Tracking the Connections between Health and Climate Change:

Insights from the Lancet Countdown and Drop-Resist, South Africa

SSRP Symposium, University of Sussex, 18th of September 2019

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The Lancet Countdown

LANCET COUNTDOWN: TRACKING PROGRESS ON HEALTH AND CLIMATE CHANGE

Review

The 2018 report of the *Lancet* Countdown on health and climate change: shaping the health of nations for centuries to come

Nick Watts, Markus Amann, Nigel Arnell, Sonja Ayeb-Karlsson, Kristine Belesova, Helen Berry, Timothy Bouley, Maxwell Boykoff, Peter Byass, Wenjia Cai, Diarmid Campbell-Lendrum, Jonathan Chambers, Meaghan Daly, Niheer Dasandi, Michael Davies, Anneliese Depoux, Paula Dominguez-Salas, Paul Drummond, Kristie L Ebi, Paul Ekins, Lucia Fernandez Montoya, Helen Fischer, Lucien Georgeson, Delia Grace, Hilary Graham, Ian Hamilton, Stella Hartinger, Jeremy Hess, Ilan Kelman, Gregor Kiesewetter, Tord Kjellstrom, Dominic Kniveton, Bruno Lemke, Lu Liang, Melissa Lott, Rachel Lowe, Maquins Odhiambo Sewe, Jaime Martinez-Urtaza, Mark Maslin, Lucy McAllister, Slava Jankin Mikhaylov, James Milner, Maziar Moradi-Lakeh, Karyn Morrissey, Kris Murray, Maria Nilsson, Tara Neville, Tadj Oreszczyn, Fereidoon Owfi, Olivia Pearman, David Pencheon, Steve Pye, Mahnaz Rabbaniha, Elizabeth Robinson, Joacim Rocklöv, Olivia Saxer, Stefanie Schütte, Jan C Semenza, Joy Shumake-Guillemot, Rebecca Steinbach, Meisam Tabatabaei, Julia Tomei, Joaquin Trinanes, Nicola Wheeler, Paul Wilkinson, Peng Gong, Hugh Montgomery*, Anthony Costello**

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World Meteorological Organization

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Health, Climate Change & The Lancet

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Indicators of Progress

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Working Group	Indicator	
Climate Change Impacts, Exposures and Vulnerability	1.1: Vulnerability to the heat-related risks of climate change	
	1.2: Health effects of temperature change	
	1.3: Health effects of heatwaves	
	1.4: Change in labour capacity	
	1.5: Health effects of extremes of precipitation (flood and drought)	
	1.6: Lethality of weather-related disasters	
	1.7: Global health trends in climate-sensitive diseases	
	1.8: Climate-sensitive infectious diseases	
	1.9: Food security and under-nutrition	1.9.1: Terrestrial food security and under-nutrition
		1.9.2: Marine food security and under-nutrition
	1.10: Migration and population displacement	
Adaptation, Planning, and Resilience for Health	2.1: National adaptation plans for health	
	2.2: City-level climate change risk assessments	
	2.3: Detection, preparedness and response to health emergencies	
	2.4: Climate change adaptation to vulnerabilities from mosquito-borne diseases	
	2.5: Climate information services for health	
	2.6: National assessments of climate change impacts, vulnerability, and adaptation for health	
	2.7: Spending on adaptation for health and health-related activities	
	2.8: Health adaptation funding from global climate financing mechanisms	

