

Indirect costs: the perverse consequences of Aotearoa New Zealand's research overheads system

Olivia Truax^{1*} , Camilla Penney¹ , Shelley MacDonell¹ 

¹Te Kura Aronukurangi School of Earth and Environment, Te Whare Wānanga o Waitaha University of Canterbury

Aotearoa New Zealand prides itself on achieving remarkable outcomes with limited resources and embraces a national identity rooted in innovation, resilience, and efficiency. But even number-8 wire can snap. As newly appointed academics navigating the country's research landscape, we have encountered a funding system stretched beyond its limits – one that threatens the integrity and sustainability of the research it is meant to support. Here, we argue that a central issue in the current system is Aotearoa's heavy reliance on indirect cost recovery – or “overheads” – to fund core institutional functions. We explore how this internationally anomalous system undermines research excellence by incentivizing budget-driven project design, fragmenting researchers' time, obstructing career development for early career researchers, and destabilizing institutional budgets through volatile, grant-dependent income. At a time when colleagues in Public Research Organizations – formerly Crown Research Institutes – face job insecurity and uncertainty, we feel obligated to speak out, in line with our role as the “critic and conscience of society” (Education and Training Act, 2022). As the nation restructures its public research system, we argue that core institutional funding must be decoupled from competitive research grants, which should be dedicated to supporting the direct costs of research.

Introduction

Like many countries, Aotearoa New Zealand structures its government-funded grants to cover both the direct and indirect costs of research. Direct costs include immediate and visible expenses required to conduct research: salaries for faculty, staff, postdoctoral and graduate researchers; lab consumables; fieldwork; travel; and equipment. But institutions also incur less visible costs essential for enabling research. These “indirect costs” include the buildings to house lab facilities and offices, infrastructure maintenance, administrative operations, IT systems, compliance, and financial management, which enable the research process. To help offset these expenses, research institutions apply additional charges to grants – commonly referred to as “overheads”.

In most other countries, overheads charged to grants

cover only a fraction of the costs of running a research organization, and core institutional functions are funded through separate channels such as other government funding mechanisms or endowments. In Aotearoa, however, research institutions rely heavily on overheads from research grants to support their core operations and, in the case of Public Research Organisations (PROs), which have recently formed from mergers of the Crown Research Institutes (CRIs)¹, to fund investments and generate profits (*Crown Research Institutes (CRI) Act*, 1992; Ministry of Business, Innovation and Employment, 2020). This has led to some of the highest overhead rates in the world. Internationally, overhead rates on government funded research grants typically range between 25 and 55% (Baisden and Patel, 2022). In Aotearoa, universities impose overheads of over 100% on top of salary costs, while PROs – mandated to recover the full cost of research activities – charge anywhere from 100% to over 250% of researchers' salaries (Baisden and Patel, 2022) with additional requirements on the proportion of researchers' time for which they are expected to bring in external funding.

On paper, this “full cost recovery” model may appear reasonable. It aims to ensure that institutions are fully compensated for the real costs of doing research, which should, in theory, create a sustainable funding system. In practice, however, it introduces a fundamental flaw: a significant proportion of government-funded research grants – awarded based on research excellence – are not funding researchers to do their work. Instead, these funds are used to cover the operational expenses and strategic investments of universities and PROs. This mismatch creates a lack of transparency and a disconnect between those who bring in funding (researchers), what the funding was awarded to support (research), and those who decide how much of that funding is spent (university and PRO leadership teams).

In this article, we explore four ways in which Aotearoa's overhead model undermines the research ecosystem. First, differences in how universities and PROs apply overheads and incentivize researchers to bring in funding distort the process of developing multi-institutional project teams.

¹At the time of writing, the PROs are still governed by the CRI Act 1992.

*Correspondence: olivia.truax@canterbury.ac.nz

Second, the inability to secure significant salary coverage from a single grant fragments researchers' time across large numbers of projects, which leads to career instability and burnout. Third, the system creates barriers for workforce development by disincentivizing the hiring of postdoctoral researchers. Lack of postdoctoral research roles creates an almost impenetrable blockage in the research career pipeline and incentivizes institutions to favour recruiting PhD students, who do not incur overhead costs, over more experienced postdoctoral or early-career researchers (ECRs). Finally, relying heavily on overhead charges to support core institutional expenses creates instability, lack of transparency and barriers to strategic planning at both universities and PROs. These problems are not separate – they reinforce one another, weakening the research ecosystem, driving promising researchers out of the sector, and reducing Aotearoa's ability to compete internationally.

