

Building connectivity at the research-policy interface in Aotearoa through a public sector postdoctoral fellowship program

Olivia Truax* 

Department of Earth and Space Sciences and Department of Atmospheric Sciences,
University of Washington, Seattle, USA¹

Improving connectivity at the research-policy interface and supporting career development for early career researchers are twin goals of government-funded research systems in Aotearoa New Zealand and globally. The Aotearoa Ministry for Business, Innovation, and Employment (MBIE) began the process of overhauling the research system to achieve these, and other, objectives through Te Ara Paerangi Future Pathways programme in 2021. Here, I propose a fellowship scheme to place PhD graduates into roles within central government agencies, which MBIE could implement during the first phase of Te Ara Paerangi Future Pathways reforms. A public sector postdoctoral fellowship scheme would strengthen collaboration at the research-policy interface and provide a low investment, high impact, opportunity to retain analytical and technical capacity in Aotearoa and develop flexible career pathways for PhD degree-holders.

Introduction


The Aotearoa New Zealand government recognizes the vital role of research in supporting effective government policy and driving economic growth (Ministry of Business, Innovation, and Employment, 2021a). However, the research system and research-policy interface are not well configured to deliver on government priorities as Aotearoa meets the challenges and opportunities of the coming decades (Ministry of Business, Innovation, and Employment, 2021a; Parliamentary Commissioner for the Environment, 2022). Structural barriers to a successful research ecosystem include a “cultural divide” between researchers and the users of research, “gloomy” employment prospects for early career researchers, and a lack of capacity to effectively integrate and adapt to new knowledge within the public and private sectors (Gluckman, 2013; Harris and Le, 2018; The Royal Society Te Apārangi, 2020). In an era in which effective policymaking relies on increasingly large and complex datasets, it is critical that government agencies improve their capacity to prioritise and interpret the data and research they commission (Parliamentary Commissioner for the Environ-

ment, 2022). Furthermore, the existing channels through which policymakers seek research advice suffer from a lack of diversity and transparency. Currently, a limited cohort of senior researchers provide the majority of research advice to Aotearoa’s central government (Gardiner et al., 2021; Jeffares et al., 2019), hindering the inclusion of a broader range of perspectives and expertise.

Despite the well documented lack of employment opportunities available in Aotearoa’s research sector and a “dire need” for research competencies in the public service, graduates from PhD programs in Aotearoa receive limited institutional support to effectively transition into roles in government and industry (Gluckman, 2013; Nissen et al., 2020; The Royal Society Te Apārangi, 2020). Doctoral student enrolments have risen substantially since the 2000s and now greatly surpasses the number of research roles in Aotearoa: since 2010, Aotearoa has graduated 1000-1500 PhDs per year while the number of full-time research roles has remained steady at a total of approximately 4000 (Stewart and Baisden, 2022). In response to this fundamental imbalance, the majority of graduates from PhD programs will ultimately leave Aotearoa for opportunities overseas or leave the research sector (Education Counts, 2021; Ministry of Business, Innovation, and Employment, 2021a; Ministry of Education, 2011; The Royal Society Te Apārangi, 2020). Five years after graduation about half of domestic PhD graduates (40-50%) and 80% of international PhD graduates are overseas (Education Counts, 2021). This “brain drain” occurs despite the fact that the majority of early career researchers (75%) report the desire to remain in Aotearoa long term (Nissen et al., 2020).

Considering that attaining a full-time, permanent research position in Aotearoa is not the typical outcome after completing a PhD, a qualification primarily focused on training individuals to conduct academic research, robust institutional support is necessary to help PhD graduates transition into private and public sector roles. Though doctorate holders possess transferable research skills and ex-

¹Formerly PhD Programme, Department of Geology, University of Otago, NZ
Correspondence: otruax@uw.edu

 0000-0002-3194-5248

expertise which could contribute to the growth of the New Zealand economy and effective implementation of evidence-based government policy, hiring managers and the PhDs graduates are often unaware of how to translate doctorate holders' skills outside of the research sector (Gluckman, 2013; Mantai and Marrone, 2022; Nissen et al., 2020; Sinche et al., 2017; The Royal Society Te Apārangi, 2020). In 2018 only 5% of the working population with PhDs were employed in public administration (Universities NZ – Te Pōkai Tara, 2022), which suggests that doctorate holders may be unaware of and underrecruited for roles in government. In addition, the perception that "leaving academia" is a one-way street may prevent some PhD graduates from pursuing roles in government or industry despite a lack of opportunities for advancement within the research sector. A 2020 report from the Royal Society Te Apārangi found that significant growth in employment opportunities for doctorate holders is unlikely without targeted interventions.

