Science reforms

Responsible Minister	Minister Simmonds

Key Message(s)	• The current science, innovation and technology (SIT) system has well documented challenges, including misalignment between research investment and government priorities, a lack of collaboration across research organisations, and poor visibility of the effectiveness of investments.
	• MfE has some science capability and budget for science and data procurements (less than 1% of environment and climate science investment across the system), but we are mostly users and interpreters of science and data that is produced and funded by other parts of the SIT system.
	• MfE are currently working to address system issues by:
	  ○ continuing to coordinate with the Department of Conservation (DOC) and Ministry of Primary Industries (MPI) to agree a set of research priorities, connected to government outcomes, and mechanisms for being more coordinated in our science investments.
	  ○ building and maintaining relationships with the science sector and regional councils to look for areas of efficiency and where science investments can be co-funded and better coordinated
	  ○ centralising MfE investment in 'critical data assets', which are investments in data and evidence that have broad benefit to multiple MfE work programmes, with high re-use value.
	• MfE sees the following as key opportunities to address challenges facing MfE with the current system:
	  ○ enabling greater central government agency input into Crown Research Institute (CRI) research and funding direction
	  ○ supporting greater collaboration across agencies and research providers, with research clearly connected to government priorities
	  ○ balancing funding of open data access and public good research with commercially valuable research.

Known Risks/Issues	• The Science System Advisory Group has been set up by the Ministry of Business, Innovation and Employment (MBIE) to provide advice to government on strengthening the SIT system. Until final recommendations are provided from the group in October, it is unclear how systemic SIT system issues will be addressed. • Crown Research Institutes (CRIs) hold much of the capability for research that MfE requires, in both broad and ongoing areas (freshwater, land use, climate modelling, social, mātauranga Māori); and more specific and intermittently needed areas (such as air quality, behavioural science). This capability, data, and peer review expertise is essential to inform policy and support legislation. However, current funding models can encourage unproductive competition and impede collaboration and sharing of information and expertise between organisations. • Some CRIs have indicated staff reductions, while further CRIs are refining their strategies to have narrower focus. Some are also signalling that they expect less government contracts and aim to increase their focus on industry and business. This will result in a loss of capability in the science system as well as less research and data produced that is of relevance to government advice and policy. Further, the requirement for full cost accounting for CRIs will likely make science and data more expensive for government agencies to buy, compounded by the budget cuts central government agencies are already facing.
What next?	• We are using the long-term research priorities, updated to reflect Government priorities, previously identified through science sector engagement and partnership with DOC and MPI to plan the next financial year's science investments, including the 'critical data asset' investments. • We have been, and will continue to, work with DOC and MPI to look for co-funding opportunities to ensure disciplined and effective investment. • We will continue to work with MBIE on any future science system reforms to ensure the needs of MfE, and the wider environmental sector, has access to the information it needs for informed decisions.
Short anecdote or specific example of outcomes sought	• An example of the 'critical data asset' work is the Land Cover Database 6 update (co-funding across DOC, MPI and MfE toward a foundational land cover data set that has multi-use benefit for national and international reporting requirements as well as use in policy advice). • System-wide investment in datasets and monitoring, example: Cyclone Gabrielle, which was the second most costly natural disaster to New Zealand, after the Christchurch earthquake, showed us the importance of data and evidence in preparing for and

	responding to extreme weather events. For example, a lack of existing and accessible baseline remote sensing data (eg, satellite, LiDAR and aerial imagery) impeded our ability to identify potential landslips and a lack of prior monitoring meant that landslips occurred in unexpected places, and we could not respond to them efficiently. • System-wide investment in applied research for government decision-making, example: Analysis and modelling of environmental data and evidence is a key component of policy effectiveness. New data and analysis techniques offer opportunities to improve policy, particularly for climate change. For example, MfE recently published updated guidance for local government on adapting to coastal hazards and climate change, particularly sea-level rise. This incorporates the NZ SeaRise 2022 sea-level rise projections, incorporating satellite measures of vertical land movement (VLM) to provide relative sea level rise estimates around the entire New Zealand coast. This is a new approach, and improvement of the VLM estimates is desirable to enhance confidence for decision makers. Ongoing improvement of environmental and climate models is important for continued effectiveness of government policy and guidance.

The evidence:
 	
Facts, figures, amounts invested & how the outcome will be measured
	• SIT system work: Secondments to MBIE in FY20/21 and 22/23. Ongoing engagement with MBIE and input to science system policy direction and drafting submissions when called for.
	• Working in partnership with DOC and MPI to develop long-term research priorities and opportunities for coordination of investment:
	  ○ FY21/22 $0.42m
	  ○ FY22/23 $0.94m
	  ○ FY23/24 – no budget; staff time
	• Critical Data Asset investment:
	  ○ FY23/24 $3.35m across 23 investments for multiple work programmes and foundational datasets.

Responsible General Manager	Clare Barton, Science and Data Systems