

# A review of the new MBIE Report on the Marsden Fund

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*The New Zealand Ministry of Business, Innovation and Employment (MBIE) has recently completed a report on the way that the Marsden Fund works (MBIE 2017). In many ways this is an excellent document. It describes the history and purpose of the fund and explains how it operates. It also compares Marsden to other granting agencies overseas (Section 3). The authors consulted widely with stakeholders, identified many issues in their findings (Section 4) and made a set of recommendations (Section 5). Although a lot of key points were revealed, the MBIE team seems to have been consistently just wide of the mark, in the estimation of this reviewer. In this short article I identify those key topics that have been a source of long-term concern for many applicants and commentators. It is hoped that these, together with the original MBIE report, may stimulate wider discussion in the scientific community.*

**Keywords:** Marsden Fund, MBIE, assessment panels, funding.

## Introduction

The Marsden Fund is an annual competition that provides support for basic (aka blue skies or investigator-led or -initiated) research and, to a lesser extent, applied research. However, there is still some ambiguity in the minds of stakeholders about the *research horizon* actually considered by Marsden (see MBIE 2017, Section 4.3.2 p. 19). The fund started in 1995 with the equivalent of NZD 9 m (in today's terms) and now dispenses around NZD 58 m, rising to NZD 80 m by 2019/20 (see MBIE 2017, Section 1.3 p. 3). It is well known, but perhaps still surprising, to note that even now it can only fund around 7% of applications. The scheme is efficiently managed by the Royal Society of New Zealand. The assessment process is generally felt to be without bias, but is often claimed to be something of a lottery (see MBIE 2017, Section 4.2.4 p. 16). Nonetheless, applicants generally report that the two-stage selection process provides adequate reward for the effort of putting applications together. Overall, the view generally expressed is that getting a Marsden grant is a prestigious event and reflects one's high standing in the scientific community.

In their recent report, MBIE (2017) reviewed all these aspects of the Marsden Fund and, although not entirely buying

received wisdom as presented above, they did not ring any loud alarm bells either. Their team arrived at a set of conservative recommendations for improvements together with several proposals for investigation of alternative ways to run various parts of the operation. This latter list is prudent, because not all problems identified are serious ones and not all solutions are either easy or obvious. In the opinion of this reviewer, MBIE has done the scientific community a great service in putting this document together and have touched on most, if not all, the difficulties that applicants have found when trying to secure research support from this source. However, it is my also my view that MBIE has been consistently just wide of the mark in their analysis and thus cannot be said to fully appreciate the frustrations of those they serve. In the sections below I have laid out what I take to be the key issues and some comments on MBIE's approach to addressing them.

## **Issue 1. The Marsden Fund is massively over-subscribed.**

There can be very little argument against the assertion that a 7% subscription rate is much too low, to the very point of being an abuse of talent. MBIE recognises that there are legitimate concerns about success rates (MBIE 2017, Section 4.2.2 p. 15). All things being equal an investigator can only expect to get a grant funded by Marsden about once every 15 years! In other words, if you score two in your whole career, then you are doing OK. The effort squandered on applications is tempered to some degree by the two-stage process with just 17% of first-round one-page proposals succeeding and a generous 44% of second-round full applications receiving support in 2015 (MBIE 2017, Section 4.2.2 p. 15). This shows that a great deal of potentially good science is being starved of resources. MBIE's view that simply increasing funding may not improve the subscription rate (MBIE 2017, Section 4.2.2 p. 15) has some foundation, but cannot be the whole story or else all granting agencies everywhere would have this same rate, as is clearly not the case. True, the Marsden Fund budget allocation has been steadily increasing over the years, but this trend will need to continue for many years to come if investigator demand is to be satisfied. In the paragraphs below I have made some suggestions regarding mechanisms for

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increasing the available budget and limiting application inflation (see under Issue 4 below).

