

## Lessons Learned

As the data catalogue that comprises Appendix C shows, the African Science Academy Development Initiative (ASADI) was heavily documented throughout its existence, and the review panel gathered a substantial volume of further material during the course of its work. It is worth adding that the process of writing this review itself fed into the academies in a positive way, especially through the interactions involved in the site visits.

This mass of evidence has allowed the panel to come to conclusions about what went right during ASADI, what might have been improved, and what it means for science academies and other organizations, both in Africa and beyond.

The first point to re-emphasize is that ASADI was a success. Nobody with whom the panel consulted disagrees with this overall finding. ASADI was also a unique activity, helping to build capacity at the level of individuals, institutions, and whole systems. It was transformative for all the primary academies, and especially the smaller ones. As is emphasized elsewhere in this report, the ASADI process lasted for a decade. Even without it, the primary academies would not have remained unchanged during this period. But the panel's conclusion is that this targeted intervention helped their development significantly.

This panel did not directly assess the cost effectiveness of ASADI or its various elements, which would be difficult even with additional time and resources for the review. And the statement of task for the review did not ask it to make such a judgement. While \$20 million is a significant amount, there are examples of capacity-building efforts aimed at African institutions of similar or even larger scale. For example, the Partnership for Higher Education in Africa, which was undertaken by a coalition of U.S.-based foundations, spent \$440 million on higher education institutions in seven countries between 2000 and 2010.<sup>10</sup>

However, the panel can state with confidence that the ASADI funds have had a long-lasting and positive impact on the academies in question and through them, on the systems of which they form part. Here some key questions about its effects are examined.

### **How did ASADI transform the primary partners?**

One key question concerns the initial condition of the academies before ASADI. Their Evolution Table entries confirm that they were too small to be effective, and some had a legal standing that restricted their ability to act. They had far less awareness of how to brand and position themselves with respect to major stakeholders, especially government, than they do today.

As a result of ASADI, they have become more influential with government, prioritizing areas in which they can have an effect and improving their knowledge of the policy process and their closeness to it. This has inevitably improved their standing in the worlds of policy and politics. In discussions, the Ethiopian authorities made the point that the value of a national academy of science goes beyond the use that is made of the advice it produces and the activities

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<sup>10</sup> Suzanne Grant Lewis, Jonathan Friedman, and John Schoneboom. 2010. *Accomplishments of the Partnership for Higher Education in Africa, 2000–2010*. New York: New York University. Available at: <http://www.foundation-partnership.org/pubs/pdf/accomplishments.pdf>

it carries out. The very existence of the academy, they told us, brings prestige to the nation and adds to its standing.

Nations that currently lack a science academy, or whose academy is currently less active than it might be, would probably appreciate this argument. There are now 19 academies in African nations (as evidenced by membership in the Network of African Science Academies [NASAC]), and the example of ASADI has encouraged their creation, so this lesson is plainly being learned. Conditions have to be right if a new academy is to succeed. If those conditions are not met, there is a risk of a new organization failing to meet its objectives.

### **Did ASADI make the case for academy capacity building?**

ASADI showed too that it is possible for a program of this type to have a positive effect on academies of widely varying history, mission, context, and size. An obvious case is the Cameroon academy, which despite being small (with very limited financial resources and only one member of administrative staff) has produced work on food security and health that led to the formation of a national food security program. The Cameroon Academy of Sciences (CAS) is now starting to produce consensus studies. It told this review group that it wishes it had been an ASADI intense partner from the outset.

A further example is Ethiopia. Here a new academy has been the subject of an Act of Parliament and has political support, thanks in part to the availability of a small amount of ASADI backing. The Ethiopia Academy of Sciences (EAS) is likely to become important because of the government's commitment to science and technology as national priorities, and because its council leadership is well-connected to government.

The improved credibility with policymakers earned by all the academies during the ASADI process was a theme stressed often to the panel. One of the Academy of Science of South Africa (ASSAf) stakeholders told the panel that it has built effective working relationships with several ministries, particularly the Department of Science and Technology. ASSAf's past production of policy-relevant work, much expanded by ASADI, forms the basis for these relationships.

Here and in all the other countries visited by the panel, it is apparent that the production of relevant, quality reports is vital to establishing the policy value of a national science academy. In addition, academies can make government aware of existing, high-quality research on emerging issues (water use was an example mentioned) of which hard-pressed ministerial offices might not be aware. This role will become more valuable if the academies broaden the range of government ministries they deal with, as some interviewees suggest will happen. While the science or health ministry probably has access to emerging research knowledge, other departments might not.