Addressing these and other challenges is an aspiration of the Te Ara Paerangi Future Pathways programme, a multi-year initiative to reform the research system by the Ministry for Business, Innovation, and Employment (MBIE). The first phase of sector reforms will focus on workforce development (Ministry of Business, Innovation, and Employment, 2022). These reforms aim to "attract, develop, and retain talented people" by expanding research fellowships schemes and support systems to connect researchers with career opportunities outside of academia and will be implemented beginning in 2023 (Ministry of Business, Innovation, and Employment, 2022). Longer term, the Te Ara Paerangi Future Pathways programme aims to develop a "closer link between research, science, and innovation (RSI) investment and Government's social, environmental and economic policy objectives" through a set of National Research Priorities and by incentivising connectivity between the RSI system and stakeholders. (Ministry of Business, Innovation, and Employment, 2022).

Here, I propose MBIE implement a fellowship scheme to place PhD graduates into roles within central government during the first phase of Te Ara Paerangi Future Pathways reforms. A public sector research-policy fellowship would simultaneously improve connectivity at the research-policy interface and increase opportunities for diverse and fulfilling career pathways for early career researchers, two central goals of the Te Ara Paerangi Future Pathways programme (Ministry of Business, Innovation, and Employment, 2021*b*).

An Aotearoa research-policy fellowship program

A research-policy postdoctoral fellowship program could be implemented quickly without a large budgetary outlay, and existing institutions are well-positioned to administer the scheme. To participate in the program, host departments in Ministries or Crown entities would work with an external administrative body to develop roles for doctorate holders based around existing priorities and staffing needs. PhD graduates would apply to the scheme via a competitive application process, and the administrative body would then

match fellows into positions that align with their skillset and area of expertise. In addition to their primary role within central government, fellows would also receive support for ongoing research activities in affiliation with a tertiary institution or Crown Research Institute. Fellows would outline their directives and proposed affiliation during the fellowship application process.

Fellows would be incorporated into the Ministry or Crown entity's work program in a similar manner to a fixed term analyst. Fellows could undertake two 12-month rotations or remain with the same team throughout the two-year fellowship. A two-year fellowship term would allow for knowledge transfer between successive cohorts and provide fellows with the opportunity to develop a nuanced understanding of work in central government. Fellows would have the opportunity to participate in on-the-job training and professional development activities designed to facilitate their transition into a role in government and build community and connectivity within the cohort.

A hybrid fellowship integrating policy work in central government (3-4 days per week) with support for ongoing research activities affiliated with a tertiary institution or Crown Research Institute (1-2 days per week), would deliver on both workforce and research-policy goals. Protected time for the fellow to engage in research activities would be a valuable addition to the core policy focus of the fellowship. Depending on the fellow's priorities, research time could be used to finish (and publish) existing projects, which are often abandoned when PhD graduates leave the research sector, or collaborate with academic and public sector colleagues to co-develop research proposals that align with Aotearoa's National Research Priorities. Ongoing research support would allow fellows to explore career paths outside of academia while remaining engaged with the research sector. This combination would make the fellowship appealing for doctorate holders who aspire to remain in the research sector long term and create a diverse alumni network spanning the research and policy sectors.

Potential administrative bodies include the Royal Society Te Apārangi, a multi-agency initiative like Analytics and Research in Government, and the Office of the Prime Minister's Chief Science Advisor. The cost of each fellowship would be within the range of a typical Analyst or Senior Analyst (\$80,000 – \$130,00 per year), even when factoring in resources for ongoing research support. Moreover, because the fellow's responsibilities would align with existing Ministry and Crown entity priorities and staffing requirements, the bulk of fellows' salaries could be covered through existing budgetary allocations.

Australia and the United States of America have successful research-policy postdoctoral fellowship programs that Aotearoa could learn from and build on. The Australian Science Policy Fellowship Program has placed over 200 early-to-mid career scientists as policy officers within government departments since 2018 (Australia's Chief Scientist, n.d.). The Australian program offers on-the-job training, exposure to government functions, and support from the Office of the Chief Scientist. Similarly, in the United States, the Amer-

ican Association for the Advancement of Science ‘Science & Technology Policy Fellowships’ have matched over 4,000 fellows into year-long assignments across the executive, legislative, and judicial branches of the U.S. government since 1973 (The American Association for the Advancement of Science, n.d.). However, key differences in the proposed fellowship scheme for Aotearoa are the inclusion of continuing research support, which is essential for developing truly flexible career pathways, and a holistic focus research, rather than a narrow focus on science. An Aotearoa research-policy fellowship scheme, as I envision it, would be most effective if it targeted researchers from a wide range of disciplines, including those with valuable expertise in the humanities, social sciences, and mātauranga Māori.