Indicators of Progress

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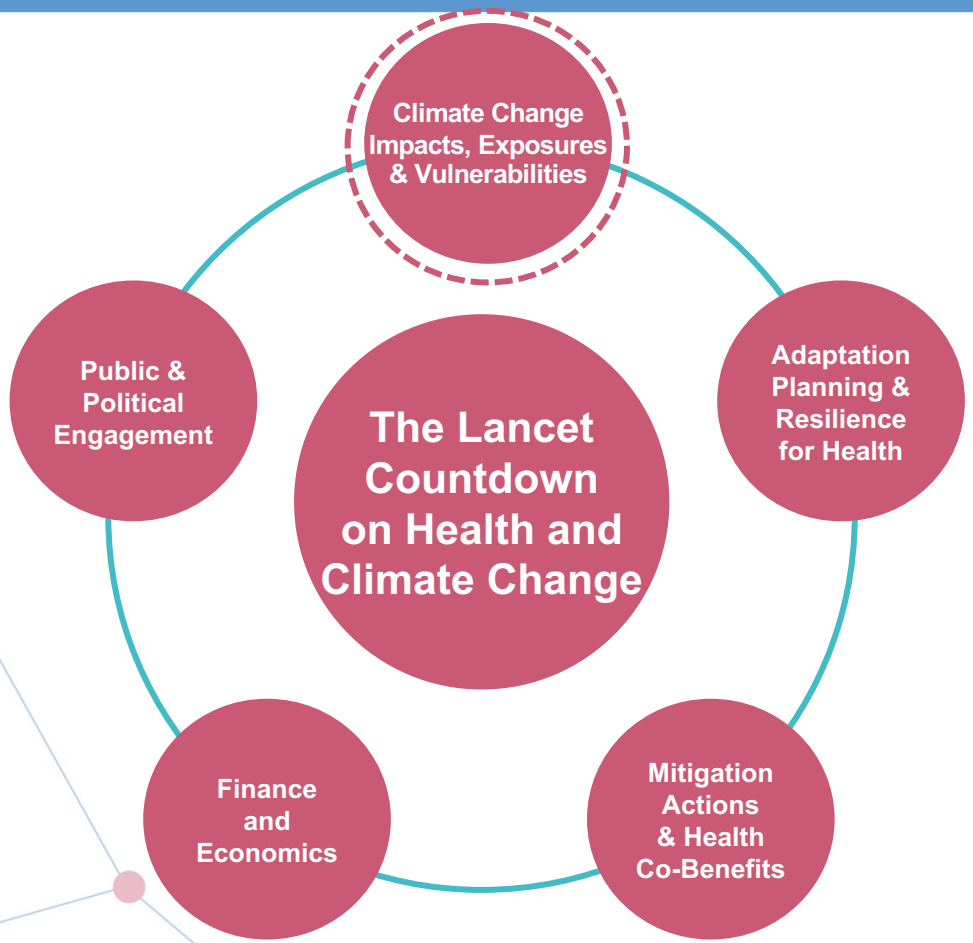
Working Group	Indicator	
Mitigation Actions and Health Co-Benefits	3.1: Carbon intensity of the energy system	
	3.2: Coal phase-out	
	3.3: Zero-carbon emission electricity	
	3.4: Access to clean energy	
	3.5: Exposure to ambient air pollution	3.5.1: Exposure to air pollution in cities
		3.5.2: Premature mortality from ambient air pollution by sector
	3.6: Clean fuel use for transport	
	3.7: Sustainable travel infrastructure and uptake	
	3.8: Ruminant meat for human consumption	
	3.9: Healthcare sector emissions	
Finance and Economics	4.1: Economic losses due to climate-related extreme events	
	4.2: Investments in zero-carbon energy and energy efficiency	
	4.3: Investment in new coal capacity	
	4.4: Employment in renewable and fossil fuel energy industries	
	4.5: Funds divested from fossil fuels	
	4.6: Fossil fuel subsidies	
	4.7: Coverage and strength of carbon pricing	
	4.8: Use of carbon pricing revenues	
Public and Political Engagement	5.1: Media coverage of health and climate change	
	5.2: Coverage of health and climate change in scientific journals	
	5.3: Engagement in health and climate change in the United Nations General Assembly	
	5.4: Engagement in health and climate change in the corporate sector	

Working Group 1: Climate Change Impacts



1.1. Vulnerability to the heat-related risks of climate change

1.2. Health effects of temperature change

1.3. Health effects of heatwaves

1.4. Change in labour capacity

1.5. Health effects of extremes of precipitation (flood and drought)

1.6. Lethality of weather-related disasters

1.7. Global health trends in climate-sensitive diseases

1.8. Climate-sensitive infectious diseases

1.9. Food security and undernutrition

1.10. Migration and population displacement

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Climate Change and Mental Health

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Extreme weather events, has well-known severe impacts on people's health, but, **less known** are the **mental health impacts**. Heat may for example cause an increased risk of schizophrenia, bipolar disorder, and even suicide.

More research is required to deeper investigate these connections.