### ***Issue 2. Marsden awards create a false impression of prestige.***

Marsden Fund grants are said to have been awarded by the top science scheme to the best scientists for pursuit of the best science (MBIE 2017, Section 4.2.1 p 15). Rather, it might be nearer to the truth to say that Marsden is not simply the best competitive granting scheme for New Zealand scientists, but that it is the only granting scheme available to most scientists. Let us now unpack that idea that the scheme selects only the best of the best. In the second round and after extensive international review, Marsden panels find it hard to rank second-round applications (MBIE 2017, Section 4.2.2 p. 16). Of course, this also means that the other 56% of the full applications in 2015, which were also good science, went without funding. The same fact may be used to support the idea that at least the panel got something right in the first round, or at least they were able to screen out applications that would have diminished our national reputation if they were sent overseas. I think that many recognise that some people have a particular talent for drafting good first-round applications. Such skills are now widely coached and nurtured by host institutions (MBIE 2017, Section 4.2.4 p. 16). However, I think that many also recognise that many good scientists cannot manage to put convincing one-pagers together. Further, that what is described in the successful one-pagers may not be exclusively the very best science we have on offer. Set against this proposition are the statistics on publication success by Marsden recipients, showing that they do perform above the norm in this regard (MBIE 2017, Section 4.1 Figure 3 p. 15). I concede that this is an index of achievement, but I caution that getting a paper into the top 10% of journals (e.g. as ranked by Impact Factors etc.) does not mean that individual papers are actually in the top 10% of science. Overall, one is led to the view that Marsden grantees are doing rather well, but one would still need to see data on numbers of publications and patterns of submissions to be certain. Hence, if one concentrates all one's efforts on just one paper per year and only ever submit them to journals in the top 10%, then one's Impact Factor rating is always going to look pretty good, even if it does come at a cost to productivity.

### ***Issue 3. Applicants have near-endless concerns over fairness.***

MBIE captures this angst very effectively and includes detailed analyses of Round 1 and Round 2 assessment procedures and makes some thoughtful recommendations to improve transparency (MBIE 2017, Section 5.2 Recommendation 4 p. 32). I am surprised to learn that many applicants think that Round 2 is a lottery, when I had always thought that this descriptor applied more exactly to Round 1. However, given that most applications that enter Round 2 are potentially fundable and hard to rank, then I am inclined to have some sympathy with their claim.

So is it fair to call the Round 1 process a lottery? It is certainly burdensome for assessors (MBIE 2017, Section 4.5.5 p. 23), but do they deliver an equitable outcome from all this hard work? For a long time I have believed that it was unsupportable to allow Marsden panellists to make the seemingly ludicrous claim that they could fairly rank 120 applications in the time available to them. I have softened this position somewhat of

late on the understanding that the task is not much worse than marking 120 student essays. Never an easy task, but by no means impossible. Also, it is widely held that best applications are easy to pick and the worst can quickly be weeded out. There are no figures available regarding the proportion of this latter category and it is perhaps surprising that such poor-quality products are sent in at all. Overall, confidence is improved by recognising the reported consensus of panellists regarding the very top applications and the fact that one-page proposals sent down to the second round seem to result in high-quality full applications. This reviewer would be very interested to learn what would happen if a year's worth of Round 1 applications were to be scored blind by a second independent panel of assessors.

Alternative approaches have been suggested, including limiting the number of applications to each panel from institutions and/or individuals and more efficient panel structures and processes (MBIE 2017, Section 4.5 p. 21). One alternative would be to assign only a limited number of applications to each panellist. This system was used in previous years, with just three panellists reporting on each Round 1 application. This has been dropped in favour of the present more stable and representative system with each panellist with no conflict of interest ranking all applications, workload and read-through quality notwithstanding. The earlier three-panellist system scoring via 'Yes', 'No' and 'Maybe' was clearly open to abuse, as a rival could be stymied simply by one conflicted person voting 'Maybe'. I am not for one minute suggesting that this actually happened, but the widespread conception that it could happen was corrosive to morale.

