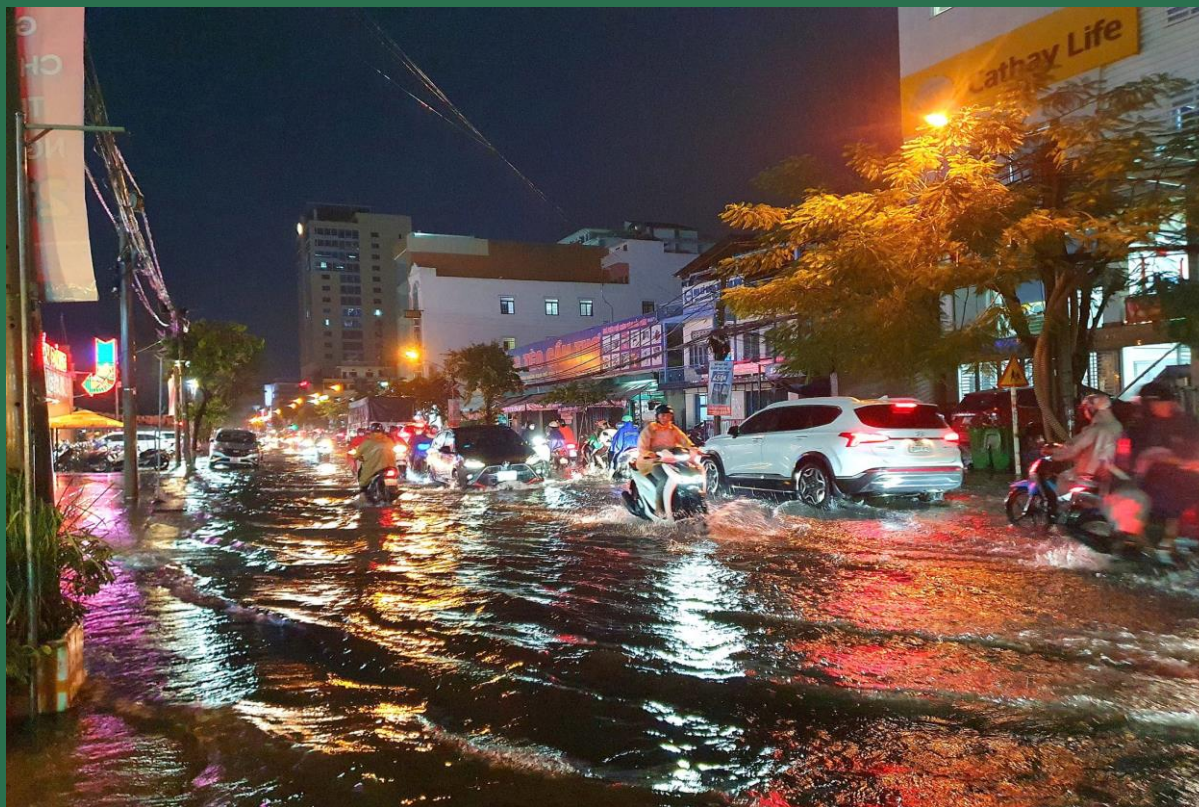
Participant recruitment

Contact community organizations and outdoor worker groups to find research participants.



Co - construction research

The research process positions outdoor workers as active collaborators who help shape the research plan, guide data collection, and inform how findings are shared. They participate in testing and using the ICAN mobile app, ensuring the research directly serves their community's needs.



08 key aspects of research with outdoor workers:

- 1. Approaching participants:** Building trust and initial contact
- 2. Collecting information:** Gathering data sensitively
- 3. Interviews and surveys:** Flexible vs structured methods
- 4. Managing refusals:** Respecting participant choices
- 5. Protecting rights:** Ensuring ethical practices
- 6. Sharing findings:** Making results accessible
- 7. Maintaining relationships:** Long-term engagement
- 8. Handling issues:** Adaptive problem-solving



1 Approaching participants

- **Rule-based:** Formal invitations and written consent are used.
- **Challenges:** Participants might distrust the process, fear information misuse, or struggle with language barriers.
- **Co-construction:** Researchers approach participants through community leaders or trusted networks. They explain the study in simple, relatable terms and build trust through face-to-face communication.
- **Why it works:** Outdoor workers often distrust formal processes. A more personal, trust-building approach encourages participation.



2 Collecting information

- **Rule-based:** Participants are asked for full information upfront through forms.
- **Challenges:** Outdoor workers may forget details, worry about privacy, or feel pressured.
- **Co-construction:** Information is gathered gradually through conversations, and participants' hesitation to share sensitive data is respected.
- **Why it works:** It allows for accurate and respectful data collection without overwhelming participants.



3 Interviews and surveys

- **Rule-based:** Fixed schedules and strict procedures are followed.
- **Challenges:** Interruptions, poor working conditions, and participants' focus on their work make it hard to collect data.
- **Co-construction:** Questions are adjusted flexibly, and interviews are conducted at times that fit participants' schedules.
- **Why it works:** This approach respects workers' time and creates a more natural conversation, leading to better insights.



4 Refusals to participate

- **Rule-based:** Official reasons are recorded, and replacements are found.
- **Challenges:** Many may decline participation due to self-esteem or logistical issues, making it hard to maintain sample quality.
- **Co-construction:** Refusals are respected, reasons are explored through trusted intermediaries, and researchers wait for a better time to ask.
- **Why it works:** It respects participants' decisions, building trust and goodwill for future engagement.



5 Protecting participants' rights

- **Rule-based:** Documents about rights and formal complaint mechanisms are provided.
- **Challenges:** Many participants may not fully understand their rights or have high expectations for compensation.
- **Co-construction:** Rights are explained in simple language, benefits to the community are highlighted, and compensation is framed as gifts.
- **Why it works:** Clear, culturally sensitive communication ensures participants feel respected and valued.