In addition, ASADI has helped academies to raise their visibility within their national scholarly communities. Examples include ASSAf's work on research publishing and on the future of the Ph.D. in South Africa. The Ph.D. work was well-received by government and by its science granting council, the National Research Foundation. It led to major changes in the allocation of funds for postgraduate study. A further report on clinical research led to new cash becoming available for clinical scientists. This success has added to the academy's standing in the university community.

These precedents suggest that the next stages of academy development beyond ASADI require careful planning if its legacy is to be maximized.

## Can academies influence public opinion as well as national policy?

Public engagement is becoming central to debates about the role of science in society, and there is growing emphasis on the importance of engaging decision makers, the private sector, civil society, and others in the co-production of knowledge. These debates have implications for how science is organized, supported, evaluated, and communicated, and academies will need to reflect this new emphasis if they are to be full partners in national development.

Academies of science around the world find it harder to build a reputation among the general public than with government. Part of the issue may be that distinguished scholars do not regard it as part of their mission to engage with the public, and fear that complex scientific messages will be oversimplified in debate. Public and media engagement also involve a time commitment from senior officers of the academy if they are to become a significant part of the academy's mission. It may be preferable to start a public engagement mission with activities, such as prizes and awards for high achievement, which both involve the public and bring in the energy of a broad spread of academy members.

This activity was not a specific ASADI priority and will need to be supported explicitly in future programs if public engagement is to be expanded. In addition, skilled support is needed on a continuing basis to ensure that websites and other resources are up to date and properly maintained.

One expert interviewee pointed out that in most of Africa, mobile devices are becoming the instrument of choice for information access. This means that African-oriented approaches to public engagement will be needed.

Related to this issue is the complex matter of academy relations with other civil society organizations. Again, this area of academy development was not explicitly funded by ASADI. It is an important and resource-intensive task that should be undertaken for many reasons, from fundraising to building support for the use of science in important national decisions. It is complex because it involves the building of trust and confidence before any tangible action can begin. However, academies exist to serve the whole of society, not only to speak to government departments. One positive example is the strong relations that many academies have built up with organizations concerned with HIV and AIDS. The Cameroon and Nigerian academies have been especially successful in building relations with nongovernmental organizations (NGOs).

An important area in which the ASADI-supported academies are already involved is the improvement of school science. This is obviously a good fit for the academies, as the education system is the source of future scientists. The Uganda National Academy of Sciences (UNAS) has been especially active in this area and ASSAf publishes a science magazine for school-age readers. This is a possible growth area for academies, to which a new funding stream might be attached. A further area of possible future growth is higher education, and an exemplar might be the Nigerian Academy of Science's (NAS) work on the country's medical education curriculum.

Many of the academies have had a focus on health in recent years, which is highly appropriate in the light of Africa's acute health challenges. But many also regard it as important to look at science more broadly in future, and to involve the social and human sciences in their work alongside the natural sciences, biomedicine, and technology. A broader remit would allow academies to connect to different areas of civil society, such as the manufacturing industry if there was to be a focus on engineering and technology. Once again, this diversification would require time, money, and people.

## **What lessons did ASADI generate about the internal development of science academies?**

Since ASADI was at heart a capacity-building operation, it is no surprise that it added to the capacity of the academies that it supported. But the first lesson of the ASADI experience is that the idea of capacity building conceals a number of specific challenges. In particular, it involves training and skills acquisition that are expensive in staff time and other resources. The panel was warned that it would be impossible for the more successful African academies to support others in need of capacity building unless they had substantial new funding for extra staff. The issue is about money, not the availability of skilled people. One welcome feature of ASADI is that it engaged people at a variety of levels within the partner academies, including administrators, finance teams, and program officers as well as senior personnel.

Training was perhaps the most important and impactful aspect of ASADI. However, the African academies remained in need of external help in some areas even at a late stage of the initiative. While all the academies wished to manage their ASADI awards, some made use of backstop financial management provided by the U.S. National Academy of Sciences (USNAS).

At least as important as the number of staff members employed by academies are their skills and qualities. In order for academies to increase their output of high quality products, they need staff members with writing skills, interpersonal skills to help manage volunteers in a consensus process, and the ability to contribute intellectually to projects when called upon. From the site visits, it is clear that the ASADI partner academies have achieved some success in developing and retaining such employees.

A specific issue in this context is the importance of the academy executive secretary.<sup>11</sup> While it is often stated that capacity should be built “from the ground up,” such capacity can be wasted or misused without adequate leadership. An example is Uganda, whose academy has gained from having an executive secretary who is recognized as a strong administrator. ASADI has also helped develop financial management at UNAS. However, it is recognized that UNAS has only made the progress that it has by means of a major effort.