The solution to this problem is clear: research institutions require sufficient, stable core funding to cover infrastructure and administrative costs, and research grants must be reserved for expanding the frontiers of knowledge. Though increasing overall research funding, standardizing costing structures across PROs and universities, and improving transparency around overhead allocation at the institutional level would all be positive steps, they represent only partial solutions to a broken funding model. Fundamentally, using grants allocated on the basis of research excellence to finance strategic institutional needs like new buildings is inefficient and misguided. Without a shift to a core-funding model, the unintended consequences created by the current overhead system will continue to erode the quality and sustainability of Aotearoa's research ecosystem.

1. Disparities in Costs and Funding Structures Between Institutions lead to “Budget-First” science

Structural differences in funding models and overhead rates between PROs and universities distort research design and team composition. Overhead costs at PROs are substantially higher than at universities, and PRO staff must charge at least a certain proportion of their working hours to funded projects. In contrast, faculty members at universities typically do not cost their time directly and receive limited, if any, benefit from securing external funding for their salaries, even though that funding, along with student fees, supports their institutions. This creates a dynamic where grants are often disproportionately directed towards PRO staff, while university faculty members are included at fractional full-time equivalent (FTE, the proportion of an employee's time theoretically spent on a project). At the same time, the high cost of PRO researchers' time discourages, or sometimes prevents, their inclusion in grant applications. When researchers at both institutions have comparable expertise – which is particularly common among ECRs – university staff are more likely to be included in a project team due to their lower overheads and ability to contribute at an FTE that underrepresents their actual time. The result

is a funding environment where affordability routinely outweighs considerations of expertise or fit – a pattern we describe as “budget-first” science.

To demonstrate the problem, consider a hypothetical proposal for a Marsden Standard Grant led by Dr. Aitken, a senior scientist at a PRO, and Dr. Brown, a professor at a university (Table 1). The Primary Investigators (or co-PIs) budget for 0.2 FTE (one fifth of their time, or one day per week) each to lead the project. Dr. Calvo, a postdoctoral researcher (or ‘postdoc’) at a university, and Dr. Deng, an early-career researcher at a PRO, have relevant expertise and would each require 0.4 FTE (two days per week) to deliver on the project's milestones. Initially, the team includes one PhD student to support career development. However, when the personnel costs for the team – approximately \$438,400 – exceed the annual project budget of \$300,000 (Royal Society Te Apārangi, 2025a), the co-PIs must make compromises.

To stay within budget, the co-PIs reduce Dr. Deng's contribution to 0.1 FTE (equivalent to one morning per week). Although Dr. Deng agrees – recognizing the career benefits of being involved with the project – they know they will need to overextend themselves and under-report their hours to meet project milestones, while also seeking additional projects. Dr. Calvo's FTE is only reduced to 0.2 (one day per week) because they are substantially cheaper than Dr. Deng. However, because Dr. Calvo is funded entirely through external grants, they will still need to secure additional projects to cover their full salary. Recognizing that Dr. Calvo and Dr. Deng will have more limited capacity due to their reduced hours, the co-PIs add a second PhD student to take on some of their work. The co-PIs also adjust Dr. Brown's FTE to 0.05. This is a low-impact cost-saving measure because Dr. Brown still plans to commit one day per week to the project (0.2 FTE). Dr. Brown has no qualms about under-costing their time because securing external funding has minimal impact on their university workload and, as a full professor, they are no longer incentivized to secure funding to be eligible for promotion. As a senior scientist at a PRO, Dr. Aitken must charge their working hours to funded projects, so their 0.2 FTE for leading the project is fully budgeted. These changes leave \$12,250 for all non-FTE related costs for the project, such as analyses, fieldwork, conferences, open access fees, etc.

In addition to the budget-driven trade-offs individual PIs face within specific grants, researchers also encounter institutional incentives that can impact team composition and research decisions. Though Dr. Brown and Dr. Aitken are leading the design of our hypothetical Marsden project, both the university and the PRO stand to receive a substantial portion of the grant – potentially up to half – for discretionary use. These financial stakes incentivize the co-PIs' managers to become involved in the design of the project to safeguard their operating budgets. However, input from research managers risks diverting the project from its scientific goals. While researchers generally aim to collaborate widely, the overhead model can encourage