### ***Issue 4. The Marsden Fund carries illegitimate financial burdens.***

Specifically, these are staff salaries (aka FTE quota) and overheads for those applicants employed in tertiary institutions. This has the effect of making the awards too small (MBIE 2017, Section 4.6.1 p. 25). Many successful investigators report that fully funded grants only run to the employment of just one postdoctoral fellow and possibly some support for an associated PhD student. MBIE's solution (MBIE 2017, Section 4.6.4 p. 27) is to increase the size of the awards – a welcome suggestion to many perhaps, but it must come at the cost of reducing subscription rates below even the present 7%, unless the total fund pool can be increased. To my mind, this practice of claiming FTE contributions and overheads is double-dipping in its most naked form, because these are supplied by TEC via bulk funding and PBRF allocations up to 0.4 FTE (being the notionally agreed fraction of university staff time available for research). Marsden Fund applications have no requirement for applicants to show how this 0.4 FTE is allocated, which absolutely is necessary to make any sort of case for a buy-out of teaching time (also notionally 0.4 FTE) or perhaps from the remaining 0.2 FTE which is supposedly devoted to administration, enhancing the scientific environment, and public engagement. Even given that a scholar can make a case that 0.4 FTE of his/her time is already committed to funded research projects, then claiming further resources to buy out of teaching time means that they will be replaced in the classroom by a younger, less experienced (and perhaps less qualified) teacher. This seems to go against the central mission of our universities to provide programmes of instruction from those experienced and actively engaged in research.

There is one special category where providing an FTE schedule should be mandatory and that is for individuals involved in Centres of Research Excellence (CoREs). The central idea of CoREs was to free up a small clique of top researchers from the treadmill that is the reality of life for those seeking to fund costly projects. Since their inception, many fear that the founding members of CoREs have become super-competitive predators using CoRE-funded research findings as seed data for Marsden projects. Hence, they may be seen as better positioned to claim an unfairly large slice of the funding pie. Some CoREs (e.g. the late lamented Allan Wilson Centre) have developed into networks of necessarily lesser research excellence. In many ways, one might commend these developments as being more democratic, but it does dilute the CoRE objective. Either way, CoRE members really do need to declare their FTE funding and list their pre-existing projects to Marsden in the interests of transparency and equity.

Like FTE quotas, overheads were introduced partly to satisfy the anxieties expressed by CRIs regarding the need for *level playing fields*. Their concern was that universities would undercut them by bidding lower for the same piece of work. The CRI staff had no option, but to include these costs due to the alarmingly commercially competitive environment that they had suddenly found themselves operating in. This drain on the Marsden Fund pool never needed to happen if applications from the two sources had been treated differently and it was made clear that the bottom line was not a factor in decisions. The exception to this suggested rule change would be for new staff, e.g. Postdoctoral Fellows newly recruited to carry out Marsden projects. Here it would be unfair to ask universities to carry the cost of researchers they had not budgeted for.

In its original form, as first introduced to the New Zealand scientific community by Professor Ian Axford, the Marsden Fund did not allow FTE and overheads to be charged. This was supposed to be all new research money, pure and simple, which was all going to go to the investigators. Well now it does not. A sizeable chunk of the money goes to the university for FTE and overheads. One might legitimately ask what they do with it all. This is a fair question, and these are public funds after all. I believe it would be legitimate to ask for a full accounting and justification. In the interim, I strongly recommend dropping FTE and overhead components of Marsden Fund grant budgets for both universities and CRIs. This is now justifiable in the latter case because CRI managers now receive some bulk funding that potentially could be directed to these ends.

The above matters are important and deserve urgent attention. Dropping the FTE and overheads items will automatically increase the available budget and improve the 7% subscription rate. Managing individual FTE budgets will help to ensure that staff are not overworked and automatically limit the number of applications that are submitted. Together these reforms will give everyone a better chance of getting some support for their work.

#### **Issue 5. What is the Marsden Fund for?**

When the Marsden Fund was delivered to potential applicants by Professor Axford he explained that the New Zealand Government had bought into the idea that applied research projects (i.e. what the CRIs did) were most successful when underwritten by a 5 to 10% investment in basic research in the same area. The MBIE Report addresses this concept (MBIE 2017, Section 5.2 Recommendation 3 p.31) by thinking about alignment with

their *National Statement of Science Investment* (MBIE, 2015). In the event, Marsden has gone its own way and funds many good projects quite unrelated to the various CRI missions. The report also includes various fine-sounding descriptions about what the higher objectives of the Marsden Fund might be. In general, these appear laudable, but seem rather vague and difficult to pin down. I would prefer to think of the Marsden Fund as aiming to be a fair way for all scholars to obtain some much needed research funds.