Benefits of a research-policy fellowship program

A purpose-designed public sector postdoctoral fellowship program would produce the following outcomes:

1. *Improve connectivity between the research system and the public sector.* Embedding PhD graduates within central government is an opportunity to strengthen the research-policy interface by increasing the number of public sector workers who understand the research landscape and policy-literate academics. During their tenure in central government fellows would build an understanding of how research-based evidence fits into the policy process and a valuable perspective on areas for improvement. Fellowship alumni would bring the skills and experience necessary to both identify and deliver on Aotearoa’s National Research Priorities to future work in the research sector and/or central government. The fellowship scheme is a step towards developing a more flexible model of research career, and career pathway, in which doctorate holders move between academic institutions and roles within government and industry (Ministry of Business, Innovation, and Employment, 2022).

2. *Support PhD graduates to access a broader range of employment opportunities* A government research policy fellowship would provide practical training and increase awareness about career pathways outside of academia among early career researchers. Even a relatively small program similar to Australia’s (up to 20 fellows each year) would substantially improve the number of opportunities targeted at PhD graduates in Aotearoa each year. Doctorate holders who participated in the program would gain valuable experience, connections, and a “foot in the door,” through the fellowship, which would facilitate a transition into government or industry. Support for research activities would also provide fellows with a pathway to return to full time work in the research sector. Moreover, the impact of the fellowship would extend beyond its direct benefits for fellows. The fellowship’s promotion would raise awareness about career pathways in the central government, while alumni of the program would foster professional networks spanning the research and government sectors. These networks would enable PhD graduates who are not directly involved in the fellowship to more effectively locate opportunities and find employment

outside of the research sector (Germain-Alamartine et al., 2021).

3. *Retain talent in Aotearoa and put it to work for the public good.* The expertise PhD students develop through academic research is transferable to the public sector (Mantai and Marrone, 2022; Sinche et al., 2017). Fellows would bring highly valued skills and experience (e.g. self-directed and collaborative research, analysis of large multi-dimensional datasets, domain expertise on complex challenges such as climate change and biodiversity loss) to their work in central government and fresh perspectives on policy work. In 2013 the Prime Minister’s Chief Science Advisor, Sir Peter Gluckman, identified a “dire need to build some basic competencies in research methodologies and critical appraisal skills across the public service, and to bolster the leadership ranks with people formally trained in the relevant disciplines.” An effective research-policy fellowship program would address this imperative. The fellowship program would also likely retain research talent within the central government beyond the term of the fellowship: many PhD graduates who participate in the Australian science-policy fellowship program move into permanent positions in the public sector (Australia’s Chief Scientist, n.d.). Furthermore, the fellows would serve as “pioneers” or “linked scientists” who exemplify the value of research competencies within the public sector, thereby encouraging the future recruitment of doctorate holders into roles that capitalize on their skill-sets and expertise (Germain-Alamartine et al., 2021; The Royal Society Te Apārangi, 2020).

Conclusions

A fellowship scheme embedding PhD graduates within the Aotearoa’s central government would be a valuable, and low cost, addition to proposed expansions to research-intensive fellowship schemes (Ministry of Business, Innovation, and Employment, 2022). Providing PhD graduates with purpose-built pathway into roles within central government would “alleviate pain points for the [research] workforce” and “develop new workforce career trajectories” primary goals of the first phase of Te Ara Paerangi Future Pathways reforms (Ministry of Business, Innovation, and Employment, 2021b, 2022). However, the full benefits of the program extend well beyond improving employment opportunities for doctorate holders. This public sector research policy fellowship would also (i) build analytical and technical capacity in the public sector, (ii) strengthen connectivity at the research-policy interface, and (iii) train the next generation of researchers in Aotearoa to expand their scope beyond traditional academic disciplines.

In sum, a public sector postdoctoral fellowship scheme is a “quick win” that supports both short and long-term aspirations of the Te Ara Paerangi Future Pathways programme.

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