Name and Role	Base Salary (1.0 FTE)	Overhead Rate	FTE Fully Costed [†]	Cost Fully Costed [†]	FTE Budgeted [§]	Cost Budgeted [§]	Overhead Cost Budgeted [§]
Dr. Aitken; PRO co-PI	\$150,000	250%	0.2	\$105,000	0.2	\$105,000	\$75,000
Dr. Brown; University co-PI	\$150,000	112%	0.2	\$63,600	0.05	\$15,900	\$8,400
Dr. Calvo; University Postdoc	\$100,000	112%	0.4	\$84,800	0.2	\$42,400	\$22,400
Dr. Deng; PRO ECR	\$100,000	250%	0.4	\$140,000	0.1	\$35,000	\$25,000
PhD Student(s)	\$45,000 [‡]	0%	1.0	\$45,000	2.0	\$90,000	\$0
Total PRO FTE			0.6	\$245,000	0.3	\$140,000	\$100,000
Total University FTE			1.6	\$193,400	2.25	\$148,300	\$30,800
Total FTE			2.2 (1.2 staff)	\$438,400	2.55 (0.55 staff)	\$288,300	\$130,800
Budget available for research				-\$138,400		\$11,700	

Table 1: Budget Impacts on Team Composition in a Hypothetical (\$300,000 per year) Marsden Standard Grant

[†]\$35,000 stipend + \$10,000 fees = \$45,000 total

[‡]FTE for the project which reflects the optimal time commitment

[§]FTE reconfigured to deliver on the research while reducing the overhead burden

institutions to favour in-house projects that keep a larger share of funding under institutional control. These pressures discourages the formation of multi-institution teams and pit researchers – who are all ultimately funded by taxpayers – against one another to compete for resources rather than advancing knowledge collectively. These incentives produces a second form of “budget-first” science, in which institutional financial considerations, rather than expertise alone, shape team composition and decisions about who undertakes research.

Differences in the funding models between universities and PROs further complicate this dynamic. For example, in Dr. Brown and Dr. Aitken’s revised budget one-third of the annual funding (\$100,000) goes to PRO overheads to be allocated at the discretion of its leadership, while only \$30,800 goes to the university. However, this disparity may not be a concern for Dr. Brown’s manager because universities also receive financial benefits through the Performance Based Research Fund (PBRF), primarily via allocations tied to research degree completions, external research income, and researcher “quality” (Tertiary Education Commission, 2024a). However, the PBRF system is complex and lacks transparency: funds are distributed across multiple levels (department, faculty, and institution), and delays or cancellations of research quality assessments (Tertiary Education Commission, 2024b) make it an unreliable source of stable base funding.

Together, these financial pressures create a web of incentives that play out interpersonally between researcher teams and research managers during the grant proposal and contracting process, complicating project design and

skewing research priorities away from purely scientific considerations. In our hypothetical Marsden case, the co-PI’s efforts to maximize research output within their limited budget result in a disproportionate share of funding flowing to the PRO to support the senior scientist’s time; the early-career university researcher is prioritized over their PRO counterpart; both ECRs are funded at only a fraction of 1 FTE; key research deliverables are reassigned to a PhD student; and the university receives less funding than its staffs’ contributions warrant. Importantly, increasing grant sizes will not resolve these structural problems. Disparities in overhead costs and funding structures between universities and PROs create overlapping internal and institutional pressures. Together, these dynamics distort team composition, compromise research quality, disadvantage emerging researchers, and create a system in which finances, rather than capability, dictate who participates in research.

2. Fragmentation of researchers’ time leads to burnout, inefficiency, and compromised research outcomes

Aotearoa’s high overhead costs and small grant sizes mean researchers at both universities and PROs are routinely under-costed on projects, with FTE allocations that do not reflect the actual work required. To stretch limited budgets, and because of the financial incentive structures discussed above, team members are routinely budgeted to work fractions of the real time they will invest in the project. This chronic under-resourcing fosters a culture of overpromising and underdelivering, generating stress,

Institution Type	Position	Researcher Salary	Cost of 1.0 FTE	Cost for 0.2 FTE to lead Marsden Fast Start	Remaining for Research & Other Costs
University	Postdoc	\$100,000	\$212,000	\$42,400	\$77,600
Public Research Organisation (PRO)	Postdoc	\$100,000 [†]	>\$350,000	≥\$70,000+	<\$50,000
University	PhD student	\$35,000 stipend	\$35,000 stipend + \$10,000 fees = \$45,000 total	N/A [‡]	N/A

Table 2: Comparison of Overhead Impacts on a Marsden Fast-Start Grant (\$120,000 per year) at a University and PRO

[†] Note that PRO salaries for ECRs are typically higher than those in universities for an equivalent level, which further reduces the amount of a Marsden fast start remaining for disbursements

[‡] PhD students cannot be the grant holder for a Marsden Fast Start so their salary would need to come from the amounts left over for the other ECRs.

inefficiency, and ultimately reducing both the quality and impact of research.

