

Island in the Storm

Evaluating New Zealand's Resiliency to the Unthinkable Consequences of Nuclear Conflict

Dr Matt Boyd

Adapt Research Ltd

NZCat Team: Prof Nick Wilson, Dr Ben Payne, Sam Ragnarsson, Simon Terry

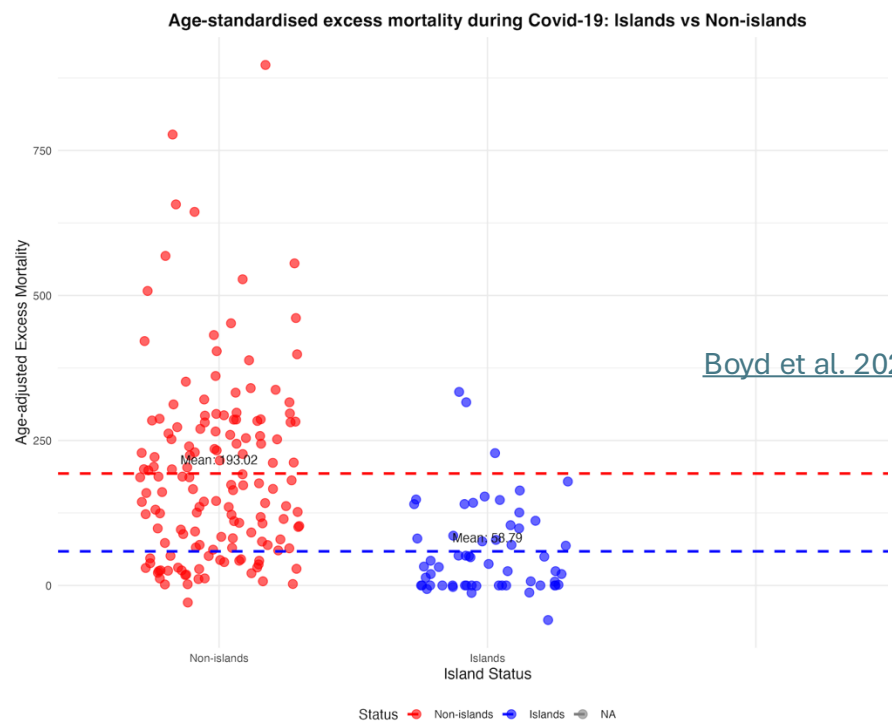
Adapt Research

As we build our world we build our minds

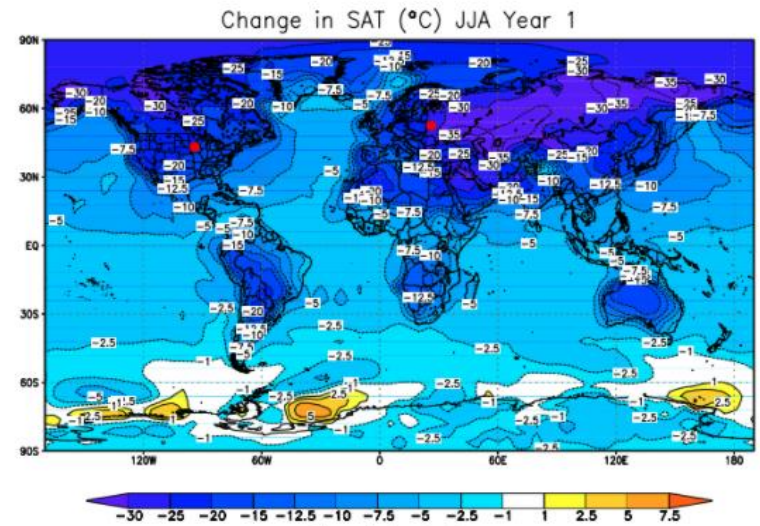
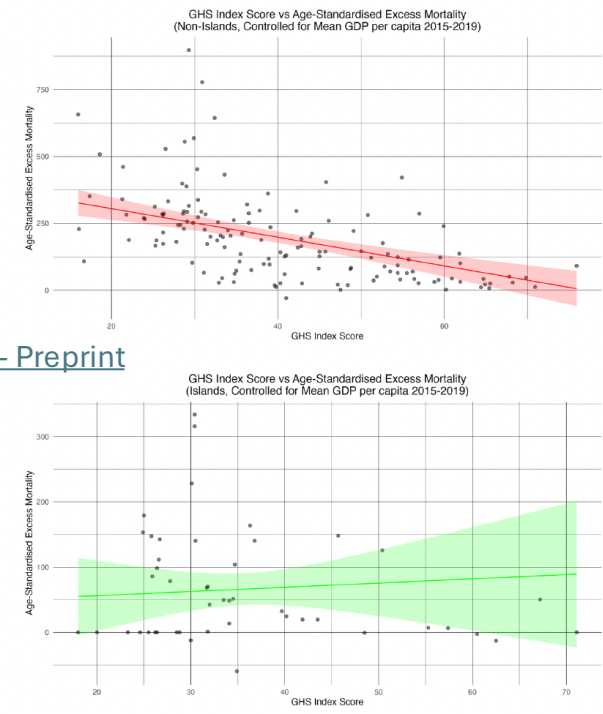


