

Early Career Researchers succeeding under a changing research system

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The Royal Society Te Apārangi Early Career Researcher (ECR) forum represents researchers in Aotearoa New Zealand across various research sectors encompassing Crown Research Institutes (CRIs), Industry Training Organisations (ITOs), and universities to better support ECR career development. Despite recommendations to integrate these research sectors, the system is still segmented with rising numbers of PhD graduates, limited post-doctoral opportunities, and challenges associated with a changing research system. Recent efforts, including funding reforms and new fellowship schemes, aim to address these issues but remain insufficient. This paper highlights ongoing disparities and the need for a framework that fosters ECR mobility and professional growth. It calls for strategic reforms in training and funding systems, supporting integrated pathways, equitable opportunities, and fostering of ECRs across diverse research environments.

Introduction

The Royal Society Te Apārangi Early Career Researcher (ECR) forum is a group of researchers within ten years of achieving their PhD who are navigating careers within Aotearoa New Zealand's research sector. This includes universities, Institutes of Technology and Polytechnics (ITPs), industry training organisations (ITOs), and private and Crown Research Institutes (PTOs & CRIs). The forum advocates for ECRs in Aotearoa New Zealand by fostering a collaborative, communicative, and respected community to engage in the improvement of the conditions that challenge the ECR community. This position paper is the work of many, published under the auspices of the Early Career Researcher (ECR) Forum Committee of Royal Society Te Apārangi. This is not a position paper of Royal Society Te

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The late 2010s saw the state of early-career researcher (ECR) pathways in Aotearoa New Zealand as increasingly fragmented and uncertain. PhD enrolments were rising but the transition from doctoral study to stable employment was poorly supported. Postdoctoral opportunities were limited, highly competitive, and often reliant on short-term, soft funding, leaving many ECRs in precarious positions with unclear career trajectories. This fragile progression was not helped by the lack of integration between academia, government, industry, and other sectors making transition between study and employment difficult. Furthermore, the PhD training on offer did not equip graduates with the interdisciplinary or culturally relevant skills needed for diverse roles, particularly in the context of Aotearoa New Zealand. These systemic issues have created a bottleneck in career progression, contributing to stress, attrition, and underutilisation of highly trained talent (Royal Society Te Apārangi ECR forum, 2022; Simpson et al., 2022). The Royal Society Te Apārangi ECR forum was established in 2015 in light of the challenges identified by PhD and early career researchers as a means of advocacy and community for ECRs.

In 2022 members of the Royal Society Te Apārangi ECR forum presented a review of the ECR career pathways at the time – referred to as the White paper (Royal Society Te Apārangi ECR forum, 2022). This document also presented suggestions for an integrated system of Crown Research Institutes (CRIs), Industry Training Organisations (ITOs) and Universities. These institutions could provide a more productive structure for preparing ECRs, particularly PhDs, into future work with skills that allow them to move between sectors. Potential roles exist in a diverse

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array of organisations including: industry, academia, education, government, iwi managed organisations, CRIs and independent research organisations, philanthropic research organisations, non-government organisations and self-employment (Royal Society Te Apārangi ECR forum, 2022). Through supporting ECRs to transition between roles in these diverse organisations, integrated pathways can help to ensure the right people and skills are available where most needed and most appropriate. As these sectors remain fragmented, related issues have not been resolved. Additionally, ECRs continue to face challenges of increasing competition and precarity. Competition resulting from rising numbers of PhD students. Precarity stemming from the limited number of post-doctoral fellowships and subsequent faculty positions or salaried positions outside academia. In fact, R&D investment success is rising, due to industry expanding their projects to established researchers (New Zealand Government, 2025b), however, this does not translate to an increase hiring ECRs.

The White paper recommended two strategies for facilitating a system that focuses on the quality of training, rather than the quantity of students, and for funding system reform to balance the opportunities for PhDs and post-doctoral fellows (Royal Society Te Apārangi ECR forum, 2022). Yet, to date, there are only handful of examples (Burch and O'Connor, 2024) and funds to specifically support the initiative (e.g., He Ara Whakahihiho Capability Fund; Ministry of Business, Innovation and Employment (2025)) where this integrated model has been adopted. As a result, the objective to create a more sustainable foundation and clearer future pathways for ECRs in the research sector, has not been extensively met.