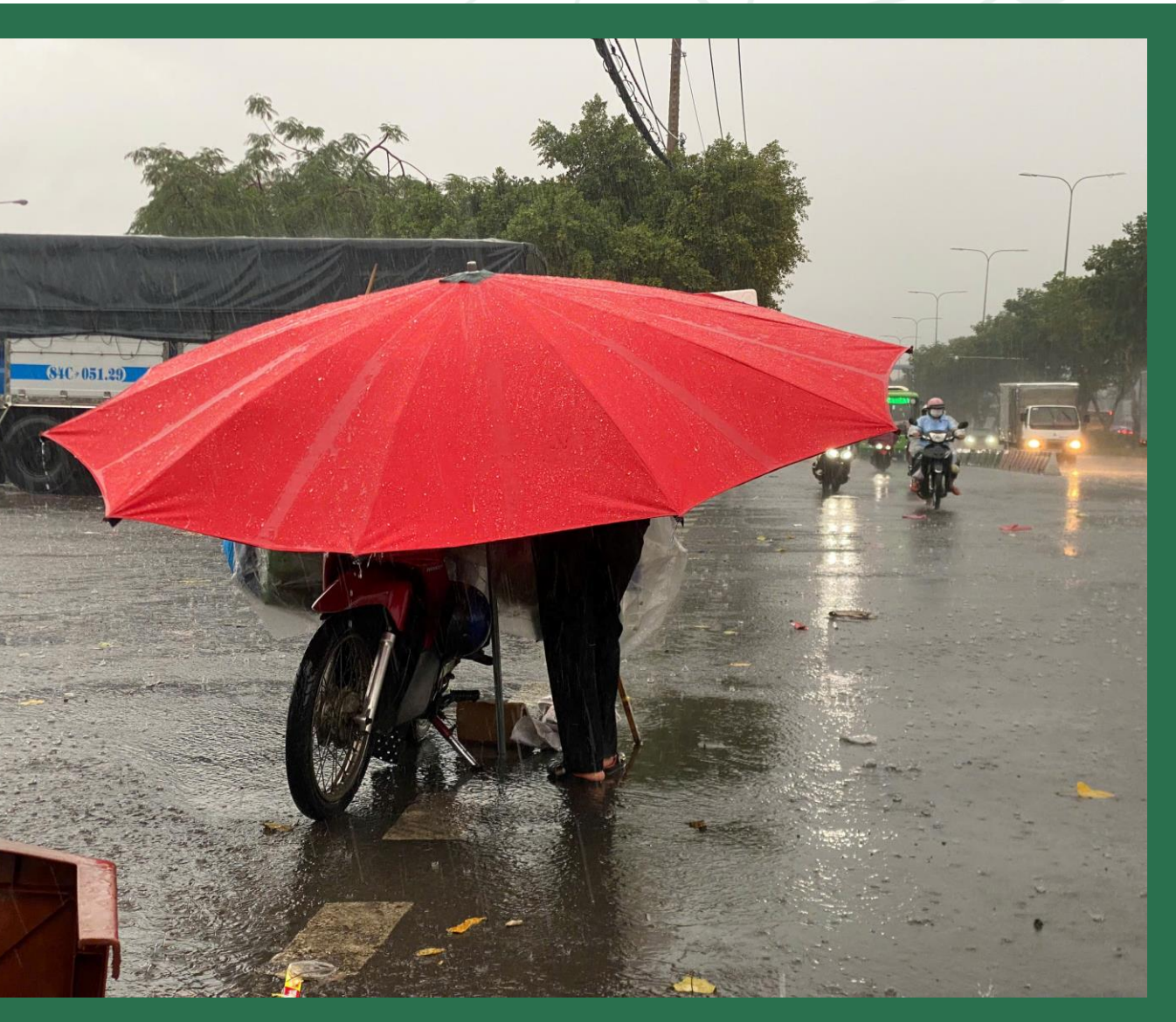
6 Sharing findings

- **Rule-based:** Results are shared through formal reports or seminars.
- **Challenges:** It's hard to reach workers, and findings might be too technical or distressing.
- **Co-construction:** Findings are shared through informal gatherings, personal networks, and consultations before formal publication.
- **Why it works:** This ensures the results are accessible, relevant, and beneficial to the community.



7 Maintaining relationships

- **Rule-based:** Official thank-you letters and occasional invitations to future studies.
- **Challenges:** Workers' mobility makes ongoing contact difficult, and maintaining relationships can be resource-intensive.
- **Co-construction:** Relationships are maintained through social networks and regular, informal contact.
- **Why it works:** Long-term connections encourage trust and future participation.



8 Handling emerging issues

- **Rule-based:** Issues are reported and handled formally.
- **Challenges:** Rigid procedures can't always address sensitive or unexpected conflicts effectively.
- **Co-construction:** Flexible solutions are found by consulting trusted individuals and balancing stakeholders' needs.
- **Why it works:** This ensures empathy and fairness in resolving issues while minimising harm to participants.

1 Trust matters most

- Work through trusted community networks
- Build relationships before collecting data
- Respect local culture and customs

2 Flexibility is essential

- Adapt to workers' schedules and needs
- Use informal, natural communication
- Stay flexible with research methods

3 Workers as co-constructors

- Workers are not just information providers
- They participate in research design and sampling
- They connect communities and co-create solutions
- They actively shape the research process

4 Sustainable value

- Create benefits for both researchers and communities
- Share findings in accessible ways
- Maintain long-term relationships

Researching the impact of climate change on the health of outdoor workers and vulnerable groups in Vietnam requires a nuanced, context-sensitive approach that integrates traditional anthropological methods with principles of sustainable community development.



Thank you

LUNCH!

The next session will begin at
13:00 PM



Break Time!

The next session will begin at
15:00 PM

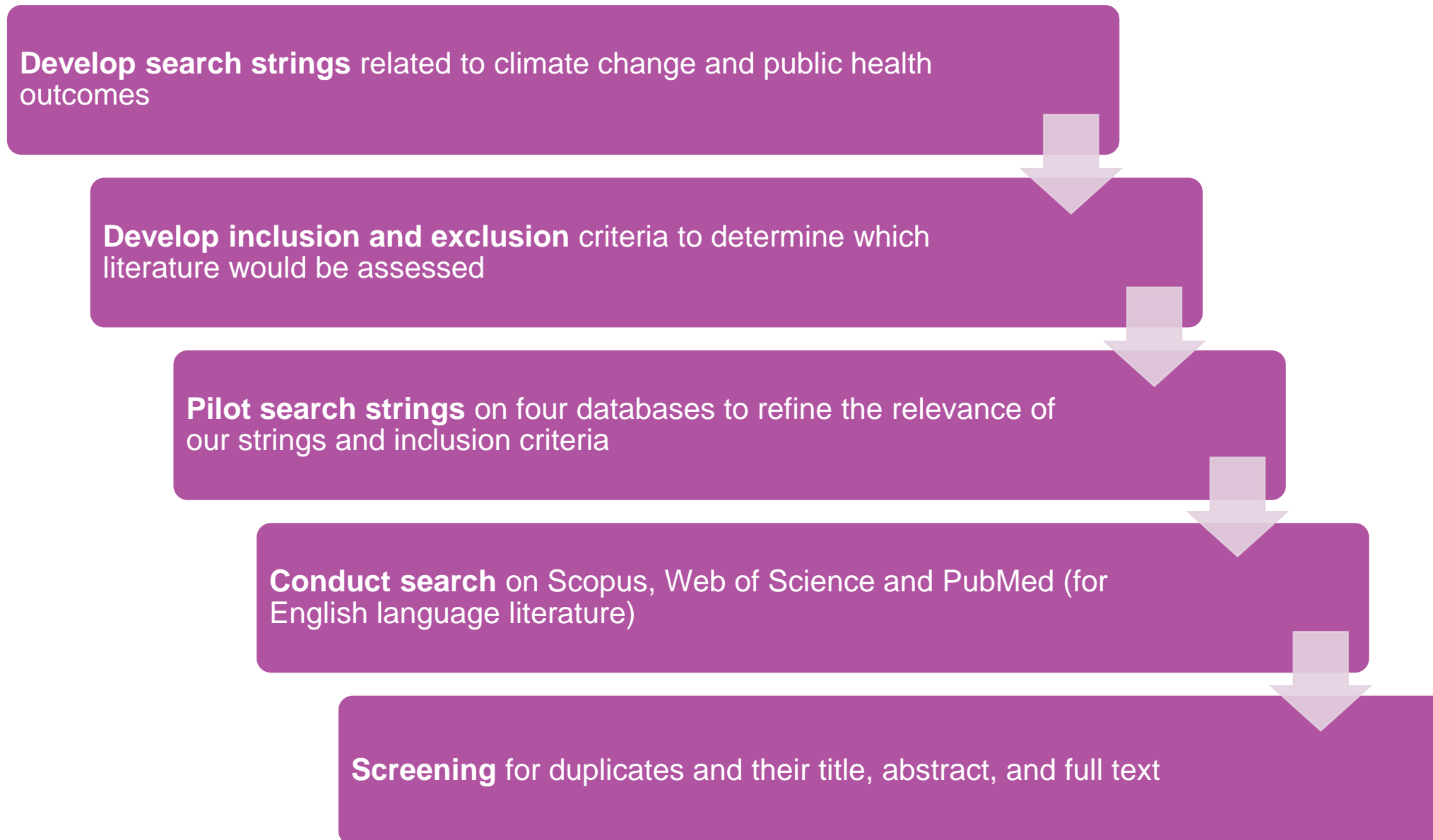


WHAT DIFFERENCE DOES LANGUAGE MAKE?