Funding: Philanthropic & volunteer; Thanks to CSER for travel support

Islands have special features



Boyd et al. 2024, *MedRxiv* - Preprint



Surface air temperature changes for the 150 Tg case averaged for June, July, and August of the year of smoke injection and the next year. Robock et al., 2007

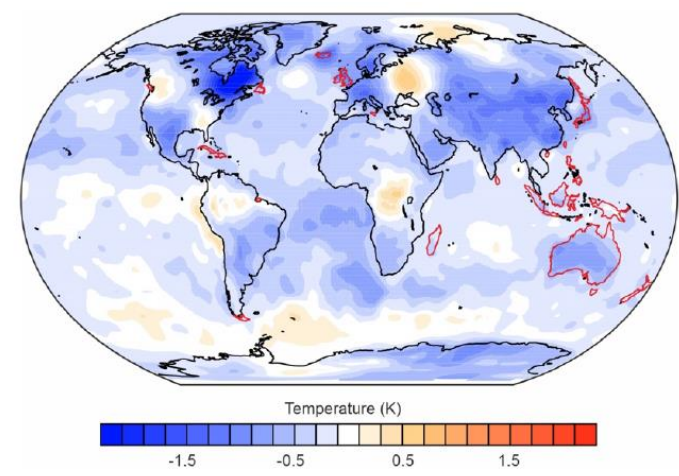
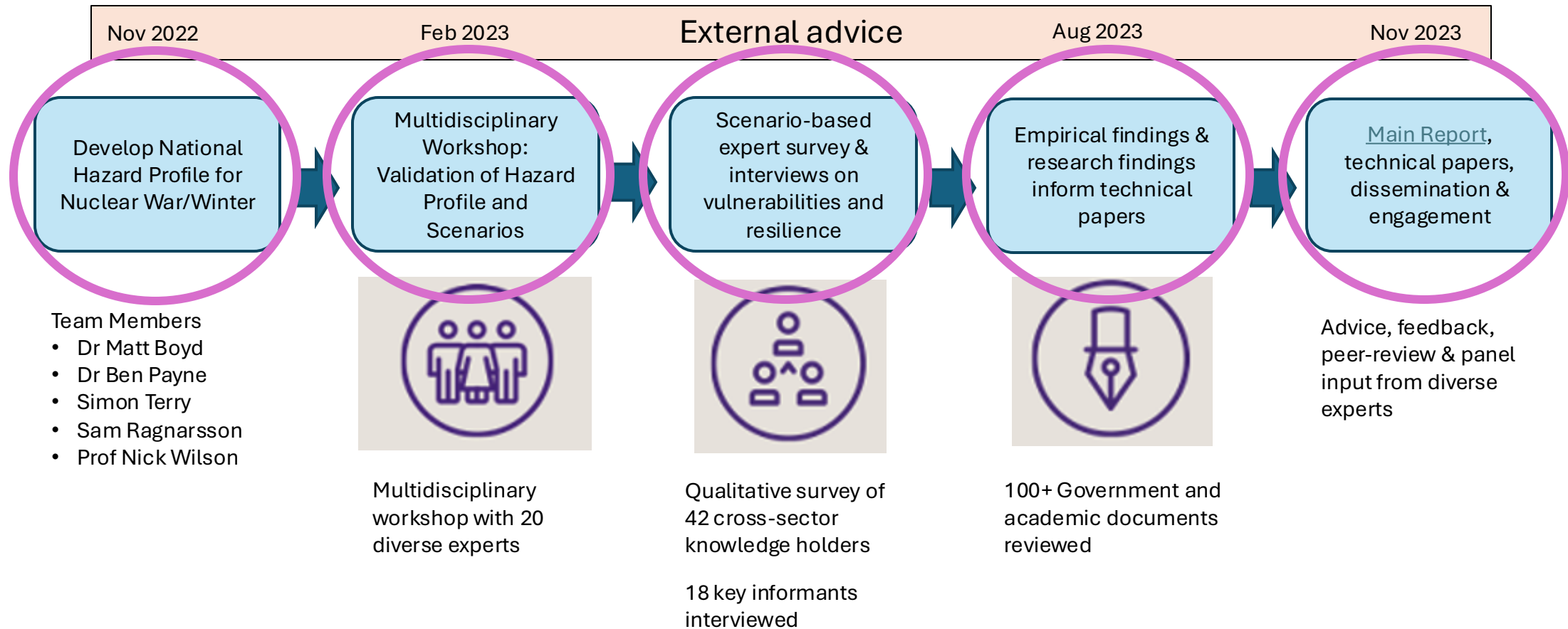


