
Advocacy

During November, the Association commented on two government initiatives affecting the RS&T sector. The first concerned the government's proposed investment structure which was outlined in the document *New Zealand's research science and technology priorities*¹. The second responded to the invitation from the Chair of the Crown Research Institute Taskforce to provide a written submission. The Taskforce was formed in October to explore ways that the CRI model could operate more effectively to support New Zealand's development².

The NZAS response to the priorities document and its submission to the CRI Taskforce are shown in the following.

Editor

¹ See <http://www.morst.govt.nz/current-work/NZ-RST-priorities-feedback/>

² See <http://www.morst.govt.nz/current-work/CRI-Taskforce/>

New Zealand Association of Scientists Response to the feedback document, 'New Zealand's research, science and technology priorities'

The New Zealand Association of Scientists is pleased that the method of setting science priorities is under review, along with the structure and principles that underlie public science funding. The Association welcomes that fact that Government is prepared to take a high-level strategic approach to the science system. This will provide a real opportunity to break with the piecemeal, unscientific approach of the last twenty years. We particularly endorse the appointment of a Chief Science Advisor who, for the first time in decades, brings to the policy development process a strong appreciation of how research is done and how new knowledge is translated into societal benefits. We support his argument for evidence-based government policy and suggest that a robust evidence base should also underpin changes to the science system – including the development of the Priorities document. Unfortunately, it is not clear that this is the case. The Priorities document appears largely to suggest business as usual, with tinkering around the edges in terms of management structures and continuing relatively short 3- to 5-year timeframe. Regrettably, there is no analysis of deficiencies associated with the existing structures, a shortcoming that might reflect the haste with which the document has been prepared and the short deadlines for comment and discussion.

We are particularly concerned that there is little analysis in the document of the uncertain global situation New Zealand faces in the medium term, to which the strategy should respond. The effects of climate change, 'peak oil', and resource scarcity generally, imply significant social and geopolitical issues for New Zealand and the globe in the medium term. The 'strategy' is not long-term and future-focused but is about near-term tactics to shore up the economy and a rather vague plan to make science a driver of social and environmental outcomes. Developing an evidence-based situation analysis would improve understanding of why we are where we are, and of how the research system could be configured to address the significant economic, social and environmental problems we face on a number of time scales. Such a strategy document would also give clear guidance to those who will be making lower-level RS&T investment decisions. The act of iteratively producing

such a situation analysis, combined with an evaluation of the appropriateness of current institutional arrangements, would bring together **all** knowledge, both social and scientific, so that we have more than a narrow economic context in which to make good future-focused decisions.

We comment below on the specific proposals in the Priorities document, but the comments should not be taken as unqualified support until the key issues noted above are addressed. We recognise that this will take far longer than the time-scale proposed, but note that fundamental problems associated with all previous reforms might have been avoided if more attention had been given to misgivings within the research sector. It would be wise not to repeat the same mistakes.

Strategic Research Platforms

We are skeptical about the efficacy of Strategic Research Platforms¹, given our experience of Outcome-based Investment (OBI). Some scientists' experiences of some OBIs were not recognised in the conclusions reported in a FRST-sponsored evaluation [<http://www.frst.govt.nz/library/evaluations/investment-processes/obipilot>]. For example, resources in one particular OBI became so low and the objectives so overblown that survival was left as the only goal. On top of this, the OBI had to pay the expenses of the governance board. The only value that came from that OBI experience was a better-informed end-user advisory group who came to understand the limitations created by the low level of resources provided! Some OBIs were established in the expectation that end-user partners would contribute financial resources to the OBI, but this has not occurred. In our view, it is difficult to see how New Zealand would benefit from some platforms when these may also be based on too few resources and, where most of the nation's scientists would be

¹ Research Platforms are a strategic funding tool that will be long-term investments in areas that need sustained commitment to science. The underpinning principle is that the science mission is funded, rather than individual institutions. Their importance is that they are a key mechanism for delivering funding in areas of strategic significance over a longer term. (Source: Feedback Document p. 13)

part of the platform, there would be no available individuals for 'strong science advisory boards'. Furthermore, the platform will be saddled with funding the management overheads that are currently funded within FRST without any matching intention to transfer resources from FRST to the platforms.