Comparative insights from systematic reviews of the Vietnamese and English language literatures on climate change and health of outdoor workers

Anh Ngoc Vu and Jonathan Rigg

Methodology – Overview of the Five Stages (1/3)



Methodology – Search Strings & Inclusion / Exclusion Criteria (2/3)

Component	Search strings
Climate	Climat* OR weather OR flood* OR drought OR heatwave OR heat OR cold OR global warming OR hurricane OR typhoon OR monsoon OR rainfall OR adaptation OR mitigation OR greenhouse gas OR storm OR cyclone OR coastal erosion OR risk OR natural disaster OR wildfire
Health	Health OR disease OR infectious OR morbidity OR wellbeing OR quality of life OR mortality OR death OR accident OR well-being OR injur* OR hospital* OR mental OR medical* OR emergency OR stroke OR maternal OR exhaustion OR cramp OR pregnan* OR fever* OR fatigue OR burn OR stress OR skin
Work	Outdoor work* OR porter OR construction OR vendor OR street vendor OR rider OR outdoor occupation
Social	Gender OR age OR generation OR old OR young OR elderly OR poverty OR exclusion OR precari* OR migrant OR minority OR vulnerabl* OR informal* OR casual* OR contract* agreement
Urban	City OR cities OR town OR urban OR metropolitan
Asia	Asia OR Vietnam OR China OR Timor Leste OR East Timor OR Indonesia OR Philippines OR Cambodia OR Thailand OR Laos OR Lao PDR OR Myanmar OR Burma OR Malaysia OR Brunei OR Brunei Darussalam OR Mongolia OR India OR Sri Lanka OR Nepal OR Pakistan OR Bangladesh OR Bhutan OR Afghanistan OR North Korea OR Democratic People's Republic of Korea

Criterion	Inclusion	Exclusion
Content	Research how climate change & extreme weather events impact health Research on climate change adaptation and mitigation Outdoor workers	Research on how climate change – rather than climate change – impacts health and wellbeing (e.g. dry/cold//humid climates) Indoor workers
Types of literature	Academic papers Grey literature	Opinion pieces Popular media (e.g. blogs, social media posts, and newspaper articles)
Date of publication	January 2000 – April 2024	Before January 2000
Geography	Urban Asia	Not urban Asia

Methodology – Search Strings & Inclusion / Exclusion

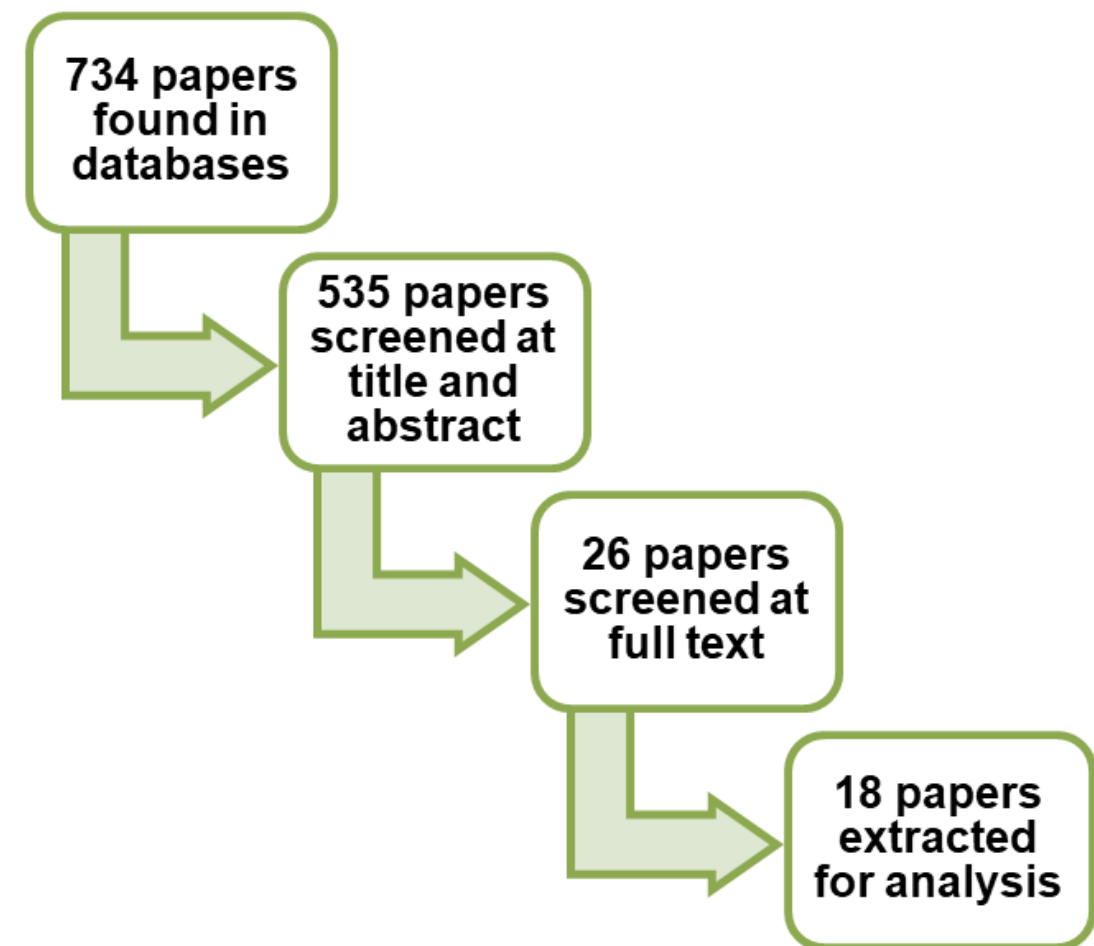
Component	Search strings	Criterion	Main keywords		Vietnamese synonyms and relevant keywords
			English	Vietnamese	
Climate	Climat* OR weather OR flood* OR drought OR heatwave OR heat OR cold OR global warming OR hurricane OR typhoon OR monsoon OR rainfall OR adaptation OR mitigation OR greenhouse gas OR storm OR cyclone OR coastal erosion OR risk OR natural disaster OR wildfire		climate	khí hậu	thời tiết” “khí hậu” OR “ OR "thiên tai"
Health	Health OR disease OR infectious OR morbidity OR wellbeing OR life OR mortality OR death OR accident OR well-being OR in hospital* OR mental OR medical* OR emergency OR stroke OR exhaustion OR cramp OR pregnan* OR fever* OR fatigue OR stress OR skin		health	sức khỏe	bệnh” “sức khỏe” OR “ OR "triệu chứng"
Work	Outdoor work* OR porter OR construction OR vendor OR street vendor OR rider OR outdoor occupation		work	việc làm	làm việc ngoài trời” “ lao động ngoài “OR trời” OR "việc làm ngoài trời"
Social	Gender OR age OR generation OR old OR young OR elderly OR poverty OR exclusion OR precari* OR migrant OR minority OR vulnerabl* OR informal* OR casual* OR contract* agreement		society	xã hội	xã hội” OR "con “ người" OR "yếu thế"
Urban	City OR cities OR town OR urban OR metropolitan		urban	đô thị	"đô thị" OR "thành phố" OR "thị xã"
Asia	Asia OR Vietnam OR China OR Timor Leste OR East Timor OR Indonesia OR Philippines OR Cambodia OR Thailand OR Laos OR Lao PDR OR Myanmar OR Burma OR Malaysia OR Brunei OR Brunei Darussalam OR Mongolia OR India OR Sri Lanka OR Nepal OR Pakistan OR Bangladesh OR Bhutan OR Afghanistan OR North Korea OR Democratic People's Republic of Korea	Types of literature Date of publication Geography			