#### **Issue 6. The fund manager has a serious conflict of interest.**

The Marsden Fund is run by the Royal Society of New Zealand (RSNZ) in the sense that they function as the secretariat for the Marsden Council. Many, including MBIE (Section 4.2.1 p. 15), seem to feel that they are doing a pretty good job of it. I think that there is no question that they make the trains run on time. In other words, the administration of the fund has continued efficiently over many years. This is a fine achievement. The fund is said to be successful in selecting and supporting high-quality research. However, this really ought to be the case given that only the very top 7% of applications are funded, and these predominantly from scholars with strong track records. It would be hard not to succeed under these circumstances and RSNZ cannot really be said to have added value to the process.

A conflict arises because RSNZ has as part of its mission to husband the Marsden Fund resources carefully, but at the same time also to advocate for the interests of scientists. Hence, it should be up to them to challenge the universities regarding overheads, etc., and to put strong public pressure on the Government to drive the budget up. One might think that taking stands on such matters would put RSNZ at risk of losing their contract to run the Marsden Fund. This would mean their losing the income that comes from managing it. I have never seen any figures for the sort of money involved. I believe that these should be publicly available since these are public funds.

#### **Issue 7. The Marsden Fund does not support continuity.**

This feature is recognised by MBIE (Section 4.6.2 p. 25). Amazingly, this is policy. However, it runs counter to common research experience. Investigators often find that one set of experiments opens up new questions along the same lines. Naturally, they want to follow up these productive avenues. Marsden simply does not allow them to do this. Instead, they have to reconfigure the work and disguise it as an entirely new, but bogus, research direction. Surely this is not good practice. MBIE suggests (MBIE 2017, Section 4.6.4 p. 27) funding longer-term projects (say 3 to 5 years), but I believe that it would be better to drop this criterion altogether and simply allow longitudinal investigations. However, I would recommend one exception, namely where a successful research plan is simply repeated in another time or place or organism. This need not be a hard and fast rule, as repetitions can build confidence in a model, but the Marsden Fund should continue look to novelty as one of their prime directives.

#### **Issue 8. New Zealand is intoxicated by the need for hypotheses.**

If any reader should doubt this assertion, they should try writing a grant application without one. They are likely to find their proposal rejected and classed as stamp collecting or hobbyist.



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This is unfair, as unbounded surveys are still good science and lead to hypotheses. In my view, the reason we like hypotheses is that we were flattered because the great philosopher Karl Popper chose to spend some time in Canterbury. One of his great concepts was that ideas (framed as hypotheses) could only be falsified and not proved. Hence, we now seem to require all grant applications to test a hypothesis to see if it can be falsified. This is nonsense, because an open survey can be converted into a hypothesis simply by guessing what one will find, even better if your guess is suggested by a paper in the scientific literature.

## Conclusion

MBIE scores six out of ten at best. The facts are mostly all there, as are some good ideas and suggestions, but they do not quite capture the key problems. I have tried to lay these out above, together with some suggestions for solving them. In this regard, I point particularly to the ideas presented under Issue 4 which could lead to immediate improvements in funding levels and equity provided that the anticipated pushback from

the universities can be overcome. I cannot claim to have fixed everything because some of the difficulties are complex and some can't be easily fixed. Nonetheless, I hope that these pages may excite a wider debate around a most important resource for New Zealand researchers.

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## References

- MBIE 2015. *National Statement of Science Investment*. Ministry of Business, Innovation and Employment: Wellington. <http://www.mbie.govt.nz/info-services/science-innovation/national-statement-science-investment/?searchterm=science%20investment%2A>
- MBIE 2017. *Marsden Fund: Assessment of Strategy and Management*. Ministry of Business, Innovation and Employment: Wellington. <http://www.mbie.govt.nz/info-services/science-innovation/research-organisations/pdf-document-library/marsden-fund-assessment.pdf>