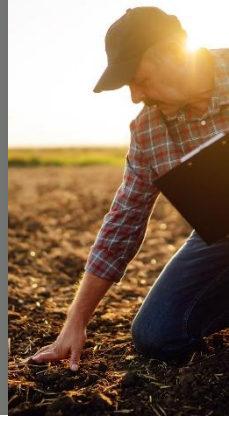


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Science for Healthy People & Healthy Systems. In Brief.



THE PROBLEM: Modern science systems should function as an intelligent national knowledge system, but New Zealand lacks a dedicated long-term capability for sustained public-good research into environmental health, agricultural system resilience, and the underlying determinants of population wellbeing. Basic research to understand pollution and human health drivers is poor.

Responsibility for research and science was historically kept at a distance from political agencies, but in 2013–2014 New Zealand's science system was put under the control of the Ministry of Business, Innovation and Employment (MBIE) – the very moment it was created. Officials achieved this quietly, through secondary legislation. There was little opportunity for parliamentary scrutiny or public input into a decision that fundamentally altered how the nation's research and science system is directed.

Responsibility for science system policy and much of the nation's research funding was therefore placed within an agency structurally oriented toward economic outcomes. No explicit public-good science obligations were embedded in MBIE's legislative purpose.

This is the irony – many human and environmental health problems are a consequence of exposures to the very innovations that are developed to support economic growth and innovation. MBIE subsequently developed policies that required research proposals to consistently show a pathway to 'innovation'. Funding favours research capable of producing identifiable technological or commercial outputs. The direct impact was that knowledge-driven public-good research, particularly work aimed at understanding emerging risks, chronic problems and system failures, became harder to prioritise. Research into environmental monitoring from industrial, agricultural and urban non-climate emissions, soil degradation, water contamination, and research untangling the broader determinants of human health is rare and short term.

Yet innovation is most effective when it is grounded in a deep understanding of the problems it seeks to address. Many national challenges are complex and interconnected, requiring multidisciplinary research, sustained monitoring, and long-term knowledge development. By prioritising innovation pathways as a funding condition, the system shifted away from science's primary function: generating reliable knowledge about how human, environmental and productive systems are performing. Researchers increasingly frame projects around innovation outcomes before applying for funding.

THE SOLUTION: Enact a Research, Science and Technology Stewardship Act to re-establish independent science as a core national capability serving the long-term wellbeing of people, ecosystems and infrastructure. The purpose of the Act would therefore be to restore research, science and technology as a core public capability of the State, directed toward the stewardship of human health, environmental systems, productive resources and national knowledge infrastructure.

Continuous monitoring, integrated datasets, basic research into the drivers of health and global advances in understanding, and advances in analytical technologies, enables research institutions to generate real-time feedback about the health of national systems: soil, water, health & infrastructure.

Innovation remains an essential component of a modern science system. However, innovation is most effective when grounded in strong public-good discovery science that identifies the real problems requiring solutions. When innovation becomes an end in itself, detached from systematic investigation of national health, environmental and infrastructure challenges, it risks producing technologies or programmes with limited relevance to New Zealand's circumstances.

1. Re-establish a Ministry of Research, Science and Technology (MoRST) as the central public authority responsible for stewardship of the national research, science and technology system, replacing the current administrative arrangement in which science policy is embedded within a broader economic development ministry. The Ministry would have statutory responsibility for maintaining the integrity, capability, and public accountability of the national science system.

2. Establish a statutory Institute for Human and Environmental Health Research, responsible for long-horizon interdisciplinary investigation into the biological, environmental and social determinants of human health and disease, including but not limited to:

- i. metabolic disease and metabolic regulation
- ii. neurodevelopmental vulnerability and brain health
- iii. psychiatric and mental health determinants
- iv. nutrition science and nutrient adequacy
- v. endocrine disruption and chemical exposures
- vi. cumulative toxic exposures and chemical mixtures
- vii. urban wastewater and industrial emissions
- viii. agricultural pollutants and environmental contaminants
- ix. groundwater, drinking water and ecosystem health
- x. long-term environmental determinants of disease.

A national research platform capable of undertaking sustained multidisciplinary inquiry into slow-moving and cumulative drivers of disease and environmental degradation, with scope to investigate solutions which encompass the regulatory, infrastructure, scientific and technical fields.

3. Affirm AgResearch in statute as a public-good agricultural science institution, tasked with supporting the resilience, sustainability, and productivity of New Zealand's agricultural systems across pastoral farming, horticulture, arable systems, forestry and dryland agriculture.

4. Establish statutory duties on the Ministry to maintain national scientific capability in domains essential to the long-term wellbeing and resilience of New Zealand, including environmental health, agriculture, nutrition science, chronic disease causation, environmental toxicology, and the environmental determinants of human health.

5. Provide for coordinated national monitoring and knowledge infrastructure, enabling the research system to generate continuous scientific intelligence about the condition of the nation's key biological and environmental systems, including environmental pollutants, chemical exposures, soil systems, water systems, and population health determinants, as well as inform the design, maintenance and long-term management of national assets.