Challenges: finding search terms in English and Vietnamese that operated as synonyms

Methodology – Literature Screening (3/3)

For literature written in English: We searched the strings on **Scopus, Web of Science and PubMed** and screened the resulting literature using Covidence:

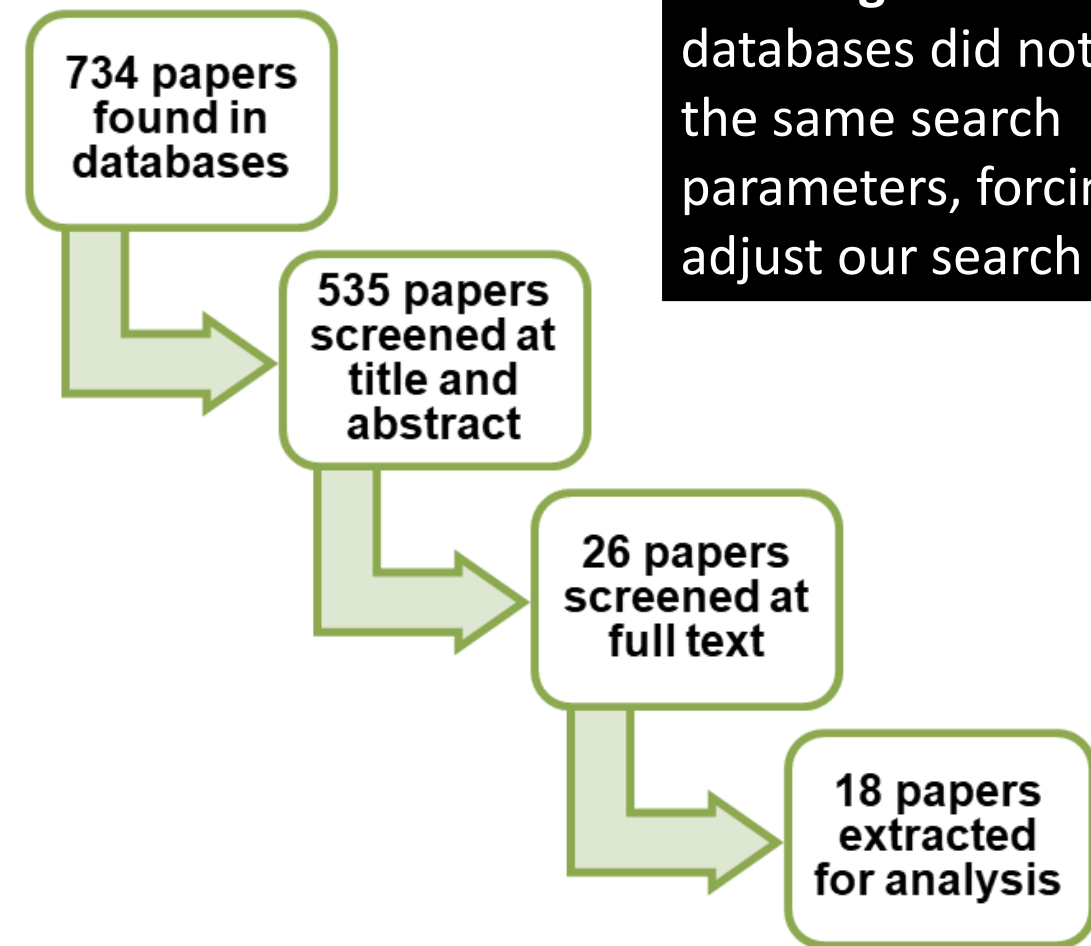
Component	Scopus	WoS	PubMed
Climate	8,284,985	5,710,208	3,059,869
AND Health	4,175,645	2,338,655	1,952,061
AND Work	44,224	23,130	8,008
AND Social	10,306	5,626	2,452
AND Urban	1,450	778	202
AND Asia	417	222	95
Total	734		



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AND Social	10,306	5,626	2,452
AND Urban	1,450	778	202
AND Asia	417	222	95
Total	734		



Challenges: the Vietnamese databases did not permit the same search parameters, forcing us to adjust our search strings

English language

Vietnamese language

734 papers found in databases

88 papers found in databases

535 papers screened at title and abstract

46 papers screened at title and abstract

26 papers screened at full text

8 papers extracted for analysis

English language sources: WoS, Scopus and PubMed databases employed

18 papers extracted for analysis

Vietnamese sources: EBSCO Discovery Service of the Central Library of Vietnam; National Database on Science and Technology of the Ministry of Science and Technology of Vietnam, and Google Scholar.

The English language as a mirror for all languages?

250 systematic reviews on PubMed

- 34% explicitly excluded non-English articles
- 32% did not mention language exclusion but did not include non-English language studies
- 34% claimed no language restriction but of these four in five did not incorporate non-English language sources

