



## SCIENCE & INNOVATION POLICY

### OPINIONS

# Can the scientific diaspora save African science?

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**In recent years the idea of harnessing Africa's scientific diaspora has been advocated by many as the key to combatting the brain drain and improving the continent's ailing science and technology profile. But Jacques and Anne Marie Gaillard argue that there are serious limitations in the diaspora model that suggest it should not be seen as the principal panacea for African science.**

Since the end of the 1980s, the state of science and technology has substantially deteriorated in most African countries [1]. Recent surveys of African scientific communities describe a number of conditions that have fractured Africa's scientific infrastructure [2,3,4]. Severe cuts in government spending have pushed higher education institutions and research centres into decline: buildings are poorly maintained, there is a severe shortage of modern equipment, and staff are undervalued (and sometimes unpaid). As a consequence, many African academics are either hired by international bodies on a consultancy basis, work for non-governmental organisations or have set up their own businesses. Virtually no recruitment took place during the 1990s, and African universities and research institutes are now facing the prospect of a serious "generation gap" [5].

Given such circumstances, it comes as no surprise that the continent's best scientific talent continues to leave in large numbers, creating a chronic "brain drain" problem. As a result, Africa's relative capacity to contribute to world science drastically decreased during the 1990s [6] and will continue to decrease if efforts are not made to train and recruit a new generation of scientists.

Against this backdrop, recent policy documents and political discourses (including speeches made by African policy makers at last year's World Summit for Sustainable Development) assert that the tens of thousands of African scientists abroad should no longer be seen as a bane, but on the contrary constitute a boon for Africa.

The idea is spreading rapidly both in and outside Africa, and seems to have reached a consensus: the "African scientific diaspora" will substitute for the shortcomings and weaknesses of national scientific communities in the African continent. The idea has many attractions. But it also needs to be approached with caution.

### **The promise and reality of the diaspora model**

Those advocating use of the diaspora see it as a way of remotely mobilising African scientists and technologists all over the world to derive a number of benefits for their home countries. This includes access to scientific information and expertise through extensive social, technical and professional networks, increased training opportunities, and the development of collaborative projects between expatriate and home-based scientists.

The diaspora model is appealing to African politicians and policy makers to the extent that it appears to offer a low-cost, self-managing, efficient and easy solution. The option is also appealing to African expatriates who feel motivated by an opportunity to contribute to the development of their country of origin while remaining abroad (and without feeling guilty).

Over the last decade, an increasing number of countries have undertaken initiatives to create databases of

expatriate scientists, and to mobilise, organise and reconnect their scientists abroad with the scientific community at home. Yet, the sustainability and effectiveness of this approach remains unproven.

There is already evidence that the promise of the diaspora approach is more difficult to achieve than some imagine. In the early 1990s, for example, as part of a Franco-Colombian research team, we studied the development of a promising attempt to network Colombia's scientific community with the diaspora of its expatriate scientists (1,000 individuals were identified in 43 countries): the red-Caldas or Colombian Network of Scientists and Engineers Abroad.

The diaspora was organised into 21 local groups (the network's nodes) that were linked up through electronic communication [7]. Sadly, the initial ambition soon dissipated, and very few joint projects between the diaspora and Colombia were in fact completed. Some ten years after its inception – and following the withdrawal of the Colombian National Research Council, Colciencias – the red-Caldas is (with the possible exception of one or two nodes such as Switzerland) little more than a friendship network.

### **Difficulties to overcome**

The mixed fortunes of the red-Caldas remind us that however simple and enticing it may seem, members of the diaspora are not necessarily easy to engage [8]. To succeed with this approach, a number of difficult steps must be taken:

- 1) create a database of highly qualified nationals abroad and keep it up-to-date;
- 2) mobilise and organise these individuals;
- 3) reconnect them with the scientific, economic and industrial community at home;
- 4) capitalise on their work and own professional networks; and
- 5) encourage interactions between them and the home scientific community, in the form of exchanges and common research projects.

All these steps require important investments in time and energy, as well as a sizeable sustainable budget that cannot rely on voluntarily contributions. Sustained political support and an administrative capacity to manage the network are essential. And even with this support, ensuring the long-term survival of a diaspora network is a serious challenge since its population is very mobile, and may not always focus on national science and technology interests.

Another problem with the science and technology diaspora model stems from the fact that it is based on a concept with an internal contradiction: the universality of science versus the expatriate scientist's feeling of allegiance. Studies show that the more "scientific" researchers feel, the more they tend to prefer contacts with professional peers, rather than with colleagues from different disciplines – even if they are fellow citizens. From the opposite viewpoint, the more "national" they feel, the greater the tendency to convert the diaspora network into a one of national exchange and mutual assistance, thereby weakening its strictly scientific potential [8].

Yet another limitation relates to the relative size of the home-based scientific community and their connections with the diaspora. In the case of Colombia, slightly less than half of the scientific community are at home. Combined with the diversity of their fields of expertise, potential scientific exchange and collaborative work (even virtual) with the diaspora is inevitably difficult.

### **Applying the diaspora to Africa**

How do these arguments apply to Africa, where the diaspora approach has a growing number of supporters? Most African countries are lagging behind in the scientific arena. Local science and technology systems are, in general, insufficiently developed to offer even a minimal level of interaction between their highly-qualified expatriates and national scientific communities.

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And while newly industrialised countries such as China can take (and are increasingly taking) advantage of their diasporas to develop national scientific and industrial capacities, very few African countries are in this position. South Africa (which has developed the South African Network of Skills Abroad), Egypt, Nigeria and Morocco are among the few exceptions, but their experience cannot necessarily be generalised to other countries.

Tapping the diaspora at a regional level might be a more fruitful approach, assuming that the region corresponds to a political and economic entity that shares common problems and interests. The reviving East African Community, in which regional institutions are currently re-emerging, could constitute such a regional entity. Similarly, African-wide and discipline-based diaspora may turn out to be a useful capacity strengthening tool.

But the diaspora model will never be a low cost, self-sufficient answer to Africa's scientific needs. Its effectiveness depends crucially on the internal dynamics of the home-based scientific communities. After all, a network of expatriates is at best an extension of a national scientific community, not a substitute. Efforts should therefore, first and foremost, focus on strengthening national scientific capacity particularly training and recruiting the next generation of scientists. If this is not done, the diaspora will only be a smart cloak hiding shabby clothes.

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