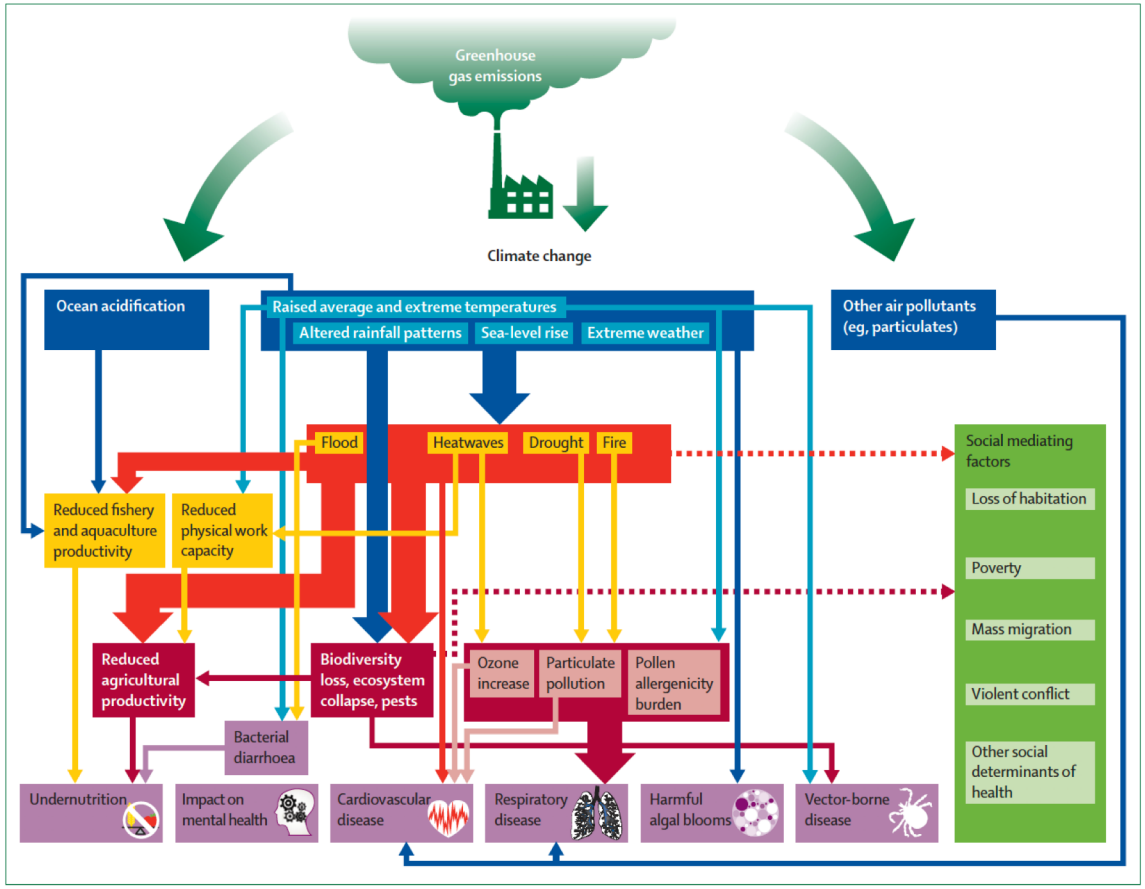

Figure 1: The pathways between climate change and human health

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2018 Key Messages

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1. **Impact**: “Present day changes in labour capacity, vector-borne disease, and food security provide **early warning of compounded and overwhelming impacts** expected if temperature continues to rise.”

2. **Delay**: “A **lack of progress in reducing emissions and building adaptive capacity threatens both human lives and** the viability of the **national health systems** they depend on, with the potential to disrupt core public health infrastructure and overwhelm health services.”

3. **Opportunity**: “Despite these delays, trends in a number of sectors **see the beginning of a low-carbon transition**, and it is clear that the nature and scale of the response to climate change will be the determining factor in shaping the health of nations for centuries to come.”

Tracking Progress from 2018 to 2030

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Annual publications in The Lancet:

- Strengthen indicators through an iterative and adaptive process
- Communications, outreach, and policy engagement
- Visit: www.lancetcountdown.org

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Drop-Resist: Linking Drought and Health

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Drought, **P**overty and HIV Drug **Resist**ance: threat to resilience in a vulnerable rural setting (**DROP-RESIST**)

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Drop-Resist: Direct and Indirect Impacts

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Climate change can affect human health both directly and indirectly:

- The ***direct health impacts*** include the effects of exposure to higher temperatures, such as respiratory diseases or injuries and death due to extreme weather events such droughts, floods, heatwaves, and storms.
- The ***indirect effects on health*** due to ecological changes or societal responses, include food and water insecurity, population displacement and reduced access to health services.