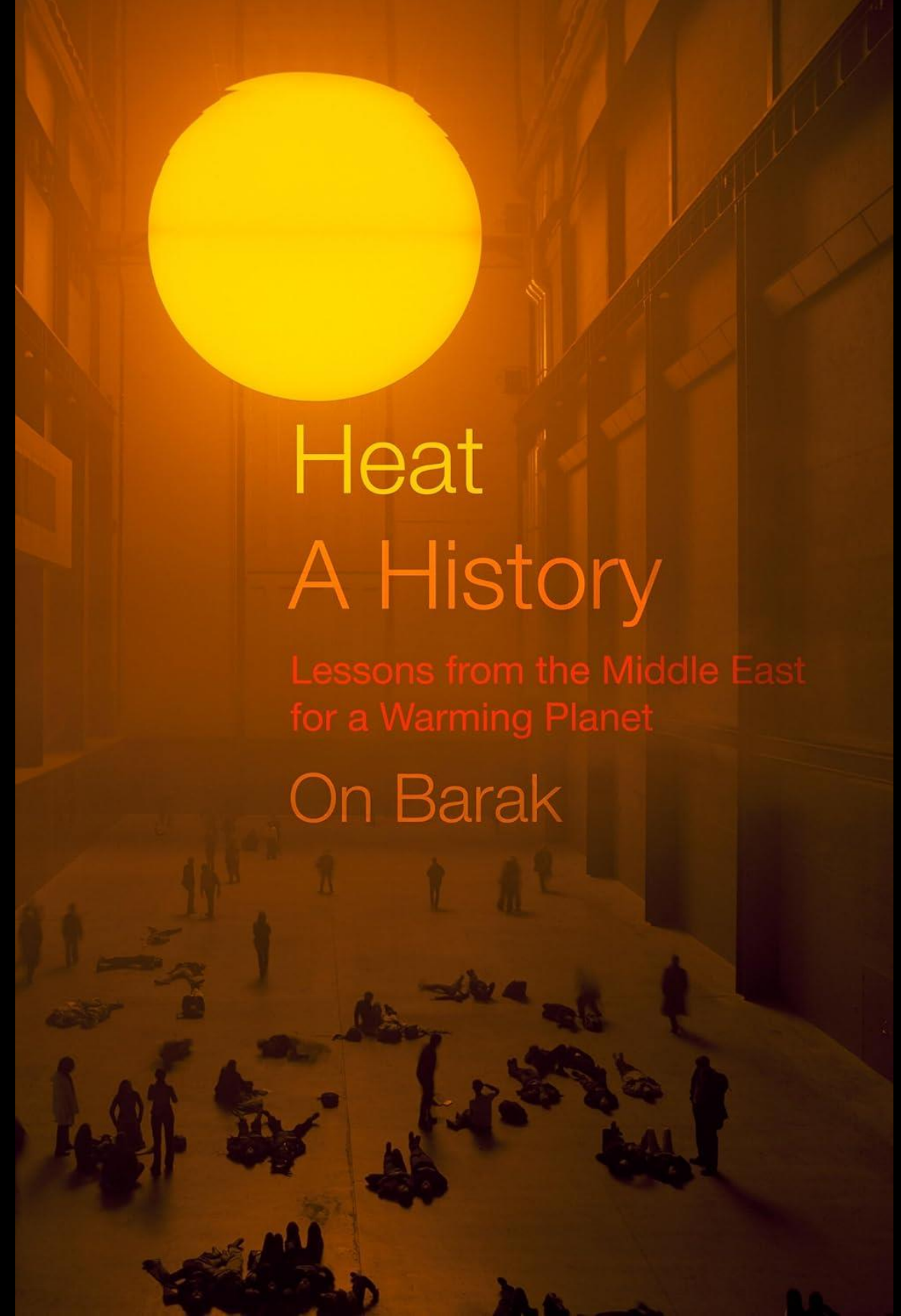
Jackson and Kuriyama (2019)

“Most people are susceptible to, and animated by, the very extremes [of temperature] that averages negate. Moreover, no one is average: heat is felt differently by women and men, the old and young, the poor and the rich.” (page 10)

“...the scientific engagement with average global warming is a symptom of other global frameworks of ‘the global’ based on collapsing extremes and specificities into an average or an abstraction.” (page 14)

“This is how what I call methodological planetarism was entrenched.” (page 15)

Heat, a history (2024)



The review

	English language literature	Vietnamese language literature	Notes
Methods	Quant and mixed-methods dominate	Qual methods entirely lacking	Total attention paid in VN literature to predictive rather than interpretative methods
Weather	Focus on heat-related impacts	Broader consideration of what counts as ‘climate’	Vietnamese literature on weather is less meteorological in focus – e.g. includes noise pollution. Cultural and linguistic factors at work.
Health	Hospital admission and elevated mortality used to indicate ill-health	Ill-health more exactly specified (urinary diseases, musculoskeletal issues...) and broader in scope	Vietnamese literature is less medicalised – ill health
Causes of Vulnerability	Focus on intersectionality and informal sector working	Focus on formal sector and discrete cause	Who ‘counts’ is different – the populations of interest are different
Responsibility for adaptation	Onus on government and society	Onus on the individual (e.g. exercising regularly, taking micronutrients, maintaining posture, changing positions at work)	English language literature addresses structural factors and places responsibility on state and society; VN literature assumes individual behavioural change
Policies	Focus on city-wide, national or regional interventions that can be scaled-up	Focus rather on short- and medium-term behavioural adjustments, enacted in places of work	English language sources emphasise the generalisable and longer term; VN, on the particular, on context and shorter term.

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	English language literature	Vietnamese language literature	Notes
Methods	Quant and mixed-methods dominant	Qual methods entirely lacking	Total attention paid in VN literature to predictive rather than interpretative methods
Weather	Focus on impacts	(An and Lê's presentation that follows is one of the very first Vietnamese studies to take a qualitative approach.)	Vietnamese literature on weather is less meteorological in focus – e.g. includes noise pollution. Cultural and linguistic factors at work.
Health	Hospital admission and elevated mortality used to indicate ill-health	Ill-health more exactly specified (urinary diseases, musculoskeletal issues...) and broader in scope	Vietnamese literature is less medicalised – ill health
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	English language literature	Vietnamese language literature	Notes
Methods	Quant and mixed-methods dominate	Qual methods entirely lacking	Total attention paid in VN literature to predictive rather than interpretative methods
Weather	Focus on heat-related impacts	<div data-bbox="1102 395 1955 817" style="background-color: black; color: white; padding: 5px;"> Barak (2024) terms international climate change norms 'methodological planetarism'. This results, in his view, in a simplification of 'heat' through reductionism </div> issues...) and broader in scope	Vietnamese literature on weather is less meteorological in focus – e.g. includes noise pollution. Cultural and linguistic factors at work.
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	English language literature	Vietnamese language literature	Notes
Methods	Quant and mixed-methods dominate	Qual methods entirely lacking	Total attention paid in VN literature to predictive rather than interpretative methods
<p>The emphasis in the Vietnamese-language literature is on a nuanced understanding of climate-related challenges, context-specific issues, the particularities of the daily lives of outdoor workers and their resourcefulness, and practical local interventions that might not scale up</p>		<p>Barak (2024) terms international climate change norms ‘methodological planetarism’. This results, in his view, in a simplification of ‘heat’ through reductionism</p>	Vietnamese literature on weather is less meteorological in focus – e.g. includes noise pollution. Cultural and linguistic factors at work.
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Weather	Focus on heat-related impacts	Broader consideration counts as 'climate'	Focus on weather is different – e.g. on. Cultural and work.
Health	Hospital admission and elevated mortality used to indicate ill-health	Ill-health more exact (urinary diseases, issues...) and broader in scope	is less
Causes of Vulnerability	Focus on intersectionality and informal sector working	Focus on formal sector and discrete cause	Who 'counts' is different – the populations of interest are different
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How do national norms (in Vietnam) render some groups and individuals more visible than others?
(This speaks to Loc's presentation this morning.)

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Health	Hospital admission and elevated mortality used to indicate ill-health	Ill-health more exact (urinary diseases, mental issues...) and broader	Health literature is less
Causes of Vulnerability	Focus on intersectionality and informal sector working	Focus on formal sector discrete cause	different – the
Responsibility for adaptation	Onus on government and society	Onus on the individual (e.g. exercising regularly, taking micronutrients, maintaining posture, changing positions at work)	populations of interest are different
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This is akin (somewhat surprisingly) to the neo-liberal methodological individualism that has been noted elsewhere

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Responsibility for adaptation	Onus on government and society	Onus on the individual exercising regularly, taking micronutrients, maintaining posture, changing posture (work)	international publishing norms expect papers to say something 'more', and to generalise from the case. literature addresses and places state and society; VN emphasises individual behavioural change
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Summary

Four integrative points:

- The Vietnamese-language systematic literature review is importantly different from the English-language review
- Its focus on practical, context-specific adaptations stands in contrast to the macro-level interventions proposed in much of the English language scholarship
- The Vietnamese literature reveals a tendency to overlook the structural causes of vulnerability
- International publishing conventions creates a necessity to say something 'more' and 'wider', such that the particular voices and conditions from and of the South are ironed out in the interests of generalisability

How are climate-related health risks unequally distributed among informal outdoor workers in urban Vietnam?