Figure 3
Reconstructed temperature anomalies in 1816 ("the year without a summer") relative to the "non-volcanic" reference period (1779 to 1808) using monthly data from the reconstruction EKF400v2

Wilson et al. 2024, *Scientific Reports*

NZCat Project: Resilience to nuclear war/winter



Aotearoa New Zealand
Catastrophe Resilience Project (NZCat):
Nuclear War/Winter Hazard Profile

[Link](#)



'EXTERNAL' Context Systemic Risk



Nuclear War

**Physical
destruction**

**Nuclear
Winter**

Trade Isolation

'INTERNAL' Aotearoa NZ

**Economic
disruption**

**Risk Analysis &
Management**

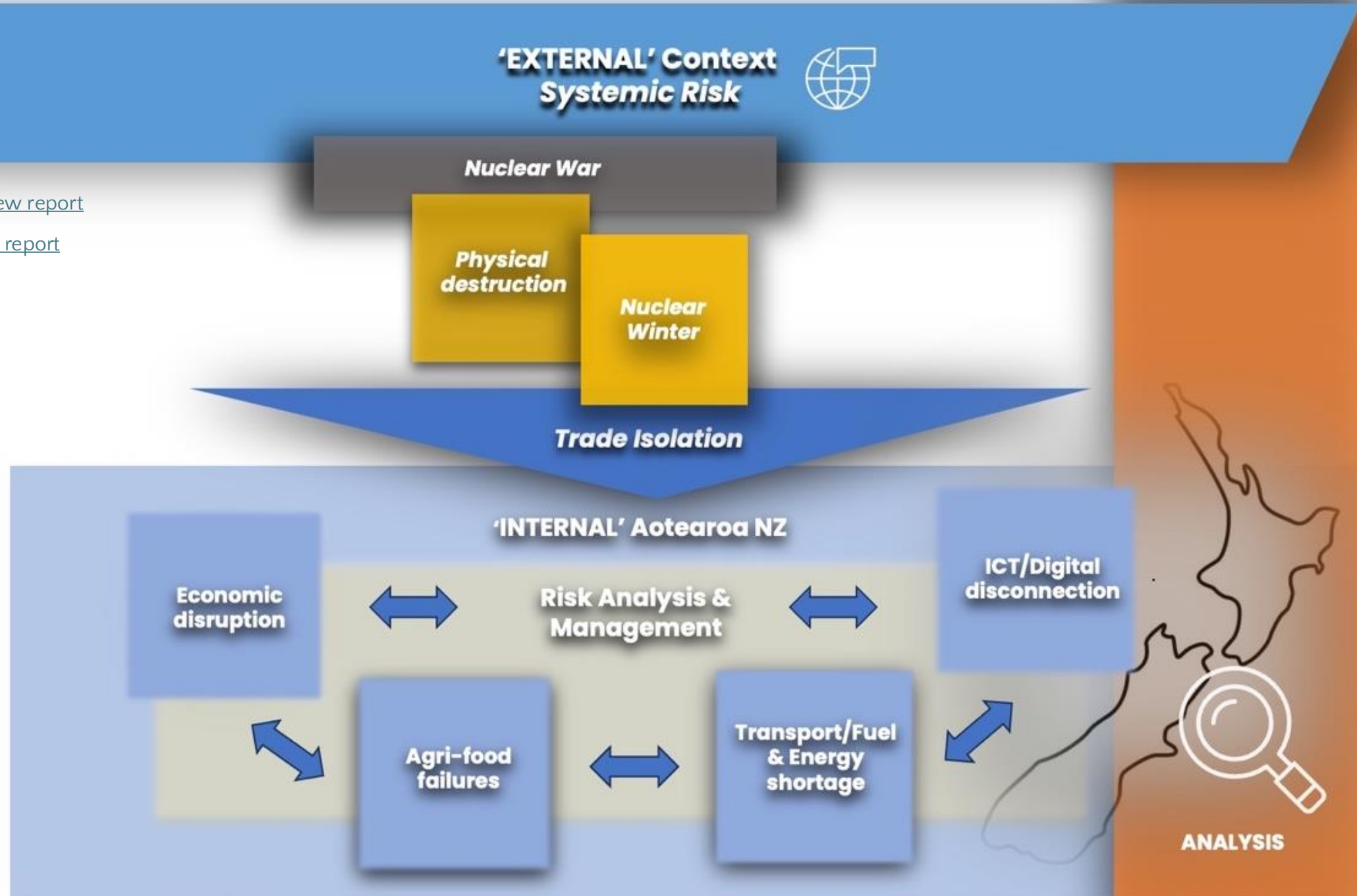
**ICT/Digital
disconnection**

**Agri-food
failures**

**Transport/Fuel
& Energy
shortage**

ANALYSIS

- [Interview report](#)
- [Survey report](#)



“if we don’t have diesel. You know, it’s pretty simple... There’s no way to get back to horse[s] ... there’s no machinery to do it that way ... all the mechanisation we use is run on diesel.”



“I do not think that the transport sector in New Zealand is at all well equipped to organise itself in the absence of internet and ‘usual’ government processes.”

“simply not having enough people that understand what they are using... most organisations have little to no expertise inhouse... what is taken care of within NZ, is usually in the hands of few experts in companies like DATACOM.”

