

Natural Hazards and Resilience Platform

Update for WIOF Collab
5 November 2025

2009–2019 Natural Hazards Research Platform



2014–2024 Resilience National Science Challenge



2024–2031 Natural Hazards and Resilience Platform

Canterbury
earthquakes

Cook Strait
earthquakes

Kaikoura &
Hurunui
earthquakes

Port Hills fire

Rangitata
floods

Whakaari
eruption

Buller
floods

Nelson severe
weather

North Island
severe weather

???

The Natural Hazards and Resilience Platform 2025-2031

Three core science themes

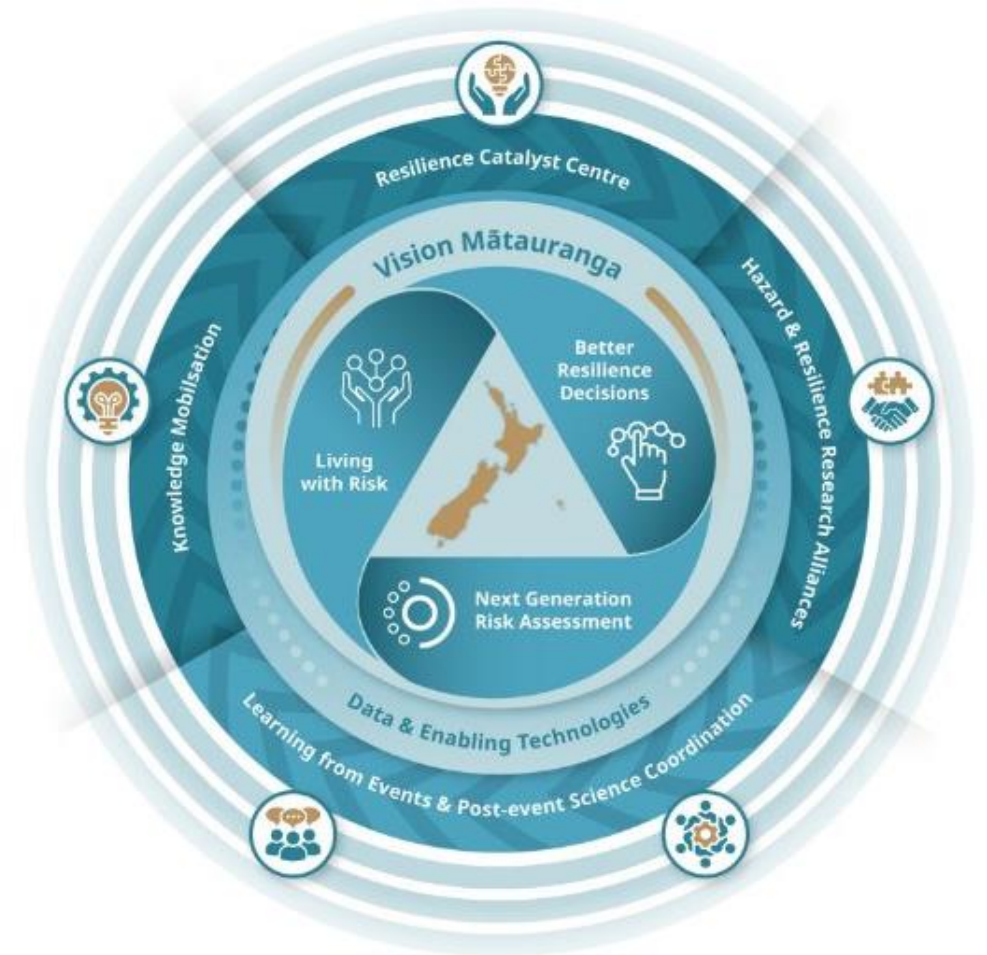
- Living with Risk
- Better Resilience Decisions
- Next Generation Risk Assessment

Two interwoven programmes

- He Waka Manawaroa – Vision Mātauranga
- Data and Enabling Technologies

Four Enabling Functions

- Post-event Science Coordination and Learning from Events
- Knowledge Mobilisation
- Hazard and Resilience Research Alliances
- Resilience Catalyst Hub





Living with Risk

Julia Becker



Better Resilience Decisions

Iain White



Dynamic Risk Trajectories

Liam Wotherspoon



He Waka Manawaroa

Melanie Mark-Shadbolt



Data and Enabling Technologies

Bill fry

Capability Retention Funding

- MBIE defined funding and priorities
- Independent Advisory Group advice on ECR and retention support.
- Also, contingency for post-event response

Project themes

Nationally consistent multi-hazard assessments for Aotearoa New Zealand

Capacity retention for physics-based earthquake simulators and integrated multi-risk digital twin workflows

Te Are o Puia – volcanic eruption scenarios

Natural Hazard impacts on culture, community and ecological resilience
Te Aka: Building enduring research connections in Te Tairāwhiti

Ngā Kōrero Parekura: Tangata whenua perceptions and experiences of risk reduction, emergency management, recovery and resilience in Te Tau Ihu

Increasing Papatūānuku-scale resilience of tangata whenua to natural hazards

Retaining capability in volcano monitoring and geophysics

Preparing for a future eruption in Auckland: insights from past & present volcanic gas

Leveraging Historic Floods to Enhance Flood Hazard Modelling for Future Climates

Resilient Coasts: Integrating Data for Hazard Preparedness

Understanding dynamic population exposure and time-varying natural hazard risks

Some Potential Priority Projects

Based on strong user and next user demand, priority work in the first 24 months likely to focus on:

Archetypes of inaction: Review and synthesise lessons not learned or applied

Fit for purpose/adaptive recovery, jointly across themes (and supported by early work in Vision Mātauranga and Data and Enabling Technologies)

National-level exposure and first-iteration (screening tool) risk assessment based on:

- Nationally consistent natural hazard datasets
- Nationally consistent exposure datasets across all natural hazards
- Dynamic population exposure models
- Testing of exposure/risk combination approaches for various applications

Priorities Next 3-9 Months

Design and implementation of post-event science coordination function

Expression of Interest for rapid research for severe wind event

Project design and initial research team formation [Expression of Interest process to identify participants]

Student funding round early next year (TBD)

Engagement with users/implementation partners for specific project co-design

Enabling function design initiation

Participation Opportunities



**Theme and
Programme
project
design**

Next 6
months



**Planning
for post-
event
research
responses**

Initial
design next
6 months
then on-
going



**Priority
project
workshops**

Next 3-9
months



**Annual
researcher
meeting –
TBD**

From 2026



**Theme and
programme
meetings
and
workshops**

As needed



**Student
and ECR
activities**

TBD



**Funding
Rounds**

TBD – likely
student
rounds
annually

The Post-Event Science Coordination Function

Requested by MBIE, endorsed by NEMA

Aims to formalise an ad-hoc and unmandated role played by the Resilience National Science Challenge (2014-2024) and Natural Hazards Research Platform (2009-2019) during previous events

The function will aim to ensure that:

- Post-event **natural hazard research** activities are **aligned and well-coordinated**.
- Natural hazard/resilience research **connected and harmonised** with **wider science and technical responses**
- **Perishable data** related to **impacts in the built and social/human environments** can be collected and analysed and shared.
- **Emerging science insights** are **communicated** effectively to relevant **response and recovery agencies and communities**.
- **Lessons and insights** are **captured to drive future resilience**.