For example, the prestigious and highly competitive Marsden Fund Fast-Start grant, which is designed to help ECRs establish independent research programmes, provides \$120,000 per year for up to three years (Royal Society Te Apārangi, 2025a). If a researcher earning \$100,000 is funded to work one day per week (0.2 FTE) on a project (which is the minimum requirement for a Marsden Fast-Start), the base salary cost is \$20,000. But with university overheads of 112%, the grant is charged \$42,400. At a PRO, where overheads can exceed 250%, the cost rises to more than \$70,000 – leaving less than \$50,000 for research costs, student scholarships, or collaborators’ time and less (or perhaps nothing) if the PRO adds an additional margin for profit (New Zealand Parliament, 2025). The current cost recovery model fails to support the fundamental building blocks of a research career – most critically, protected time to do research – leaving researchers without the resources or capacity they need to succeed.

With overheads consuming such a large portion of small grants, researchers must rely on multiple projects to make up the total time theoretically allocated for research (for university faculty members who also teach undergraduates, typically 0.4 FTE) and fund a ‘sufficient’ proportion of their salaries (for PROs, typically >0.7 FTE). This problem is exacerbated at universities by the lack of transparency around what happens to researchers’ overheads and for researchers at PROs by the budgetary constraints which require them to reduce their FTEs to be affordable on projects (as discussed in point 1). Instead of focusing on a single project, researchers are pulled in multiple directions, spending more time writing reports, attending meetings, and applying for new grants than doing their research. This fragmented approach not only slows progress but also erodes researchers’ ability to develop deep expertise, sustain meaningful collaborations, and produce high-quality work.

For early-career researchers, the consequences are particularly severe. Juggling multiple grants and projects makes it nearly impossible to establish a coherent research

trajectory, while the administrative burden and constant pressure to secure funding lead to chronic stress and burnout (Nissen et al., 2020; Simpson et al., 2022).

3. High Overheads on Postdoctoral Researchers Weaken the Research Workforce

Aotearoa’s funding model makes it particularly challenging to support postdoctoral researchers. High overheads mean that funding a single year of postdoctoral research time at a PRO can cost more than \$350,000 (Table 2). In contrast, PhD students cost much less – around \$45,000 a year – and do not incur overheads because they are not classified as employees (which leads to many other issues, including lack of support for parental leave and sick pay, e.g. Patel et al., 2022). In many other countries, the costs of supporting PhD students and postdocs are more balanced, which helps to ensure that there is a coherent pipeline to an academic career. In Aotearoa, however, PhD students are underpaid and heavily subsidized by the government (Patel et al., 2022), while postdocs come with disproportionately high salary costs. One year of postdoc funding is roughly equivalent to supporting two PhD students for three years (Table 2). This financial model encourages a system that relies heavily on training large numbers of PhD students instead of employing postdocs. As a result, postdoctoral researchers remain scarce relative to the growing number of doctoral graduates (Patel et al., 2022).

This creates several problems. First, since postdocs are rare and both primary and associate investigators are routinely funded at fractional FTE (0.05 - 0.2), PhD students are often the only people on a project with meaningful time to dedicate to research. This results in PhD projects routinely being used to deliver key project outcomes, which conflicts with the purpose of a PhD as an opportunity to cultivate expertise and learn to be a researcher. The need for PhD students to provide deliverables means that supervisors may favor applicants who already have specific technical skills, reducing the diversity of students able to enter PhD programs (e.g. Williams et al. 2019). The PhD also becomes outcome-

driven rather than developmental, undermining its value as a training opportunity, and consequently the possibility of Aotearoa-trained PhD students progressing in academic careers.

Second, the students we train face a grim employment landscape after completing a PhD. The lack of postdoctoral funding creates a mismatch between the number of PhD graduates and the opportunities available to continue in the research sector. This is a well-documented, long-standing problem in Aotearoa (Nissen et al., 2020; Simpson et al., 2022). Though various temporary initiatives and creative strategies have been proposed (e.g. Ministry of Business, Innovation and Employment, 2022; Truax, 2022), the fundamental issue remains that postdoctoral positions are too expensive to fund adequately with available research funding, even where that funding is specifically targeted at ECRs. Where such positions do exist, the outcome-driven nature of PhDs discussed above means that students graduating in Aotearoa are less likely to be competitive applicants.