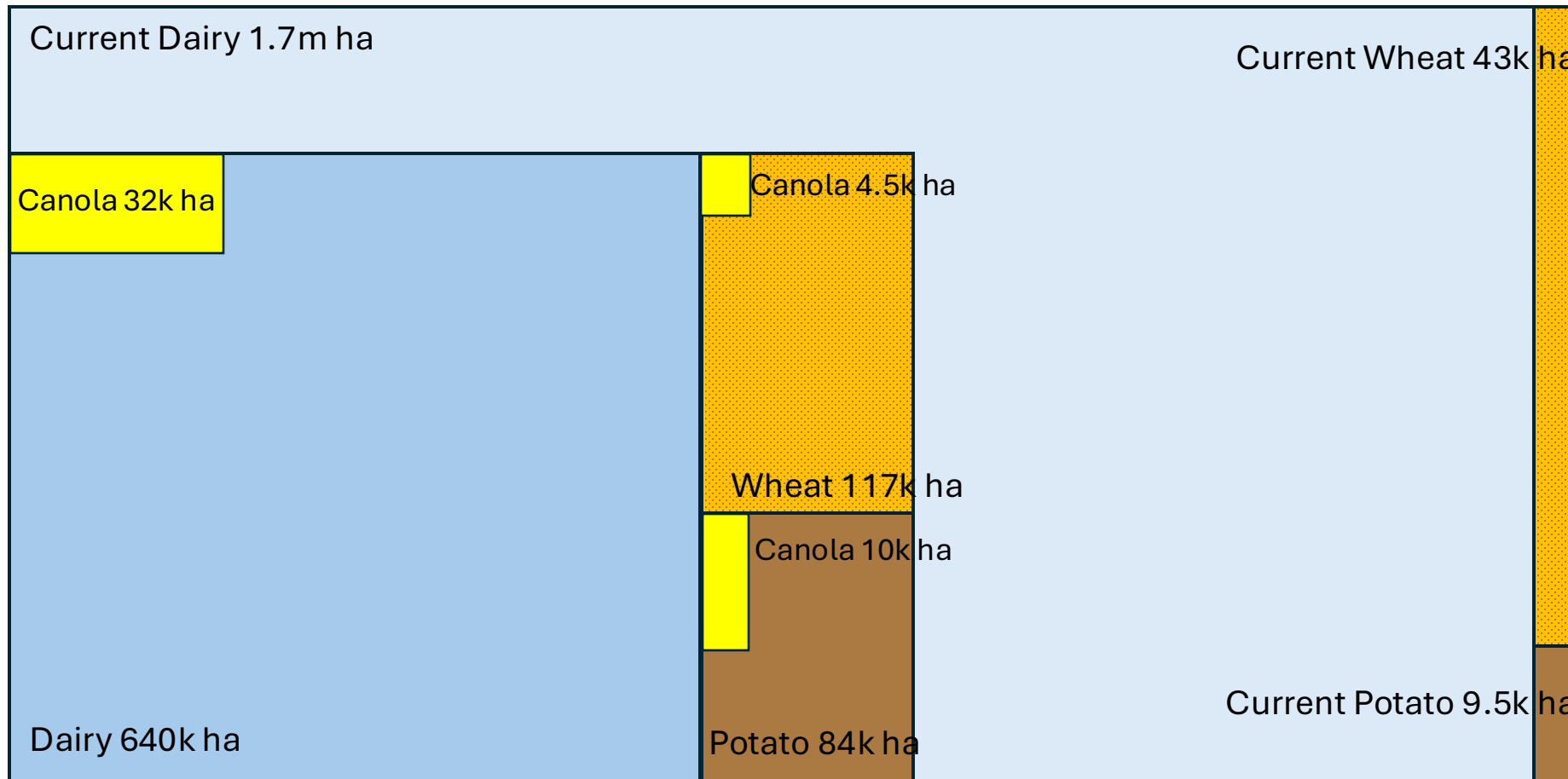
“Focus on harvesting required produce, and on [the] most productive land. Marginal land for production would be left fallow”

“A working group to develop a food security strategy would enable these issues to be properly considered, investigated and responses planned”

“Put in place [a] coordinated national ‘Digital Communications Continuity Plan’ which provides onshore fallback for core communications, payments, government, food distribution and internet services.”

