

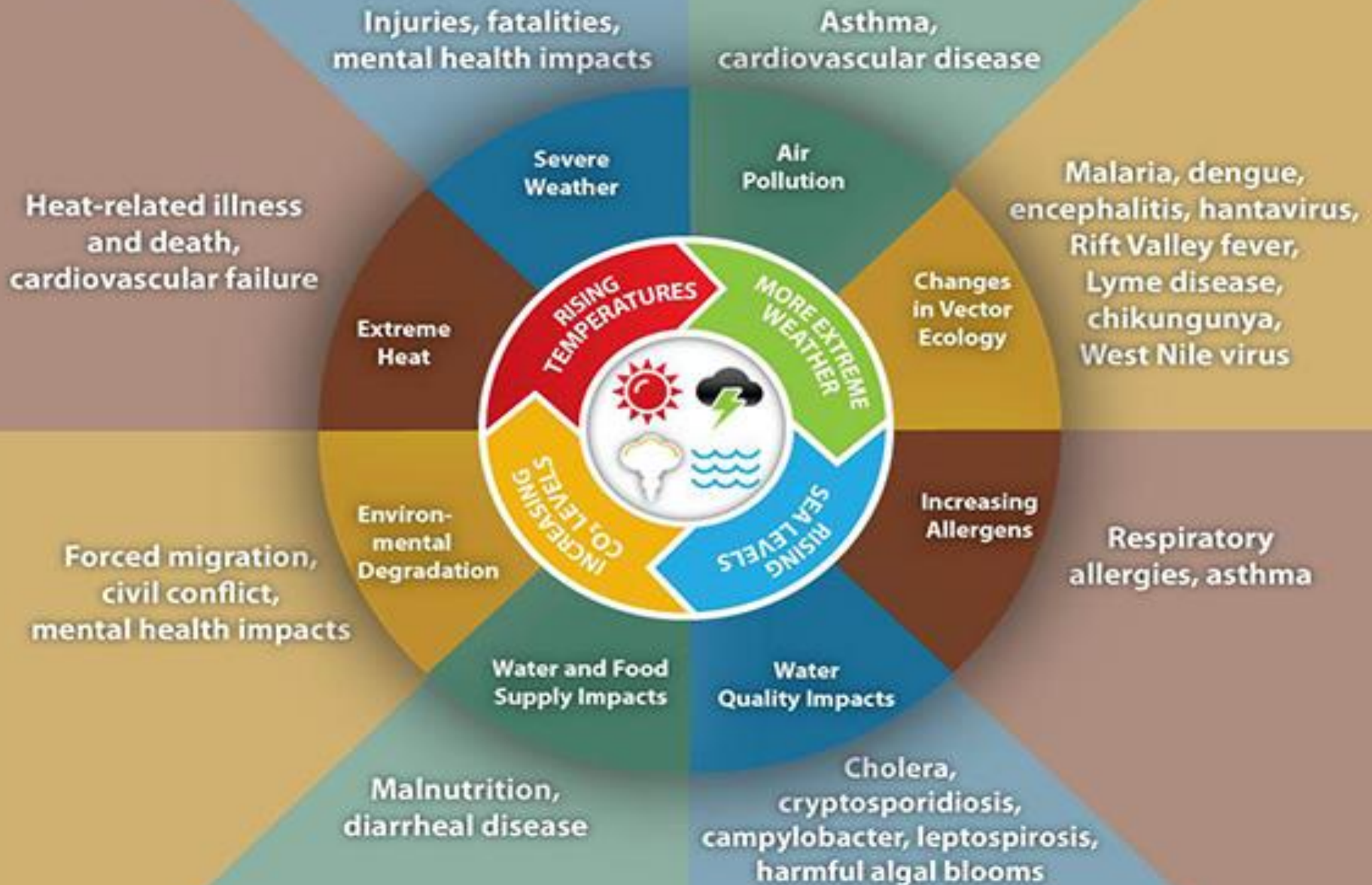
Climate Change & Public Health: Role and Applications of Mixed Method Research