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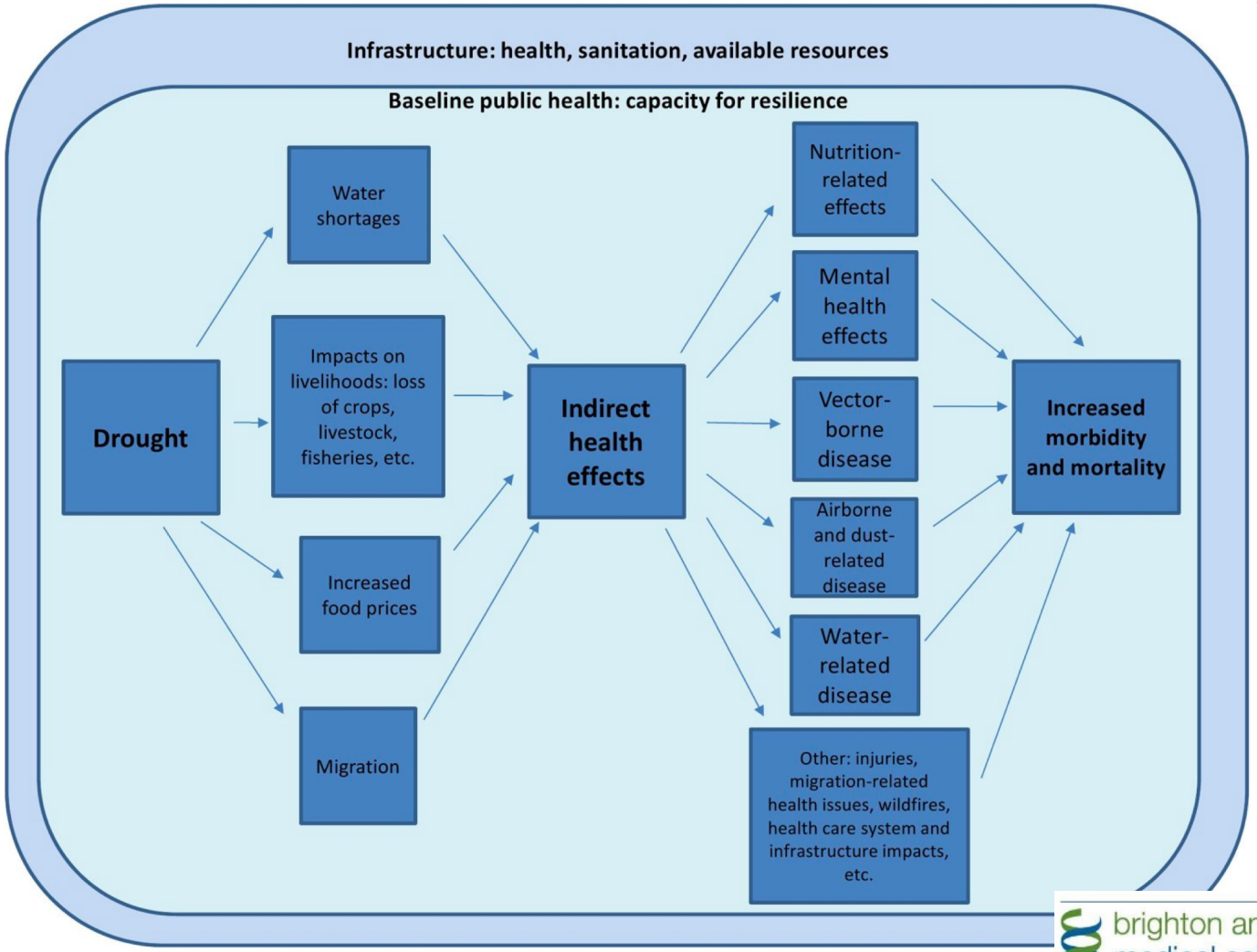
Drop-Resist: Linking Drought and Health



Stanke et al. 2013

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Drop-Resist: Aim

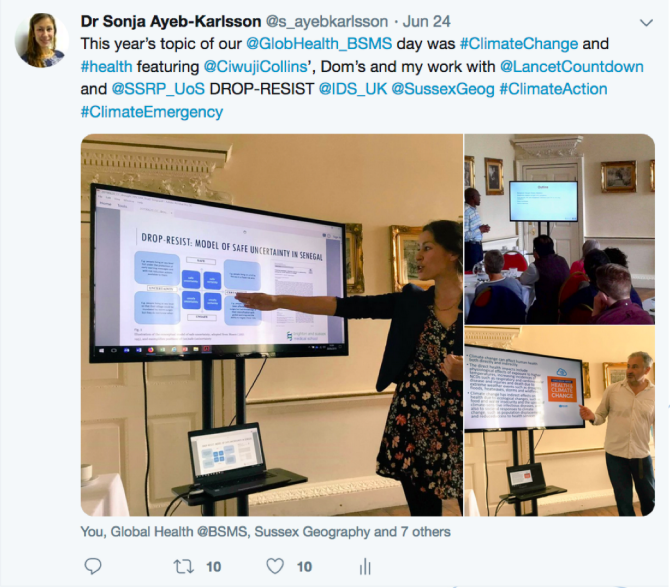
We aim to understand the difficult trade-offs HIV-positive individuals face daily between health care utilisation (SDG 3) and pursuit of economic sustenance (SDG 8) by investigating the increased vulnerability created by drought (SDG 13) and poor socioeconomic status (SDG 1) .

SDG 1: No Poverty

SDG 3: Good health and Well-being

SDG 8: Decent Work and Economic Growth

SDG 13: Climate Action



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Drop-Resist: Hypothesis

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The hypothesis is that the added stress from drought contributes to HIV-positive individuals ***prioritising their means of livelihood over their health*** *resulting in poor engagement with care and HIV drug resistance in the district.*

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Drop-Resist: Risk, Emotions and Behaviour

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People's behaviour, emotions and perceptions around risk help us understand:

- *How* and *why* people respond in certain ways to climatic stressors and shocks
- *Why* some of these responses fail, and can trigger physical and/or psychological ill-health
- *What* policy and practical action is required to best support vulnerable people/populations

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Drop-Resist: Risk, Emotions and Behaviour

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Regional Environmental Change
https://doi.org/10.1007/s10113-019-01495-7

ORIGINAL ARTICLE

Check for updates

Embracing uncertainty: A discursive approach to understanding pathways for climate adaptation in Senegal