So far large scale publicly-funded transdisciplinary research projects and Centres of Research Excellence (CoREs) have been useful venues for bringing together researchers across Universities, ICO, CRIs, businesses, and society (Ministry of Education, 2013). However, these are contingent on funding which is constantly in flux and is strained by the competition between universities (Ministry of Business, Innovation and Employment, 2020), and are therefore not conducive to promoting clear research pathways for ECRs. For instance, the Ministry of Business, Innovation, and Employment's (MBIE's) Endeavour Fund, which funds a lot of transdisciplinary research, was put on hold in 2026 (New Zealand Government, 2025a), and CoREs are not expected to be funded past 2028 (Tertiary Education Commission, 2024). Unfortunately, even within projects, post-doctoral positions can be very expensive since they often charge overheads at over 100% the salary rate. Thus, principal investigators often opt for more affordable PhD scholarships as a strategy to meet research funding outcomes within tight and fluctuating research budgets. Such decisions can exacerbate issues for ECRs, creating large numbers of PhD students with no clear career pathways. As a result, PhD qualified individuals are leaving for employment overseas.

There is scope to improve the state of Aotearoa New Zealand's research sector, one such avenue could be

following the lead of the polytechnic sector which has long cultivated partnerships with industry to facilitate research. These partnerships create a foundation to develop bridging programs such as pathways for PhDs from universities to industry or government roles (Fernando et al., 2023). Further, at the time of writing, the research system is being reformed under a National-led coalition government, with a three-stage consultation process with the University and Science System Advisory Groups (UAG and SSAG, respectively) currently underway (Ministry of Business, Innovation and Employment, 2024b). The Royal Society Te Apārangi ECR forum has submitted position pieces to the SSAG in support of a new system that supports and fosters ECRs (Royal Society Te Apārangi ECR forum, 2024, 2025).

Strategies have been employed by funders to foster ECRs since 2022. MBIE introduced the option of using Narrative CVs in their 2023 Endeavour Fund round, followed by the Royal Society Te Apārangi in the 2024 Marsden round. This was a step towards widening the range of contributions considered in funding applications beyond the narrower expectations of academia. However, subsequently, the Marsden Fund has been redirected with an economic focus over that of humanities and social sciences, and the Endeavor 2025-26 round has been cancelled (Science Media Centre, 2024). There are new grants, established in 2024, which foster ECRs: for example, the new Mana Tūāpapa Future Leader Fellowships, funded by MBIE, cover the overheads for a researcher at an approved host institution (which does not have to be a university) and include a diversity selection process (Royal Society Te Apārangi, 2024). This process is via a ballot system to ensure proportions of minoritised groups succeed (Māori, Pacific, and women). Yet, while the overhead coverage suits universities and polytechnics, the funding barely covers a third of the overhead cost. Further, the Fellowships are only for New Zealand citizens and permanent residents, excluding international researchers - who currently make up 57% of PhDs (Education Counts, 2024). Furthermore, in 2025 the ECR cohort was restricted to being four years - as opposed to the original seven years - out of PhD studies, meaning that slightly more experienced ECRs are now considered mid-career researchers and must compete with a comparatively large number of mid-career researchers to sustain their research careers.

Funders of Aotearoa New Zealand have tried to bridge the academic-industry divide. The MBIE Smart Ideas (catalyses and rapidly-tests promising, innovative research ideas) funding round has limited applications per institution (Ministry of Business, Innovation and Employment, 2024a), including private enterprises, and it will be important to evaluate how ECRs are affected by this policy. Overall, these initiatives are creating the groundwork to further facilitate industry-education partnerships for postgraduate students to gain real-world experience, understand industry functions, promote collaboration between academia and industry and create new job opportunities. Increasingly, more domestic and international funding can flow from the industry into the research sector to boost productivity and

sustainability.