**Mitigating imported fuel dependency in agricultural production:
Case study of an island nation's vulnerability to global
catastrophic risks**Matt Boyd¹  | Sam Ragnarsson² | Simon Terry³ | Ben Payne¹ | Nick Wilson⁴ 

Basic Needs: Food

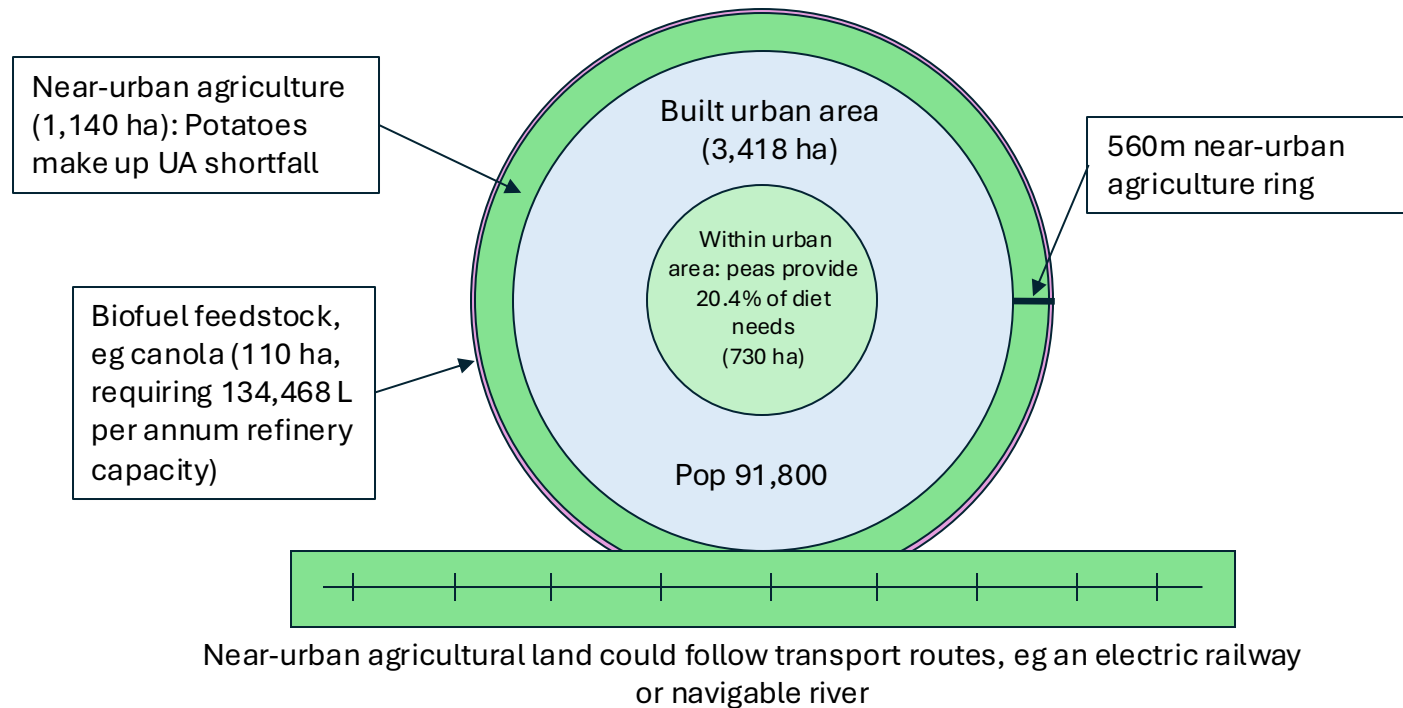