Preliminary findings from our first survey

Sherman Tai

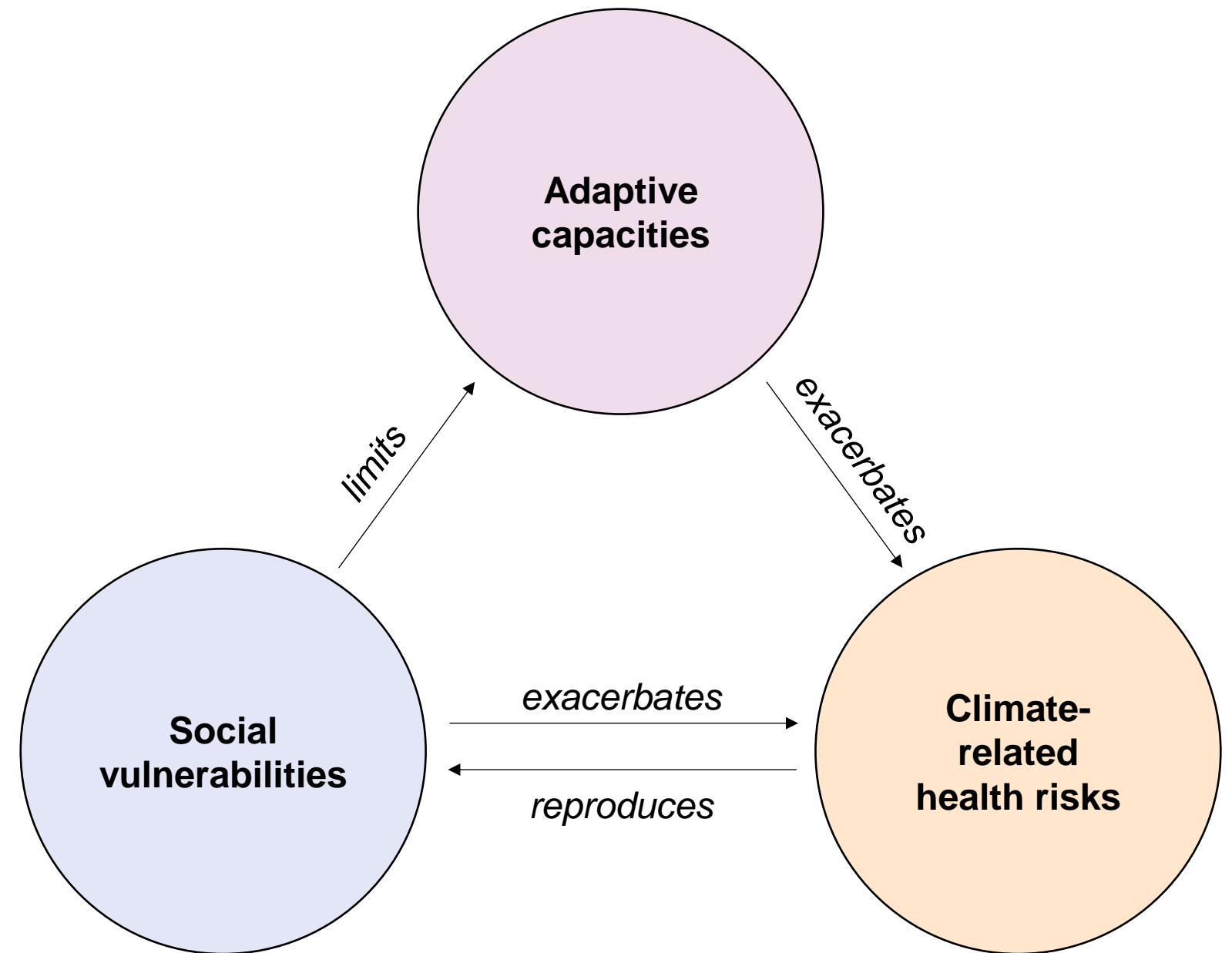
Senior Researcher, National Centre for Social Research



Research Questions

How do climate-related health risks map onto intersecting social vulnerabilities, such as gender, age, migrant status, and ethnicity?

- ❖ How do social vulnerabilities exacerbate climate-related health risks experienced by workers?
- ❖ How do social vulnerabilities limit workers' adaptive capacities to these risks?
- ❖ How do workers' response to these risks reproduce social vulnerabilities?



Methodology (1/3) Survey Design

Social vulnerabilities

- ❖ **Economic** – Income, Education level, Home ownership
- ❖ **Employment** – Occupation, Daily working hour, time of work
- ❖ **Cultural** – Ethnicity, Religion
- ❖ **Social** – Marital status, Organization membership
- ❖ **Citizenship** – Location, Residency status
- ❖ **Demographic** – Gender, Age, Underlying medical conditions



Adaptive capacities

- ❖ **Perceptions** – Self-rated difficulty in coping with extreme weather, ability to adapt to climate change
- ❖ **Resources** – Medical insurance, digital literacy (sources for climate change information, smartphone ownership & usage)



Health risks

- ❖ **Perceptions** – Self-rated impact on health
- ❖ **Health problems** – Physical, mental health problems



Methodology (2/3) Data Collection

Our local partner SocialLife conducted the first in a series of surveys with over 400 informal outdoor workers

❖ Timeframe

- Data collected from May to June 2024
- Next survey targeting >1,200 respondents will be conducted from March 2025

❖ Quota sampling

- ~100 workers in each city (Ho Chi Minh City, Hanoi, Da Nang, and Can Tho)
- ~100 workers in each occupation (Street vendors, Motorbike taxi riders, Porters, and Construction workers)

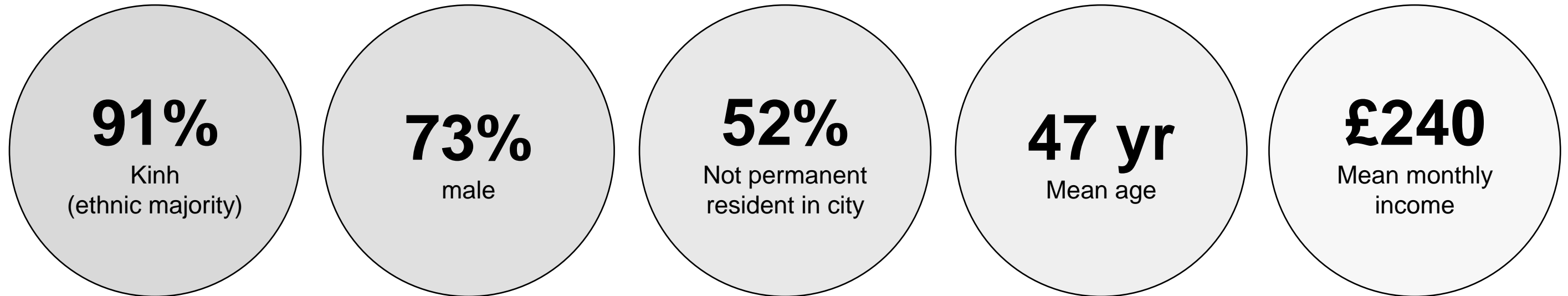
❖ Nonprobability sampling

- Probability sampling is impractical because there are no official registrations
- **Unrepresentative** of the entire population of informal outdoor workers