Sonja Ayeb-Karlsson[1,2] · Gino Fox[3] · Dominic Kniveton[3]

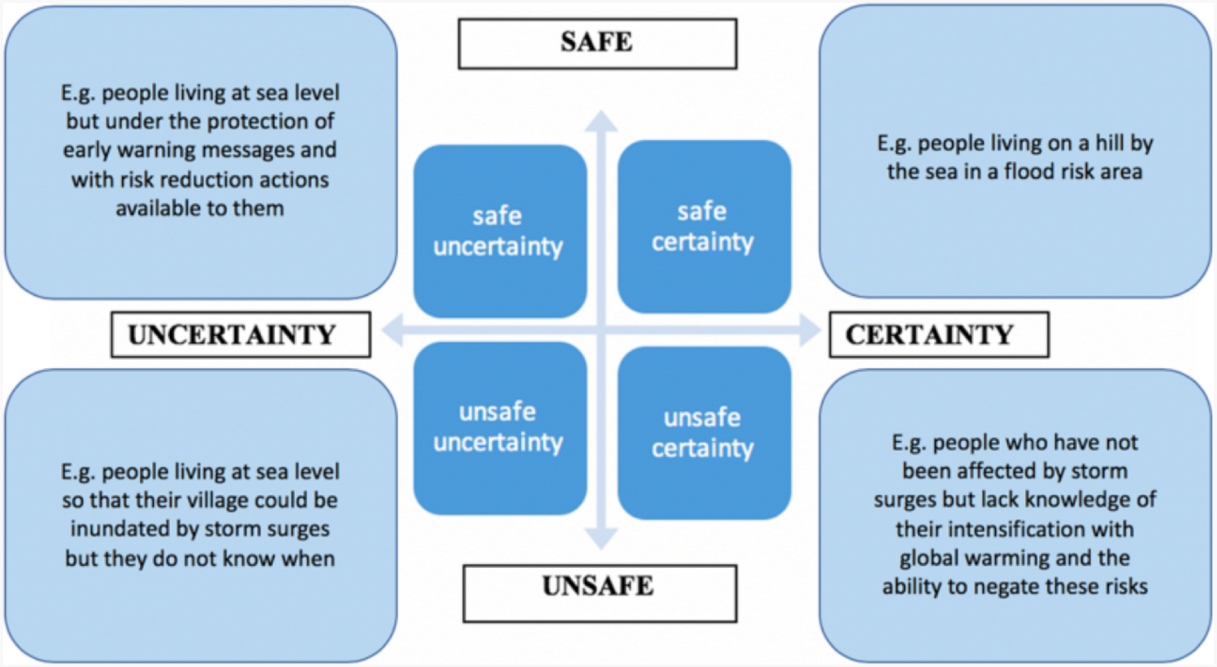

Fig. 1
Illustration of the conceptual model of safe uncertainty, adopted from Mason (1993: 195), and exemplifies positions of (un)safe (un)certainty

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Drop-Resist: Behavioural pathways

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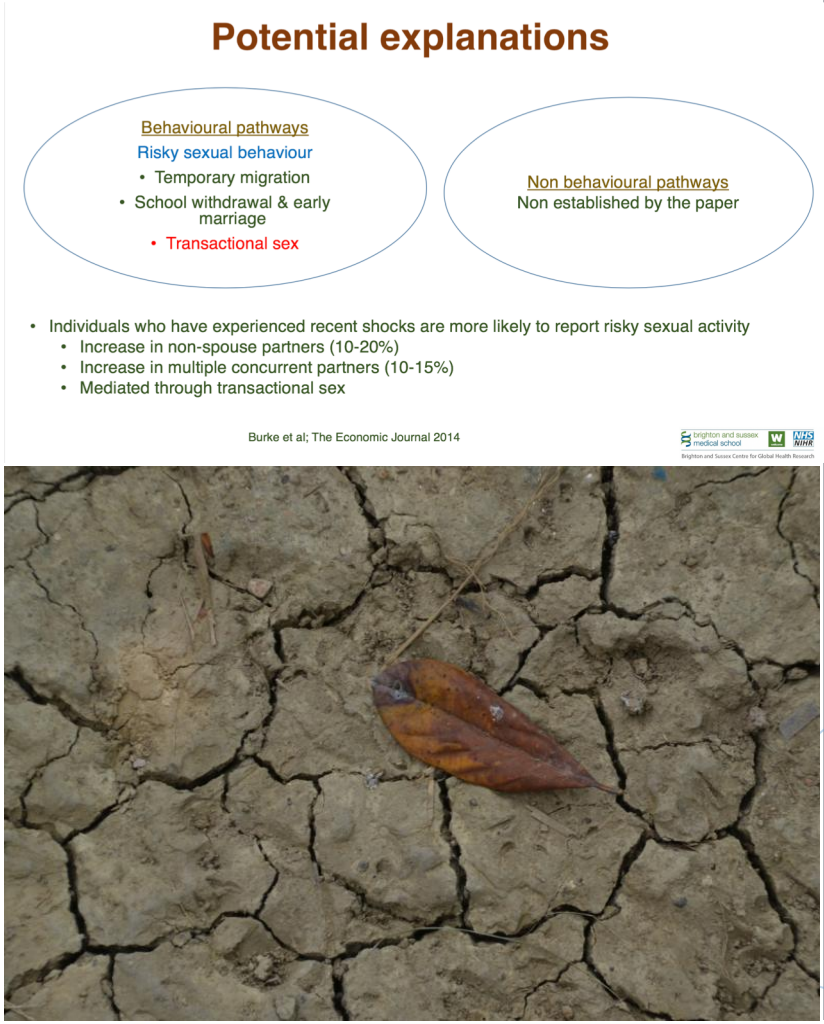
Potential explanations of behavioural pathways between drought and HIV include:

- Risky sexual behaviour
- Temporary and seasonal migration
- School withdrawal (early marriage)



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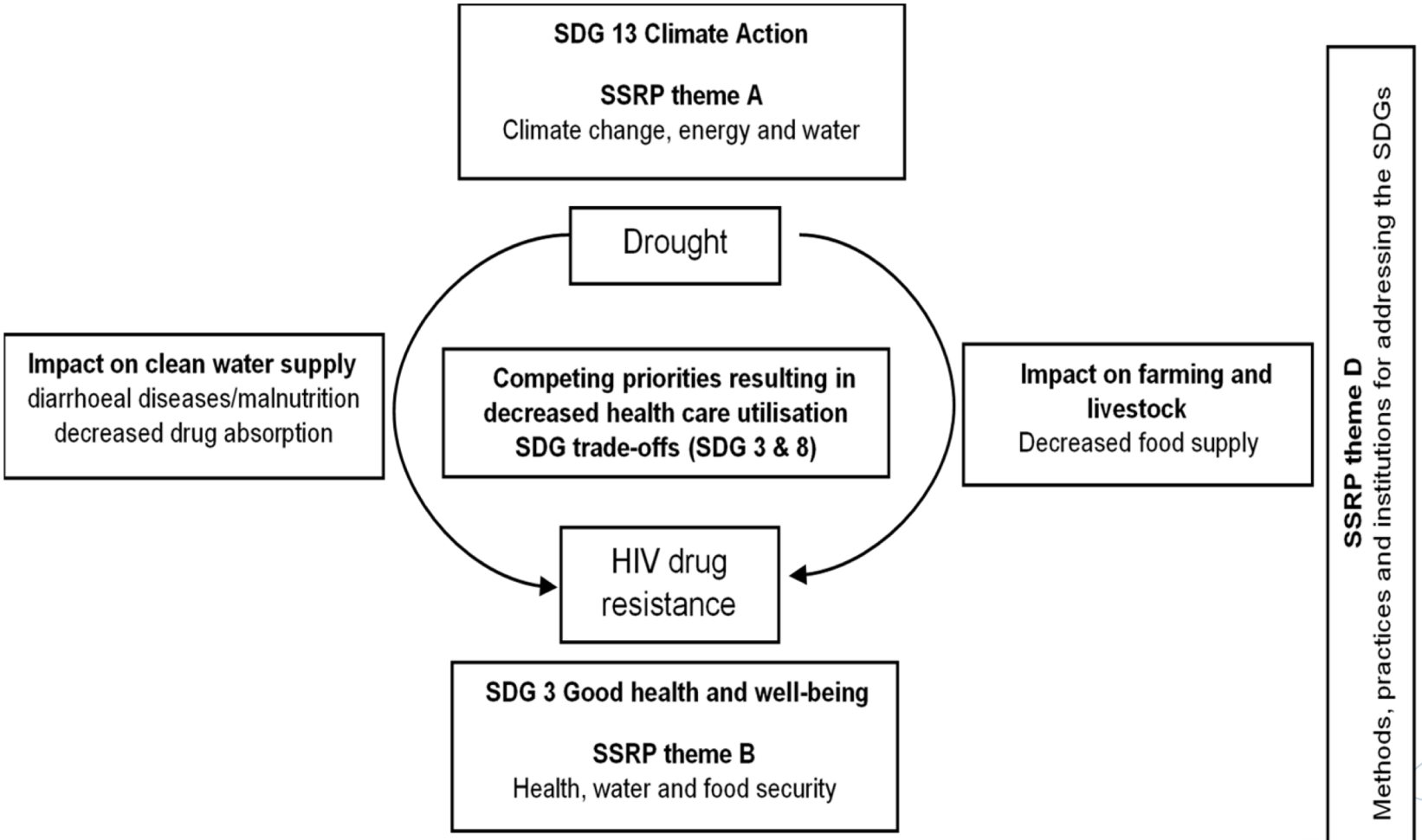
Drop-Resist