Before platforms are put in place, a careful evaluation should be made of the likelihood that there would be any effective 'room to move' in relation to strategy changes in a platform. There is also a need to incorporate analysis of: impediments to forming 'best teams' because of the inherent competition that is implied by this notion; lack of clarity about the roles of various types of research institutions and the extent of their long-term, national interest focus; the funded FTEs invested in the platform; learning from examples from overseas where platform-like structures have proved their worth (so that New Zealand avoids further experimentation with untried and misguided approaches); and the overall ability of the platform to absorb its own management costs. We predict that the problems noted above in relation to the evaluation of OBIs, will be present in platforms unless all these issues are addressed.

Developing people

The sentiments expressed in Section 6 are admirable and the priorities document seems to describe what is already happening. Nevertheless, it is difficult to reconcile these statements with the decision to discontinue the 'Bright Futures' scholarships. NZAS stresses the importance of ensuring that all pieces of the RS&T system fit coherently together so that once a talented young person has been enthused they are not driven offshore by a dysfunctional RS&T system.

Overall investment structure

The simplified New Investment Structure is mapped to existing Vote RS&T structures in Annex One and appears to involve a realignment of the present funding instruments but is essentially a rearrangement of the existing structure with no evidence of how this will lead to gains. Apparently, NERF, TechNZ, the Pre-Seed Accelerator Fund and Research Consortia as well as RFI (Manufacturing and Services, and Food and Fibre) will be managed under two new structures, Hi-tech Industries and Biological Economy. How will the critical balance of innovative basic and applied research be addressed to maximise benefit to the economy and society? Likewise, Maori knowledge and Development, Health Research, Social Research and Cross Agency Research will merge into Health and Society with no indication given as to how the fundamentally distinct components of the new structure will be managed. It is our view that actively practising scientists must be centrally involved in this decision-making process as they are a group with strategic and working knowledge of new and future research-led opportunities.

Current weighting of funds within the investment structure

Given that there will be no new funds and the future erosion (in real terms) of these resources has been heralded, there should not be any substantial shifts until proper analysis is undertaken.

Where should emphasis shift, given the Government's goals?

Until there are evidence-based evaluations of outcomes resulting from previous investments and a proper strategic plan, there should no shift in emphases.

Is the structure flexible enough to respond to new opportunities and challenges?

Flexibility is not an issue because any structure can be operated flexibly if this is required. The real issue is that scientists will simply be disillusioned and disheartened by yet another arbitrary set of changes to funding structure and priorities.

In our opinion, flexibility and speed of response comes from the bottom up, from practising scientists pursuing key new areas of research as they develop. Management structures must be light enough (and trusting enough) to allow us as a nation to capitalise on the serendipitous nature of science, driven by both individuals and teams of researchers. Given the range of major uncertainties facing us over the medium term, we should be putting as much emphasis as possible upon diversity amongst researchers and research specialisations. The structures outlined do not appear to significantly enhance flexibility within the New Zealand science sector.

Are identified areas of greatest priority for investment in strategic platforms?

We question that 'Increasing New Zealand's wealth by identifying and exploiting hydrocarbon resources' is a useful strategic objective. In fact, research driven by the Energy and Minerals Fund should form around 'Research for a low-energy-input and energy-efficient economy'.

It is clear that freshwater water quantity and quality are an immediate priority if freshwater resources are to be used sustainably for improved agricultural production. Research must be focused around an institution that has a long-term commitment to strategic research in the national interest.

How well do strategic research platforms fit with the new investment structure?

With the exception of the biological economy strategic platform, few details are given to suggest *how* the strategic research platforms will achieve their objectives within the new investment structure. The lack of detail does not give the impression of a clear strategy. For example, it is concerning that the only priority given to the high-technology industries platform is to 'transform the manufacturing industry'. Yet this platform combines several existing funds that explicitly seek to balance fundamental with applied technology research.

It is also somewhat distressing that major areas of scientific investment such as Health and Society have been overlooked regarding potential platforms. These should be addressed in the final priorities plan, e.g. Transformational approaches to Improving Human Health; Integrated Societal Health.

See additional comments above.

How would you rank the identified areas for strategic research platform investment?

We think that platforms are not an appropriate way to move forward until the major structural issues have been addressed. Also, it is difficult to rank these without having made a proper situation analysis. One thing is absolutely clear. The future is so uncertain that we would be wise to put more emphasis on maintaining a broad skill base with a diversity of researchers and research specialisations so that we are ready to tackle serious problems on a practical level when they arise unexpectedly.