→ One of the **first systematic quantitative attempts** to understand this peripheral demographic, who are highly mobile, hard-to-reach, and therefore often neglected



Survey Respondents



Methodology (3/3) Data Analysis

Regression of health risks & adaptive capacities (outcomes) against social vulnerabilities (predictors)

❖ **13 models** using logistic and linear regression (OLS)

❖ **Model assumptions**

- ✓ **Multicollinearity** (no predictors are highly correlated);
- ✓ **Linearity** (linear relationship between predictors and outcomes or log odds of outcomes);
- ✓ **Homoscedasticity** (constant variance of error terms);
- ✓ **Normality** (normally distributed error terms);
- ✓ **Outliers** (12 removed, e.g. when daily working hour = 0)

❖ **Assumes independent observations & no interaction between predictors**

→ Enables us to explore **statistically significant associations** within the respondents and **estimate specific % changes in the outcome probability** if predictors changed

```
# 1. model_cope
# 2. model_adapt
# 3. model_insure
# 4. model_stay
# 5. model_source
# 6. model_digital
# 7. model_smartphone
# 8. model_app
# 9. model_physical
# 10. model_mental
# 11. model_impact
# 12. model_financial
# 13. model_l.cost
```

Income

Education

Home
Ownership

Working
Hours

Working
Times

Occupation

Ethnicity

Religion

Marital
Status

Association
Member-
ship

Location

Residency
status

Gender

Age

Underlying
Medical
Conditions

1. Health Risks

2. Adaptive Capacities

3. Reproduction of Vulnerabilities

Health Risks (1/2) Underlying medical conditions exacerbate both physical and mental health risks related to extreme weather

+13%

With underlying
medical conditions

More likely to believe climate
change had much impact on health

+29%

With underlying
medical conditions

More likely to face physical health
problems due to extreme weather

+16%

With underlying
medical conditions

More likely to face mental health
problems due to extreme weather

→ Underlying medical conditions like **high blood pressure (14%)**, **digestive, liver and bile (10%)**, **immune (9%)**, **chronic respiratory (7%)**, and **cardio (5%)** diseases exacerbates climate-related health risks, including mental health problems like **depression (33%)** and **anxiety (25%)**

Health Risks (2/2) Climate-related mental health problems more likely in ethnic minorities, workers in Da Nang and Can Tho, and married workers

+20%

Ethnic minorities

More likely to face mental health problems due to extreme weather

+20%

Da Nang / Can Tho

Less likely to face mental health problems due to extreme weather

-17%

Single

→ Climate-related mental health issues may be compounded by **social exclusions against ethnic minorities, lower levels of socio-economic development in smaller cities, and heavy burdens of family livelihoods.**

Adaptive Capacities – Perception (1/2) Underlying medical conditions makes it more difficult to cope with extreme weather & adapt to climate change



+20%

With underlying medical conditions

More likely to find it difficult to cope with dangerous weather

+28%

With underlying medical conditions

More likely to find themselves unable to adapt to climate change

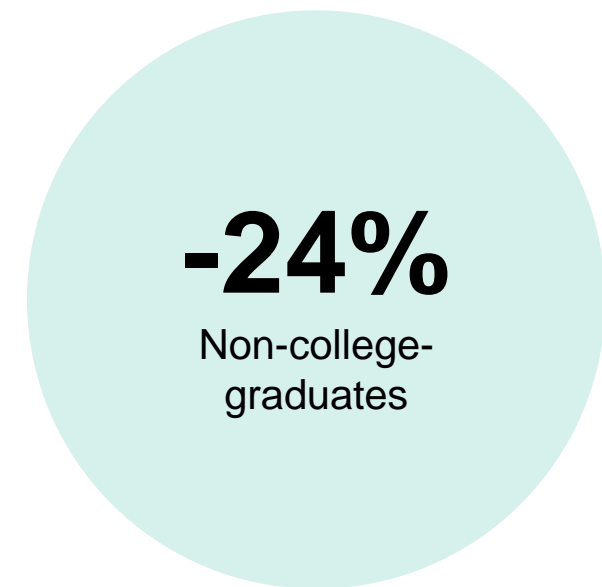
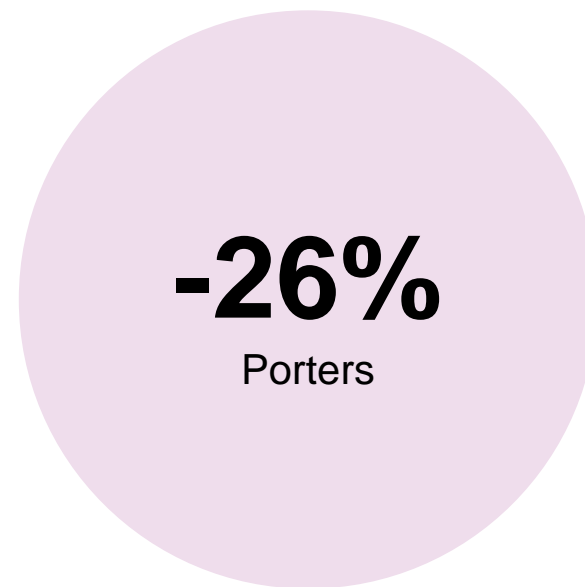
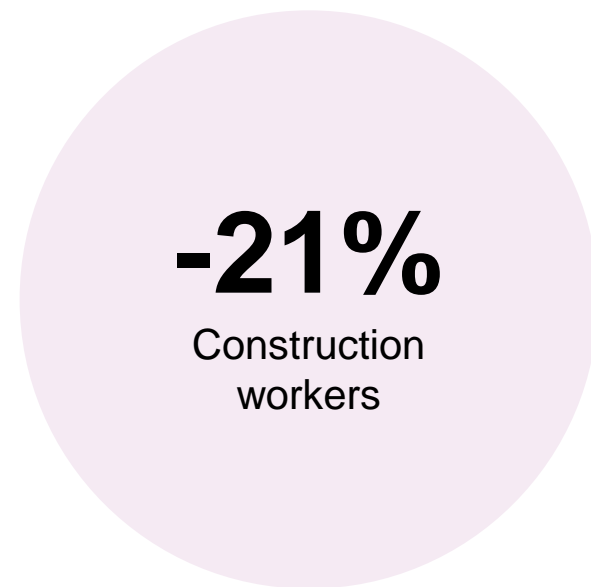
+20%

With underlying medical conditions

More likely to not use smartphones

→ Underlying medical conditions may render patients unable to access useful functions on smartphones, such as **extreme weather alerts, online information sources about climate change, and instant communication during extreme weather events**

Adaptive Capacities – Perception (2/2) Construction workers, porters, and workers with lower education level find it easier to cope & adapt