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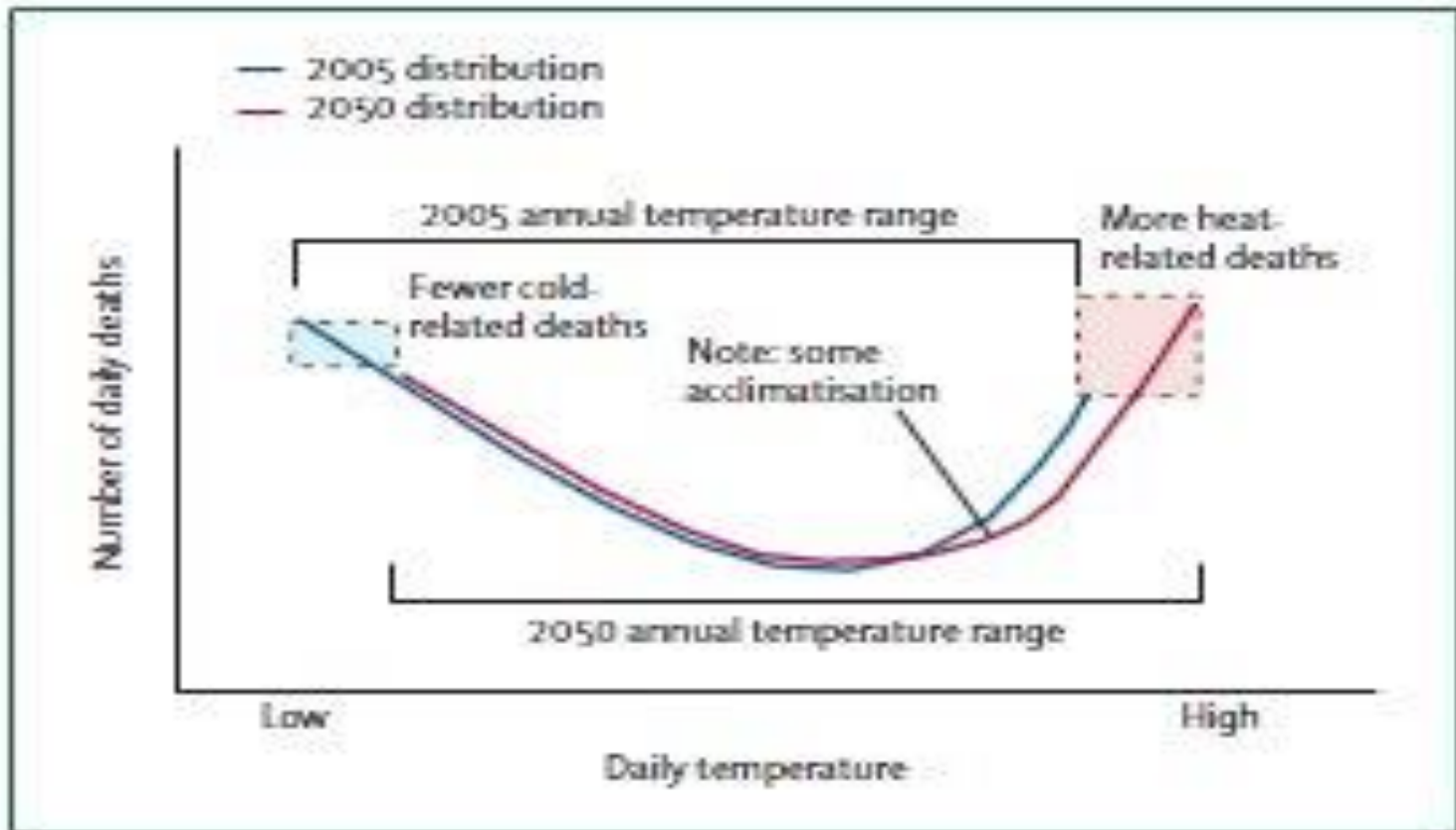
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Impact of Climate Change on Human Health