Further, in early 2025, the new Applied Doctorate Scheme was launched by the Minister of Research, Science and Technology. The \$20m 5-year national programme (150 doctoral students) is collaboratively hosted by Waipapa Taumata Rau University of Auckland, Te Kunenga ki Pūrehuroa Massey University, Te Herenga Waka Victoria University of Wellington and Ōtāko Whakaihū Waka University of Otago (Ministry of Business, Innovation and Employment, 2024c). While further details are yet to be released, the focus on STEM may inhibit students in the social sciences from applying. Another small change to MBIE-funded projects included requiring that all peer-reviewed publications related to the grant are open access to enable access to a wider audience (Ministry of Business, Innovation and Employment, 2023). This can also potentially improve research sector integration by increasing accessibility to research outputs but can be associated with high article processing charges.

Although some effort has been made by funders to support ECRs, the recent changes to the research funding system—particularly the exclusion of humanities and social sciences from the Marsden Fund and the heightened emphasis on short-term economic outcomes—have intensified existing challenges across the sector. These shifts have disproportionately impacted ECRs, exacerbating disparities in support and opportunity between institutional types and reinforced the dominance of already-privileged disciplines and institutional voices, marginalising those working at the intersection of disciplines or in underrepresented sectors.

As we highlighted in our response, realising real impact when addressing the most pressing issues Aotearoa New Zealand faces often requires social sciences and humanities. Research addressing key issues (e.g., barriers to vaccine uptake, climate change adaptation, and disinformation) are put at risk with the disestablishment of the Marsden humanities and social sciences panels. We advocated for a balanced approach to valuing long-term, investigator-led research across disciplines, including humanities and social sciences, and emphasised the role of diversity in thought and inquiry for innovation and societal well-being, preserving the Marsden Fund as a driver of excellence and innovation across all disciplines, supporting transformative curiosity-driven research.

As we noted previously, ECRs work in a variety of organisations across the research sector. Below we provide insights into the state of three of the largest sectors given their size and the fact that members of the ECR forum are part of these institutions: Universities (academia), CRIs and ITPs. We acknowledge that there are other ECRs in the sector that are not given voices in this space as the larger and louder voices tend to dominate. In the future we would like to work strategically to have these voices better represented in the ECR forum. We end with insights from the Royal Society Te Apārangi's ECR Forum Committee.

Universities

The university landscape in Aotearoa New Zealand is shaped by policies that boost research output but fall short in supporting long-term career development for ECRs (New Zealand Government, 2005; Simpson et al., 2022). Since 2005, a policy to charge international PhD students domestic fees has supported a threefold increase in the number of international PhD students studying at Aotearoa New Zealand's universities. This policy was explicitly designed to boost Aotearoa New Zealand's research profile (New Zealand Government, 2005), and it has succeeded: this rise in, primarily international, PhD student enrolments has enabled tertiary institutions to increase the number of publishing researchers without a corresponding rise in full-time equivalent (FTE) staff (Ministry of Business, Innovation and Employment, 2022), which would have been more costly due to high overhead and salary rates required by post-doctoral fellows and other staff members. However, when students complete their studies, they often face the stark reality of a limited post-doctoral pipeline or other university-supported career pathways, leaving them with little choice but to leave the university sector or move abroad. About half of the domestic PhD graduates (40-50%) and 80% of international PhD graduates have left Aotearoa New Zealand five years after graduation (Education Counts, 2024). This loss of ECR talent occurs despite the majority of ECRs (73-90%) expressing a strong desire to remain in Aotearoa New Zealand (Nissen et al., 2020). This mismatch between PhD completions and full-time roles at universities and CRIs has led to lower retention of PhD graduates in our research workforce, as measured by active publishing, in recent years (Ministry of Business, Innovation and Employment, 2022). Uncertainty in the sector and considerable underfunding risks driving the new generation of researchers (Boston, 2023), who are more representative of Aotearoa New Zealand, overseas or out of research. For example, more women, Māori and Pasifika students are completing PhDs compared with three years ago but there are fewer jobs available after graduation (Simpson et al., 2022). Furthermore, PhD stipends and academic salaries are not keeping up with inflation (Patel et al., 2022). Low stipends plus rising costs of living have especially harmed PhD students in large urban centres where many Universities are based. Academic salaries are also not keeping up with inflation (Consumers Price Index, CPI). As a result, academic salaries are far less attractive when compared to Australia and industry in Aotearoa New Zealand. For example, on average salaries across Aotearoa New Zealand increased 7.1-8.8 % compared to most universities' collective agreements allowing for a 3% increase (Edmonds, 2024). These conditions have created a research training system that is subsidised by either privilege or immense sacrifice.

