

charity that he leads helped to create such a focus on excellence.

Wellcome is not alone — excellence is everywhere. Germany plans to spend €533 million (US\$581 million) a year on its Excellence Strategy. In the United Kingdom, £2 billion (US\$2.5 billion) of public funding is allocated annually to universities through a suite of funds that support “excellence wherever it is found”. Australia’s research-evaluation system is called Excellence in Research for Australia. Worldwide, research facilities are being named centres of excellence, and excellence is scattered generously in the pages of universities’ strategic plans.

But, in line with what has been said before, Farrar concedes that a focus on excellence also contributes to “destructive hyper-competition, toxic power dynamics and poor leadership behaviour” — the latter echoing the findings from *Nature*’s comprehensive survey on research-group culture last year.

Wellcome has launched its own survey on attitudes to research culture, the findings of which it says will be used to support environments where researchers want to work. Earlier this week, the charity also hosted the launch of the Research on Research Institute (RoRI), a new venture that will investigate research policy, systems and cultures. Wellcome is working in partnership with the University of Sheffield, UK, Leiden University in the Netherlands and the company Digital Science (which is part of Holtzbrinck, the majority shareholder in *Nature*’s publisher, Springer Nature).

Both initiatives are overdue. But equally important will be what happens next — and whether other funding agencies accept that a kinder research culture is needed. They are aware of what the RoRI partners are doing, but they are taking their time to respond. This is understandable to an extent, because they need to grasp the causes of the problems before they can act. This is where RoRI will be valuable, and there are several strands of research that it could start to investigate.

The first question to tackle is what funders mean when they say ‘excellence’. Many have backed excellence partly to ensure that funding is awarded to the best research, and partly because such a focus tells governments and taxpayers that their hard-earned money is being spent responsibly. We know that definitions tend to include some combination of research quality, along with impact. But there will be variations, and investigation could help to unpack how different funders define it.

An equally important question is to explore the relationship between excellence and inclusion. The funder focus on excellence presupposes that research of the highest quality benefits from competitiveness. The

extent to which this is true needs further examination.

Second, our 2018 survey revealed that senior staff have a more positive view of their lab environments than do less-senior colleagues. There is evidently a mismatch of views, which further exploration — both qualitative and quantitative — could help to dissect.

Third is the question of performance metrics and research-evaluation systems. Scientists observe that performance metrics contribute to work environments that are more competitive. But how metrics create such environments could be better understood.

In June, Research England, the UK funding agency responsible for university assessment through the Research Excellence Framework (REF), published a review of attitudes to the REF in four universities. This revealed both positive and negative attitudes, the main negatives being that the exercise encouraged game playing and affected creativity. The funder plans to extend the pilot to more universities; RoRI, too, has an opportunity to explore this work in universities in other countries.

Fourth, there are questions to be asked about how university rankings affect research culture. The task of improving a university’s position in the rankings is sometimes given to performance-management units that are attached to an institution’s senior leadership. Instructions are cascaded downwards. Heads of faculty, for example, need to meet targets for research income and for research outputs. This creates pressure on individuals and on teams to report new findings, and it is this pressure that, in some cases, can lead to negative results going unreported.

Examining how funders can recognize or incentivize researchers to use a wider range of publishing formats in addition to the conventional research paper — such as data sets, registered reports and evidence reviews — could constitute part of these questions.

Wellcome and its partners in RoRI should be commended for taking an important first step. They have recognized that there are problems in research culture and that these need to be fixed. RoRI will help to probe some of the causes of distress, and suggest solutions. Now, other funders and research-management societies must join the mission: ultimately, strength in numbers is what will compel universities to take action. The task of achieving a kinder, more welcoming research environment — one that rewards diverse approaches and embraces failure — is not something that Wellcome can achieve on its own. ■

Let fishers share

There’s a way to provide children in Africa and Asia with enough essential micronutrients.

Economic stability was the great promise of industrial farming in replacing subsistence agriculture. Farming on a larger scale meant that families could produce enough both to feed their families and to sell on to local and international markets.

But as Christina Hicks at the University of Lancaster, UK, and her colleagues show in a paper in this week’s *Nature*, families — especially children — of artisanal fishers across Africa and Asia are suffering because of the demands of the aquaculture industry (C. C. Hicks *et al.* *Nature* 574, 95–98; 2019).

The problem, which is widely recognized, is that coastal communities are selling increasing amounts of their catch to aquaculture corporations. These fish are ground down to produce fishmeal, which is fed to farmed fish that are bought by wealthier consumers. But owing to expanding demand for farmed fish, more catches of fresh fish are being diverted away from local markets — and from the diets of children in coastal communities.

Globally, two billion people are deficient in essential micronutrients,

such as iron, zinc, selenium, vitamin A and omega-3 fatty acids. There are one million premature deaths every year because people are not getting the right micronutrients. A lack of calcium, iron and zinc, for example, can cause stunted growth and anaemia. And yet just 100 grams of fish a day could provide half the recommended dietary allowance of iron and zinc for a child under five years of age.

Hicks and her team worked out the quantity of micronutrients obtained from catches of 367 species of fish in 43 countries, and then compared this with the prevalence of nutrition-linked diseases in communities within 100 kilometres of a coastline. They found that, in some countries, if fishers could hold back just a fraction of what they catch, that would be enough to provide families with healthier diets.

In Namibia, for example, 9% of fish caught in the country’s Exclusive Economic Zone would be sufficient to provide the iron needs of the entire coastal population. In Kiribati, 1% of catches would cover the necessary calcium for all of the country’s under-fives. In another 22 countries in Asia and West Africa, one-fifth or less of catches would fulfil the dietary needs of all under-fives.

These are troubling data, but producers and consumers can make a difference. Consumers of farmed fish especially can demand that producers find ways to improve the health and nutrition of coastal communities — for example by ensuring that fishers get to keep more of their catches. This isn’t a difficult request, and it could make the difference between a child’s life and her untimely death. ■