



Developing nations need more than just money

Grants from big science funders can be hard to use without better administration and mutual understanding, says Rana Dajani.

As a molecular biologist based in Jordan, I'm used to colleagues from outside the Middle East and North Africa assuming that brain drain and a lack of funds are the chief obstacles to science in my region. That is not my experience. Like me, many scientists return home after studying in the United States or Europe, and successfully apply for grants, often from international philanthropies or funders.

The real problem is using the money. There is a disconnect between the funding systems that we can tap into and the institutions where we work. Granting agencies often fail to appreciate the constraints we're operating under. Current practices by both funders and universities practically guarantee that our funds — already limited — are spent inefficiently. We need more investment in administrative systems and more flexibility, because science is unpredictable and creative.

I hear the same sorts of struggles again and again. For example, a researcher in the Middle East received a grant from a US institution to study vectors of disease. It included a line item to cover capturing insects in the desert. But the local university overseeing the funds would not disburse them to cover transport, because the team could not supply officially stamped receipts from a petrol station; services at remote locations in developing nations are rarely equipped to provide such documentation. The scientist has not applied for an international grant since.

Another colleague in the region received a grant budgeting for some human genetic analysis to be performed by a third party in the United States, because the necessary capacity doesn't exist in the Middle East. It took more than a year to get the funder, local university and third party to sign the agreements. But after the samples were shipped, university administrators said they could not process invoices because a bid to supply DNA-analysis services had not first been advertised in local newspapers. It took another year, many committees and much heartache to resolve the issue.

The situation is improving as more grants are awarded. For example, a newly appointed dean of scientific research at my university, Majd Mrayyan — herself a practicing scientist — has reduced the paperwork and minimized the levels of approval needed to begin projects. And the American University in Beirut has set up a department to handle funding logistics, staffed by people who understand the process. It has greatly increased the amount of funding that the university can receive.

Still, few university administrators in developing countries know much about science or how grants are typically handled. Postdoc and technician positions are rare across the Middle East and North Africa. When I hired a lab manager to handle administrative tasks such as ordering equipment, several people told me I was indulging in a luxury.

Institutions such as Harvard University in Cambridge, Massachusetts, where I am currently a visiting fellow, receive as much as 69% of

awarded funds as indirect costs, which they put towards infrastructure and overhead — the costs of maintaining a system. By contrast, international grants to researchers in developing countries rarely cover infrastructure or capacity building; in some cases, philanthropists' charters explicitly prohibit them from putting money into anything not directly related to a funded project.

Even when overhead funds are available, local universities are often wary of spending them on intangibles such as salaries or training. They prefer to use grants to buy instruments and equipment. In one typical occurrence, an award covered the purchase of a DNA sequencer, but not maintenance. The instrument was effectively rendered useless in three years.

How can we solve this? Through capacity and systems building. Funders need to find ways to ensure that recipients have the administrative

staff and skills to use their money well, and to help build these foundations where they are lacking. Agencies should encourage the appointment of administrators who have research experience. They might even consider sponsoring training and exchange programmes for administrators.

People involved also need to sit around a table and talk about these issues in real time. When discussions happen — if they happen at all — it is through e-mail, and most communication occurs within groups rather than across them. People at institutions talk among themselves and then formally approach funders; those at funding agencies take the same approach. Each group misses out on nuance and connection with the other.

For every grant awarded, funders, university administrators and scientists should talk about the project together to identify needs and potential conflicts. They could then take the initiative to make changes, which builds ownership and creates useful precedents.

These discussions might reduce many roadblocks that keep scientists in the developing world from being able to use grants more efficiently. Core facilities that allow expensive equipment to be shared would cut down on redundancies and free up available funds. Provisions for maintaining equipment and paying and training technicians should be built into the budgets of both grants and institutions.

People from developed countries might feel noble when they give money to those in developing countries. What is really needed is more complicated — but it's doable. For funders to have the most impact, they need to sit down with administrators and scientists in developing countries, listen to their challenges and decide together what to do. That is the way to genuinely make a difference. ■

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