Crown Research Institutes

CRIs have been the bridge between industry and academia, delivering applied research that benefits New Zealand's economy and society. For ECRs, CRIs are ideal training

grounds to gain real-world experience and tackle challenges that can deliver lasting impact. In the past, ECRs were offered permanent positions at CRIs after grants and contracts for projects ended. Today, there are limited opportunities available for ECRs to access research funding within the CRI space. When applying for funding, ECRs will encounter an initial hurdle of needing to secure CRI approval for a grant. This includes negotiating how to handle the inevitable shortfall between the amount awarded and the amount needed to cover an ECR's full salary and overhead costs. Within current conditions, overhead rates are making post-doctoral fellowships essentially unaffordable at CRIs (e.g., it is not possible to hire a full-time post-doctoral fellow on a full Marsden (\$1m) at the rates at some CRIs). Additionally, it is the experience of ECRs on the forum, that there are limits to the number of multiple fixed-term contracts that can be taken by an individual at some CRIs (e.g., after the first fixed-term contract, the individual must be hired and cannot be put on another fixed-term contract). While this limit is intended to increase job security for the individual, it nearly eliminates the potential for post-doctoral fellows because if the case cannot be made for a proper position, the individual cannot be re-hired on multiple fixed-term contracts. In addition, recent redundancies in New Zealand's small research sector (Morton, 2024) with proposed cuts of more than 150 across NIWA and GNS alone of science and support staff which are likely to affect ECRs moving forward both in terms of being directly impacted by the cuts, but also in lost mentorship opportunities and lack of job security going forward. With current restructuring of the CRIs, it remains to be seen whether there will be job losses and whether this will affect early career research disproportionately due to research backgrounds and employment duration.

Institutes of Technology and Polytechnics

Over the past five years, the polytechnic sector has experienced two colossal shifts in management systems. The first, in 2022, was the creation of Te Pūkenga, which was an orchestrated connection of the 16 ITPs and nine ITOs of the Vocational Education and Training (Unitec.ac.nz, 2022). Touted to better serve the needs of akōnga (students), employers and communities and be more efficient, the establishment of Te Pūkenga resulted in upheaval for academics and support services alike in the redevelopment of programmes and lack of stability in monetary research support. This was compounded by the announcement of the disestablishment of the unity of the ITPs in late 2023 (New Zealand Government, 2023). Throughout the process, individual entities have retained governance over funding for ECRs by retaining contestable funding opportunities and supporting emerging and ECR endeavours - although this varies very significantly by institution, with PBRF success being the most significant factor for having the capacity to support research. At this point in time, general support continues for ECR in the more 'PBRF' successful ITPs with some support for having a presence in the Royal Society Te Apārangi ECR Forum and attending ECR events such as He Pito Mata – the

biennial conference for ECRs organised by the ECR Forum. However, the future of that support, and of the sector generally, is unknown. This is further complicated by the new (National coalition government-led) government policy to disestablish Te Pūkenga midway through the restructure (New Zealand Government, 2025c). These changes have also coincided with initiatives to restructure PBRF and research funding models which, in consultation with universities and CRIs for improvement, left Te Pūkenga out of the conversation. This is a huge oversight within a research system where ITPs have proven success in aligning tertiary study, industry and research but as of July 2025 is moot anyway as all divisions in Te Pūkenga were to revert to being single entities. However, the current goals for ECRs within these entities are maintaining a national forum, called CRAFT (Community of Researchers in Applied and Future-focused Training) with representatives from each of the once-connected institutions focused on strengthening the voice from ITP ECRs as a feeder group to the Royal Society ECR forum with aims to improve the equity in funding to include ITPs and acquire funding that can be shared via collaborations between the divisions.