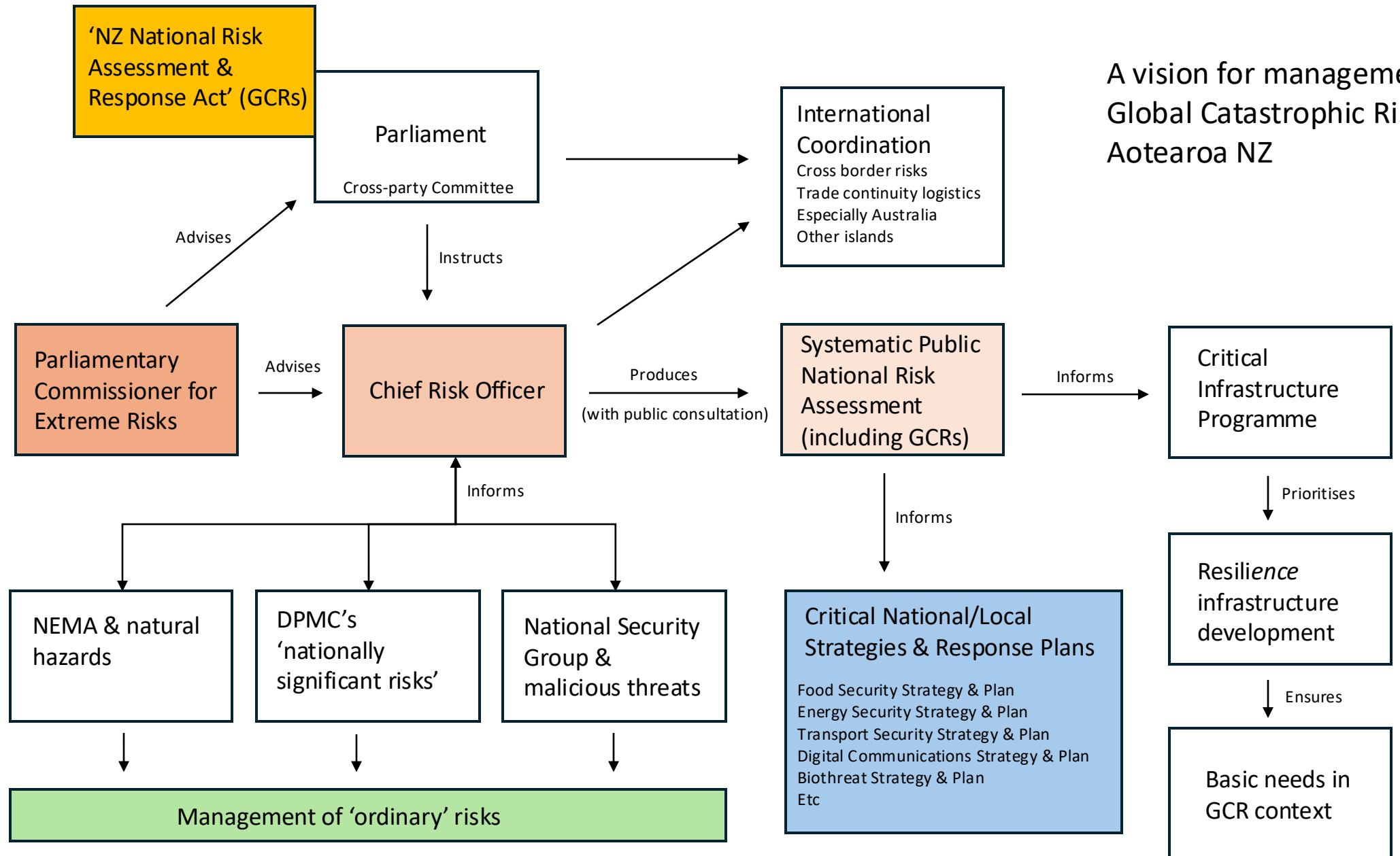
“food production consumed approximately 295 million L of diesel” [per annum]

“biodiesel, could supply the 5–15 million L needed for wheat production” [to supply food calories to the NZ population]