Increased Risk and Benefit

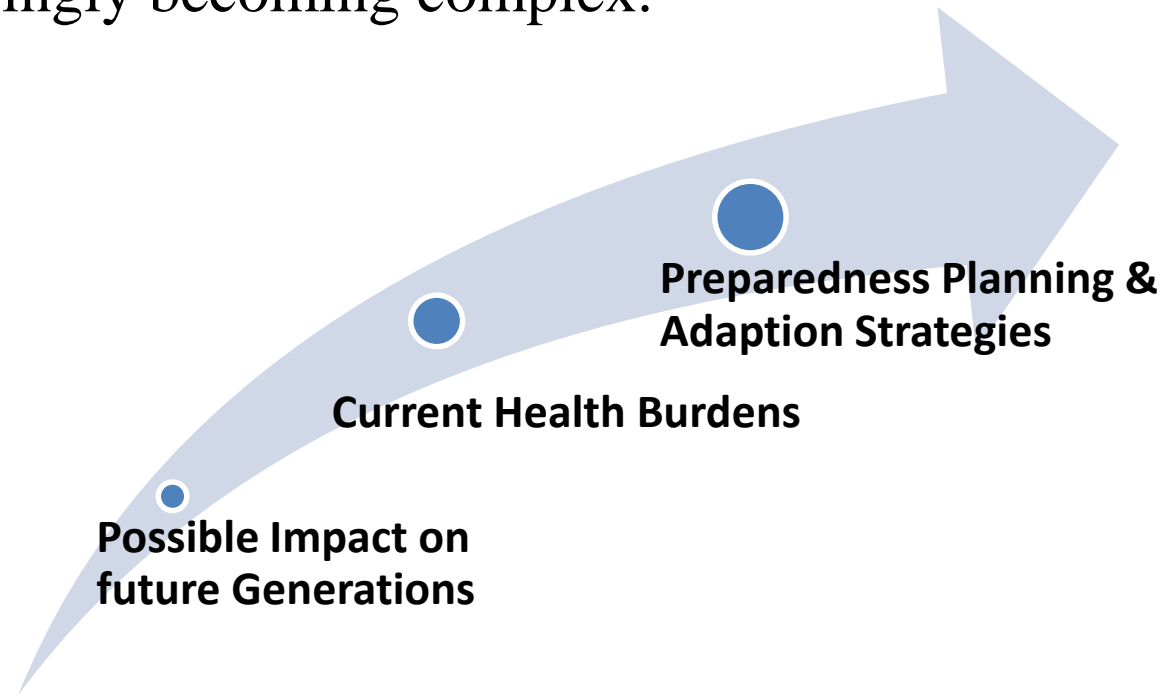
- Some climate changes may produce health benefits, but most will increase risk



Source:
McMichael
et al, 2006

Shifting Research Paradigm

- Research in the area of climate change and human health is increasingly becoming complex.



- Rapid Transition from theoretical possibility to an apparent threat
- Challenge: Use of right methodology for investigation
- Mixed methods research represents an opportunity

Research Paradigm Frameworks

KIND OF INFORMATION USED

RATIONAL ←————→ NATURAL

NATURE OF TRUTH

	DIRECT OBSERVATION OF OBJECT REALITY	PEOPLE PERCEPTIONS OF OBJECT REALITY	ARTIFICIAL RECONSTRUCTION OF OBJECT REALITY
AXIOMATIC			Reason/Logic/ Theorems, Normative Modeling and Descriptive Modeling
LOGICAL POSITIVIST/ EMPIRICIST	Field Experiments and Field Studies	Structured Interviewing and Survey Research	Prototyping, Simulation, Laboratory Experiments
INTERPRETIVE	Action Research and Case Studies	Historical Analysis, Expert Panels, and intensive interviewing	Conceptual Modeling and Hermeneutics
CRITICAL THEORY		Introspective Reflection	
EXISTENTIAL			

Mixed Methods Design Types

Design	Variants	Timing	Weighting	Mixing	Notation
Triangulation	<ul style="list-style-type: none"> • Convergence • Data transformation • Validating quantitative data • Multilevel 	Concurrent: quantitative and qualitative at the same time	Usually equal	Merge the data during interpretation or analysis	QUAN + QUAL
Embedded	<ul style="list-style-type: none"> • Embedded experimental • Embedded correlational 	Concurrent or sequential	Unequal	Embedded one type of data within a larger design using the other type of data	QUAN (qual) or QUAL (quan)
Explanatory	<ul style="list-style-type: none"> • Follow-up explanations • Participant selection 	Sequential: quantitative followed by qualitative	Usually quantitative	Connect the data between two phases	QUAN → qual
Exploratory	<ul style="list-style-type: none"> • Instrument development • Taxonomy development 	Sequential: Qualitative followed by quantitative	Usually qualitative	Connect the data between the two phases	QUAL → quan

Some Researchers Used Mixed Methods

- Tran et al (2013). A cross-sectional, randomized cluster sample survey of household vulnerability to extreme heat among slum dwellers in Ahmedabad, India. *International journal of environmental research and public health*, 10(6), 2515-2543.
- Das et al (2012). Malaria in India: the center for the study of complex malaria in India. *Acta tropica*, 121(3), 267-273.
- Ding et al "A mixed method to evaluate burden of malaria due to flooding and waterlogging in Mengcheng county, China: A case study." (2014): e97520.
- Haque et al (2013). Health coping strategies of the people vulnerable to climate change in a resource-poor rural setting in Bangladesh. *BMC public health*, 13(1), 565.
- Marinuccie et al (2014). Building resilience against climate effects—a novel framework to facilitate climate readiness in public health agencies. *International journal of environmental research and public health*, 11(6), 6433-6458.
- Hess et al (2014). An evidence-based public health approach to climate change adaptation. *Environmental health perspectives*, 122(11), 1177-1186