Royal Society Te Apārangi ECR Forum Committee

The Royal Society Te Apārangi ECR committee has not been idle in advocating for support for ECRs. The work that the committee has done to raise and progress key issues has been recognised by the previous government with parliament invitations to discuss the implementation of Fellowships that align with the goals and barriers to ECRs. The committee is a voice for ECRs and provides a platform for inspiration, information and guidance to overcome the challenges experienced by ECRs through webinars, workshops, initiatives, and He Pito Mata. The He Pito Mata wananga is facilitated by the Royal Society Te Apārangi and allows ECRs to join together and share their goals, challenges and learn how to navigate the current and ever-changing landscape that is the research sector in Aotearoa New Zealand. Themes arising from the 2023 He Pito Mata included (a) the need for ECRs to have an understanding of Aotearoa New Zealand's research environment and the realities of being a researcher, obtaining funding and connecting with stakeholders; (b) the need for more support in building connections with Māori and Pasifika communities and understanding and engaging genuinely with Vision Mātauranga; (c) the need for structured mentorship and authentic training, especially around linking research to policy; and (d) support with developing the skills necessary to navigate the early stages of employment, including the prospect of large financial burdens, developing relationships, and starting families. The following are ideas that could mitigate issues of precarity, facilitate a tangible integrated research sector and offer strategies to retain and build strong researchers.

Build connectedness between the integrated research sector as part of the new funding model. This would see 'training' as work-based authentic learning that

fosters relationships between industries and encourages intersectoral mobility within the transition between academia and industry. This is particularly important for the current UAG working on the new research reform and funding model, which could consider and work together to provide solutions. This could include supervision of students, outreach programmes, and joint/adjunct positions in academia and in industry to offset or share costs while retaining research and service roles that can afford to facilitate post-docs (Truax, 2022). This could be designed using a backwards design for PhDs that considers the required skills and knowledge of a potential employee. This would foster new career pathways for students with transdisciplinary skills.

Along with fellowships for individuals, the funding model could incentivise CoREs to offer opportunities for future PhDs and developing industries in line with an ‘Applied Doctorates’ training scheme, with a focus beyond pure science to include social sciences and humanities. Further, we should aim at expanding the Tāwhia te Mana Research Fellowships to build a Aotearoa New Zealand version of Marie Skłodowska-Curie Actions, which is the European benchmarking programme designed especially for doctoral and post-doctoral fellowships. Having such a dedicated post-doctoral programme running with sufficient funding would offer a straightforward career pathway for ECRs with a focus on conducting research, specific training designed for ECRs, such as proposal writing, project management, science communication, networking and other transferable skills to aid ECRs to secure faculty positions and foster building collaborations among ECRs.

We would ensure that ECRs are supported with equitable opportunities for funding in the new system across the sectors and institutional types. These opportunities should also create a space that addresses and overcomes systemic cultural barriers. To achieve this, we will need to identify the cultural barriers first. They are often multifaceted, complex and vary considerably throughout all CRI, tertiary institutions, ITP and others. This is part of a larger goal and will likely need buy-in at the institutional and governmental levels.

As part of the funding system reform, ECRs need an authentic voice on how their performance is measured and disseminated. Unfortunately, the timing of the previous PBRF round in 2018 in combination with its disestablishment has meant that ECRs receiving their PhD qualifications after 2018 have never experienced the PBRF system or been subject to submitting a PBRF portfolio. Many ECRs have been asked to provide feedback on how a new version of “PBRF” could benefit them without being experienced in the old system. This could potentially lead to other more seasoned researchers making decisions that do not reflect the desires or needs of the ECR community.

Promote a culture of supporting ECRs as salaried employees in academia. There is an expectation that ECRs will continue to work for free to finish papers after their contracts (or stipend/degree) end to increase their research portfolio and be more competitive for jobs. ECRs, as

proven low-risk outcome-focused workers, should retain the same opportunities and benefits if continuing to perform to benefit the institution and retain the same benefits as the industry. This includes accruing annual, sick and parental leave and having the opportunity to future-proof using Kiwisaver, instead of increasing precarity through mutually-beneficial programmes to the researcher, and host institutions. We argue that ECRs should be paid a living wage with benefits with guaranteed payment until the conclusion of their PhD, post-doc or contract. However, this is unlikely to occur without change to the fundamental value of PhDs to universities. In order to work towards this gold standard, pathway scholarships, where as part of the contract in a PhD scholarship there is a requirement for the student to receive a permanent academic/research position upon a successful completion and more fellowships focused on paying full FTE which would give postdocs more bargaining power in the negotiations for permanent positions can work in favour of ECRs to mitigate precarity of valued, experienced and passionate researchers.

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