SDG 13 Climate Action
SSRP theme A
Climate change, energy and water
Drought
Impact on clean water supply
diarrhoeal diseases/malnutrition
decreased drug absorption
Competing priorities resulting in decreased health care utilisation
SDG trade-offs (SDG 3 & 8)
Impact on farming and livestock
Decreased food supply
HIV drug resistance
SDG 3 Good health and well-being
SSRP theme B
Health, water and food security
SSRP theme D
Methods, practices and institutions for addressing the SDGs

Drop-Resist: A systems approach

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PERSPECTIVE | FOCUS
https://doi.org/10.1038/s41558-018-0102-4
nature climate change

The case for systems thinking about climate change and mental health

Helen L. Berry[1*], Thomas D. Waite[2], Keith B. G. Dear[3], Anthony G. Capon[1] and Virginia Murray[2]

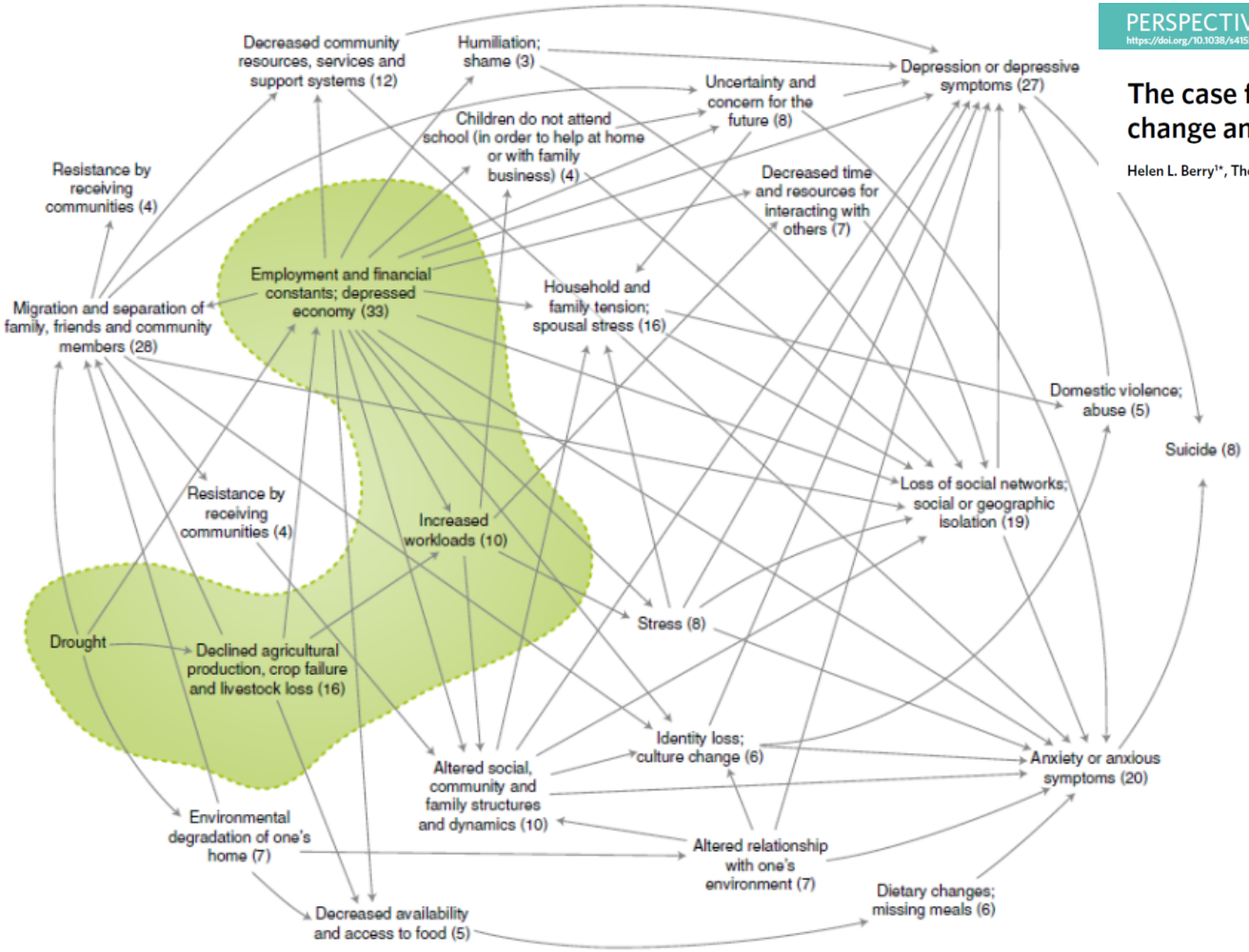

Fig. 1 | Causal process diagram for the mental health effects of drought based on a systematic review. Numbers in brackets indicate the quantity of papers meeting the search criteria located for each factor. The shaded area shows how the systems diagram can be used to isolate meaningful sub-systems for research and analysis, in this case, drought-related socio-economic factors and pathways that ultimately affect mental health. Adapted from ref. [73] (MPDI).