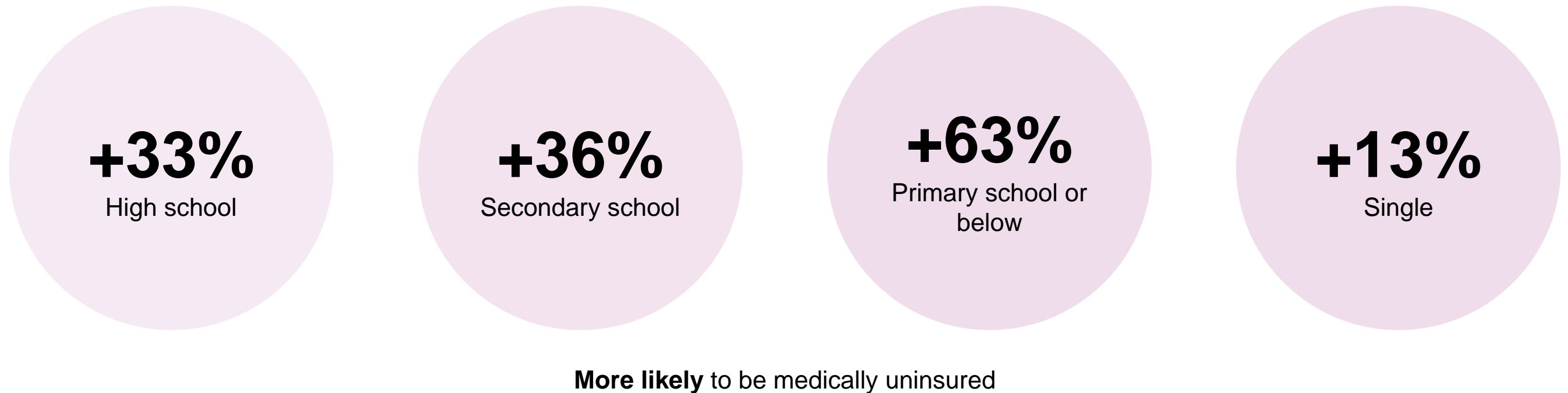


Less likely to find it difficult to cope with dangerous weather

*also **27% less likely** to still go to work under dangerous weather

→ College-graduates **may not be as accustomed to manual labour and the precarity of informal outdoor work**, seeing dangerous weather as very difficult to cope with, **although they typically have more resources than workers with lower education levels.**

Adaptive Capacities - Resources (1/2) College-graduated and married workers are more likely to be medically insured

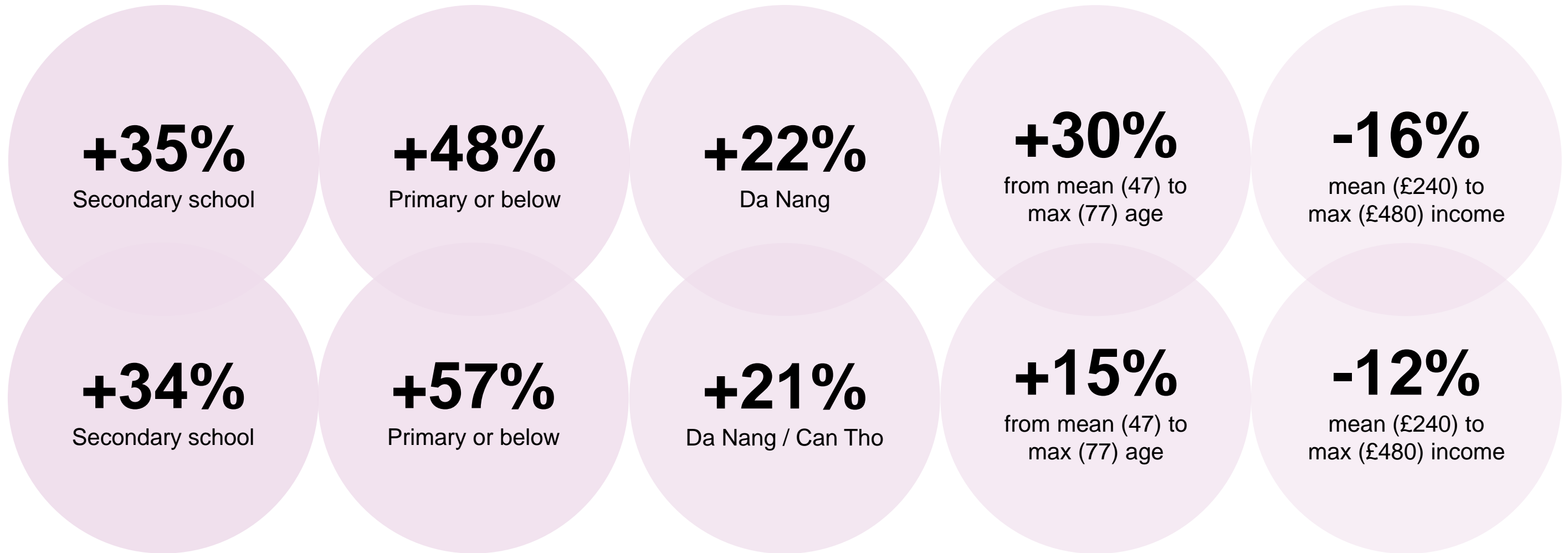


→ Medical insurance are usually purchased **voluntarily (57%)** rather than **under contract or provided by employers (20%)**. This means that most workers lack a **safety net** for accessing necessary treatments to mitigate health issues arising from their exposure to extreme weather.

Adaptive Capacities - Resources (2/2) Use of the digital tools to respond to severe weather depends on workers' education, city, age, and income

More likely to rely on non-internet sources like TV, radio, newspapers or relatives, for climate change info

Less likely



More likely to not own a smartphone

Less likely

Reproduction of Vulnerabilities (1/1) Costs in response to health risks higher for elderly workers, ethnic minorities, those with conditions, and in Hanoi

+21%

from mean (47) to
max (77) age

2.5x

Ethnic minorities
~£120

2.5x

Hanoi
~£120

4.3x

With underlying
medical conditions
~£200

More likely to see income
reduced due to climate change

Times the costs paid annually in response to health risks
(Mean = £45)

→ Workers more exposed to health risks pay **double to over quadruple the costs annually** to respond to them, reducing their disposable incomes and **reproducing their social vulnerabilities, which exacerbated the climate-related health risks they face in the first place**

Key Takeaways

1. **Underlying medical conditions and social exclusions faced by ethnic minorities** compounds the climate-related health risks faced by these workers
 - ✓ Policy promoting social and ethnic inclusivity can alleviate the compounded health impact
 2. **Education limits the resources available for workers to adapt to these health risks**, including medical insurance and digital tools like the internet and smartphone
 - ✓ Policy aimed at raising digital literacy should consider how to target this subgroup of workers
 3. **Social vulnerabilities are reproduced** as workers facing higher health risks because of their vulnerabilities spends significantly more in response to these risks
 - ✓ Welfare policy should reduce the financial burden on those most vulnerable to break the vicious cycle
 4. **Age, income, city, marital status, and occupation are also associated with climate-related health risks and adaptive capacities**; but not gender, residency status, home ownership, and association membership
 - ✓ Further research can explore interactions between predictors, e.g. residency status and location
- **What are the mechanisms leading to the heightened health risks among these vulnerable groups?** Why are the other predictors insignificant? Are these effects similar across different occupations, cities, and time periods?

Thank you for listening!

sherman.tai@natcen.ac.uk