Urban and near-urban agriculture for global catastrophe resilience

A food security strategy for a median sized city in the normal climate scenario (shapes to scale)





A vision for management of
Global Catastrophic Risk in
Aotearoa NZ

Impact



Informal in-person Consultation on a draft UNGA resolution

Nuclear War Effects and Scientific Research

Hosted by Ireland and New Zealand

11 September, 2024, 13:15-15:00 CET

Box 2. Global catastrophic risks

The risk of extreme catastrophic disasters – such as nuclear winter, or a complete disintegration of world trade – is beyond the scope of this inquiry. However, submissions expressed concern that New Zealand is not equipped for such global catastrophes, even if our geography could enable us to be more self-sufficient than the rest of the world.

The New Zealand Government's central agencies steer the governance and management of nationally significant risks (including a broad set of hazards and national security threats) and emergency response. The Department of the Prime Minister and Cabinet (DPMC) has system leadership and coordination roles focused on building resilience to critical national risks, and the National Emergency Management Agency (NEMA) leads overall civil defence and emergency management.

Existing powers under the Civil Defence Emergency Management Act 2002 provide NEMA with a blanket authority to manage catastrophic risks, as for any other emergency. However, the scale, scope and intensity of their impacts would far exceed those caused by natural disasters (Green et al., 2022). Although the likelihood of global catastrophic risks is low, New Zealand's current preparation for them appears weak.

While long-term disruptions are beyond the scope of this inquiry, the potential impacts of global catastrophic risks are severe and wide ranging. The DPMC should support independent research to evaluate these risks for New Zealand. This could be part of current work programmes, such as the DPMC's assessment of national security risks and NEMA's National Disaster Resilience Strategy.

NZ's Fuel Security Study: An opportunity to ensure survival



Adapt Research

June 20, 2024

Uncategorized

energy, renewable-energy, sustainability

Edit



Photo by [Adolfo Félix](#) on [Unsplash](#)

TLDR/Summary

BLOG STATS

• 27,479 hits

PREVIOUS POSTS

- [NZ's Fuel Security Study: An opportunity to ensure survival](#)
June 20, 2024
- [New study – local biofuels would increase NZ survival chances after global catastrophe](#)
April 7, 2024
- [MAIN REPORT: Aotearoa NZ, Global Catastrophe, and Resilience Options](#)
November 16, 2023
- [Kōrero on Catastrophe: NZCat webinar/panel discussion on resilience to nuclear war and other global risks](#)
October 29, 2023

[Adapt Research Blog, 20 June 2024](#)

[NZ Productivity Commission: Improving Economic Resilience \(2024\)](#)

Key Messages

- Islands are important
 - 10% of world's population
 - Major food exporters
 - xRisk refuges if self-sufficient
- Risk analysis must anticipate destruction not just disruption
- Much resilience is hazard agnostic, solve for nuclear, solve for all

Aotearoa NZ, Global Catastrophe, and Resilience Options:
Overcoming Vulnerability to Nuclear War
and other Extreme Risks

version 1.0



Image credit: Colin Watts, Unsplash

NZCat & Adapt Research Ltd

Nov 2023

[NZCat Main Report 2023](#)

Next Steps



OUR APPROACH

ISLANDS FOR THE FUTURE OF HUMANITY is a non-partisan collaborative think tank. We develop resilience options to help ensure island nations can weather the impact of global catastrophes.

Our work includes evidence-based research reports, empirical studies, and events promoting approaches to mitigate risks such as nuclear war or extreme pandemics.

We curate evidence, coordinate catastrophe research, and create engaging online and in-person gatherings. We act to inform and assist communities, central government, and essential services, in achieving societal resilience to global catastrophes.

We are starting in New Zealand but hope all islands can learn from our work.

METHODS



www.islandfutures.earth



[NZCat Webinar 25 Oct 2023](#)