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Drop-Resist: A systems approach

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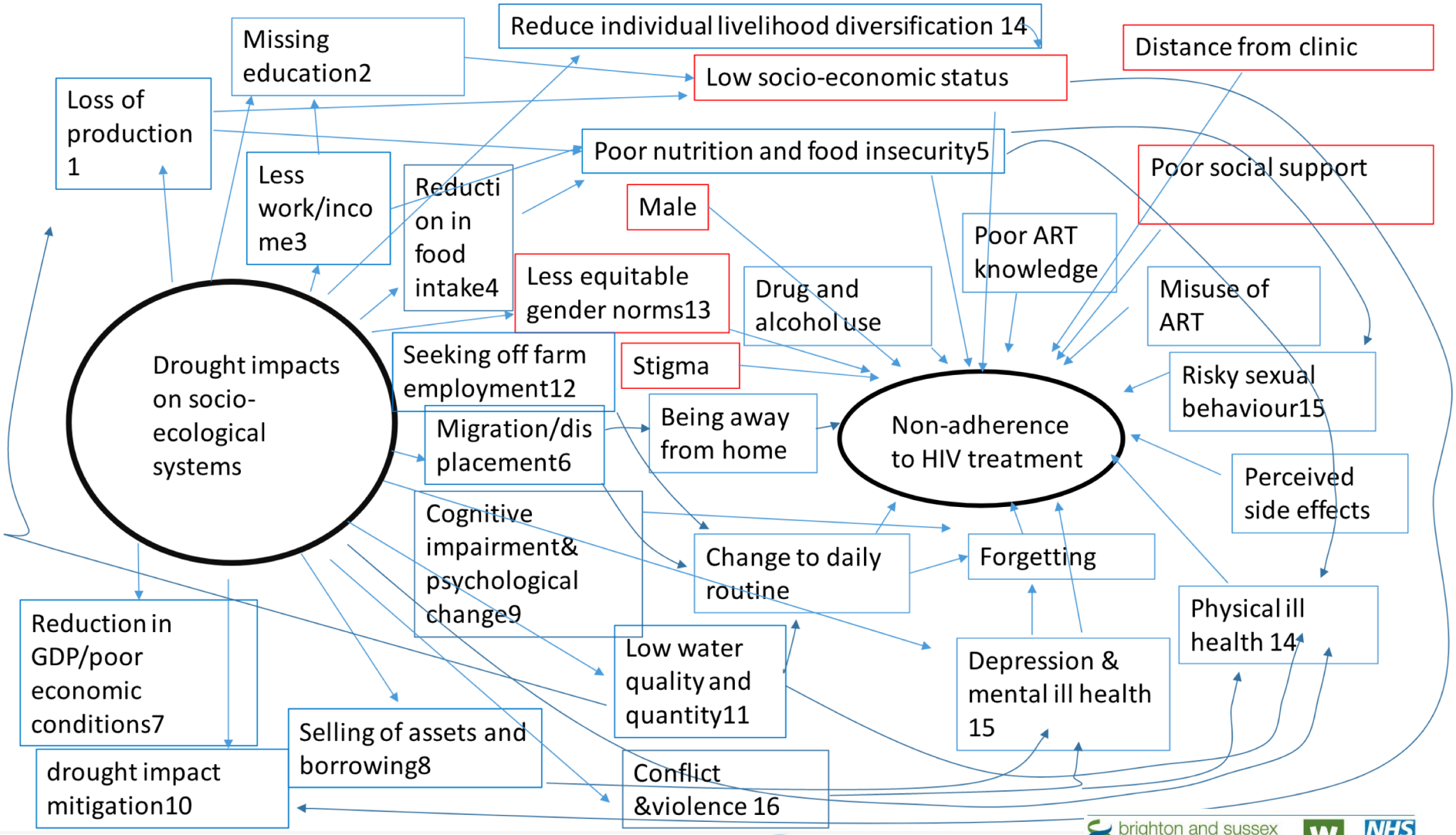

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Drop-Resist: Project Team

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Principal Investigators: Dr Collins Iwuji, Prof Deenan Pillay

Co-Investigators:

University of Sussex:

Dr Sonja Ayeb-Karlsson, Prof Dominic Kniveton, Prof Bobbie Farsides, Dr Anne Roemer-Mahler

Institute of Development Studies: Dr Hayley MacGregor (IDS)

African Health Research Institute: Dr Kobus Herbst, Prof Janet Seeley

Dr Kingsley Orievulu (Post-Doctoral Fellow)

Ms Ursula Ngema (Research Assistant)

London School of Hygiene and Tropical Medicine: Dr Kathy Baisley

University of Lincoln: Prof Frank Tanser (University of Lincoln)

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Thank You

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