Third, Aotearoa's high institutional overhead costs block ECRs from securing competitive fellowships to fund postdoctoral research, severely limiting their career development. In other countries, postdoctoral fellowship schemes provide ECRs with a range of opportunities to propose, and work on, a 2-3-year project hosted by a research institution. This is almost impossible in Aotearoa due to the mismatch between available funds and the institutional cost of a postdoc. For instance, the recently established Mana Tūāpapa Future Leader Fellowships provide \$82,000 each for salary and overheads to fund an ECR at 0.8 FTE, with the aim of giving recipients protected time to "establish the foundations of an excellent and impactful research career" (Royal Society Te Apārangi, 2025b). However, the \$164,000 per year provided through this scheme is barely enough to fund 0.8 FTE at a university, and is insufficient at a PRO (Table 2). Mana Tūāpapa fellowships also do not cover the final 0.2 FTE of a fulltime salary, which will require some ECRs to secure additional support for their role. With only 20 fellowships awarded annually across all disciplines, compared to over 1,500 PhD graduates each year (Education Counts, 2025), opportunities are also extremely limited. While ECRs can sometimes negotiate with institutions to reduce overheads, this often comes at the cost of additional teaching or administrative duties, which detracts from their research time and career progression. The fundamental question remains: does it really cost universities and PROs more than \$82,000 per year to provide a junior researcher with an office and basic research support? This paradox – ECRs cannot pay universities and PROs enough to employ them – deprives institutions of valuable knowledge and talent and denies ECRs opportunities to advance independent research careers.

Finally, the absence of postdocs weakens the entire research ecosystem. In other countries, postdocs are the engine of research – they provide continuity, drive outputs, and mentor students. Without them, Aotearoa lacks a

viable research career pathway and misses out on the capacity and momentum postdocs provide, contributing to the culture of burnout and under-delivery discussed above.

4. Pervasive Instability from Unpredictable Grants and Overhead Fluctuations

Relying heavily on unpredictable research grants to fund core institutional expenses creates instability and poses major strategic challenges for Aotearoa's universities and PROs. Research grants are uncertain revenue streams awarded specifically for research activities – not institutional priorities like new buildings. Grants are assessed on the merit of proposed research rather than institutional needs, so relying on them to fund core expenses makes long-term institutional planning precarious and reactive. Institutions routinely respond to financial pressures by adjusting overhead rates or shifting unrelated institutional costs onto research grants, such as losses resulting from decreased student revenue during the COVID-19 pandemic, or building maintenance (Baisden and Patel, 2022; University of Auckland, 2018).

For researchers and grant applicants, rapid and unpredictable changes in overhead rates create major operational challenges. When institutions adjust overhead rates, researchers developing new projects (or in some cases, working on projects which have already been contracted) face sudden budget shortfalls, forcing them to scale back planned research activities, restructure projects, or abandon work entirely. Over the past year, in the lead-up to their merger into PROs, some CRIs increased overheads by up to 50% within a few months, adding profit margins on top of full cost recovery (New Zealand Parliament, 2025). Marsden Fast Starts are now on the edge of what is considered acceptably profitable funding for ECRs at these institutions to bring in, even without the disbursements needed to carry out the planned research. Such discrepancies mean that ECRs at PROs can no longer even apply for some smaller grants, such as the Natural Hazards Commission Biennial grants, based on the FTE required by the funder and the overheads required by the employer. Ultimately, shifting institutional financial burdens onto research grants undermines both institutions' and researchers' ability to establish stable budgets and develop coherent, long-term strategies.

The Way Forward: Core Funding for Institutions, Grants for Research

There is broad agreement that the current research funding model in Aotearoa is in urgent need of change (Cameron et al., 2025; GNS Science, 2022; NIWA, 2022; Science System Advisory Group, 2024). To us, the way forward is clear: we must move away from a cost recovery model where research grants are expected to fund infrastructure and institutional operations. Instead, research institutions should have access to dedicated funding – whether through increases to core allocations or separate contestable mechanisms – for buildings, future investments, and other capital expenditures. Research grants should be used primarily to support research activity itself. This

separation would provide greater financial stability to universities and PROs, enable long-term infrastructure investment, and improve transparency on how public funds are allocated and spent. A distinct funding pathway for institutional operations would also eliminate many of the perverse incentives currently embedded in the system and help to ensure that multi-institutional collaboration, postdoctoral hiring, and researcher career development are not undermined by funding constraints. Aotearoa's research system must be restructured to ensure funding effectively supports discovery and innovation. As the government moves forward with proposed changes to both the science system and universities, we argue that core institutional funding and a comprehensive overhaul of the current overheads system should be a top priority.

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