These more capable and formal structures are themselves a cost and a resource drain. For example, some academies now have a formal personnel manual. This needs to be written and kept current, and could be shared to disseminate best practice. More attention might be given to ensuring that these back-office tasks do not absorb too much of the attention of senior people. Legislative requirements for information and for appropriate processes grow continuously, as do requirements for openness. These new demands are welcome, and fulfilling them is a core academy activity. But the work they generate may draw resources away from mainstream scientific concerns.

The growing expectations of academies mean that the senior people within them are subject to increasing pressure. As well as a demanding management role, they are responsible for relations with a broad range of stakeholders in government, education, business, civil society, the media, and other sectors. Important stakeholders want to meet someone senior, so this responsibility is not easy to delegate.

Many of the academies are expanding their membership, in numbers, but also in terms of the disciplines they cover. This will increase their visibility in the academic community, but there

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<sup>11</sup> The specific title for this position varies according to the academy. “Executive officer” and “chief executive” are also used.

are naturally limits to this process within a small nation. In any case, these new members involve a cost in terms of membership services. One academy indicated that the flattering experience of being elected to a national science academy is a useful way of keeping senior members of the national diaspora involved in their country of origin. Another added that it might have expected ASADI to put more resources into Young Academies. These by definition involve younger, and perhaps more energetic, individuals. They might also have a more representative balance of membership in terms of gender, race, and geographical location than the main academy, an issue frequently identified as problematic by the interviewees.

ASADI did not have a major focus on academy membership and council involvement. Future priorities in this area include member induction, the encouragement of voluntary involvement, and the involvement of relevant non-members in specific projects.

### **What has been learned about the financial needs of African academies?**

Financial security and flexibility are key to the autonomy of science academies. They recur as priorities throughout this report. The review revealed several key issues.

First, academies are by their nature organizations that need to exist and be effective over the long term and which require steady funding streams. Almost as importantly, they need predictable core funding if they are to have operational independence from government.

Next, finance is so important that academy members as well as managers need to be involved. Academies need high-level finance and fundraising champions, with a remit that involves bringing in money and diversifying the academy's sources of finance. Members should also take a lead in the management of endowments and other reserves and resources. While the academy president is vital, the treasurer is of almost equal importance.

African academies would naturally like autonomy and flexibility in the use they make of donor funding. This requires sensitivity among donors, which naturally have their own ideas about what should be done with their money. Donors need to be kept informed about the use and value of their donations, via a range of formal and informal communications channels including full financial accounting.

In the case of ASADI itself, for example, the academies would have liked more responsibility for handling their own funding, and some felt that the processes adopted slowed things down. However, it is also true that some academies needed assistance in managing their ASADI funds.

### **What features of the African policy and science environment most affected the ASADI process?**

A further lesson is that many African nations, even larger ones, have a sparsely-populated policy landscape by international standards. They do not have the dense ecology of think tanks and policy bodies found in the capital cities of the developed world. Part of the rationale for ASADI was to grow the capacity of the academies to supply evidence-based insights to enhance national thinking about health and sustainable development.

The panel has learned that this approach works. These strengthened academies have become an effective route for scientific and medical evidence to affect policy thinking. Many influential examples could be cited. The Nigerian academy's evidence on vaccination has been significant because of the importance of vaccination in its own right and more broadly because vaccine delivery is regarded as a measure of the effectiveness of a health service. Again in

Nigeria, the academy has used its links into NGOs and higher education to influence the national debate on health insurance.

However, policy advice has to be given at the right point in the policy process. The consensus approach can make it difficult to work to an external timescale. This suggests that there could be occasions when different and more flexible policy advisory tools would be appropriate. In any case, experience from around the world shows that the differing expectations and timescales of the research and policy processes are a universal problem.

Even after ASADI, these academies are small organizations with limited capacity. They often rely on project funding to survive, and can be forced to lose staff or retrench severely at the end of a specific project. At the end of the ASSAf pilot project on scholarly publishing, ASSAf avoided losing staff but was forced to curtail many of its activities to continue the scholarly publishing program. It has since brought in new baseline money from government to fill this gap and re-established a full range of activities.

Endowments are a key issue for all these academies, providing resources that an academy can use without reference to the needs of a specific project. The Nigerian and Ethiopian academies already have endowment funds provided by their governments. But this route is more difficult in smaller economies. In addition, the governments of some countries may not allow organizations to build up large surpluses of public money, so that endowment funds would need to be raised from private sector entities such as foundations, companies, and wealthy individuals.

This point reemphasizes the fact that these academies have only limited organizational and financial independence. One possible approach to future development might be to support the post of fundraiser within some chosen academies for a specific period, with the proviso that the individual would be expected to become financially self-supporting at a specified point in time. Councils and other prominent members can also make a significant contribution to fundraising efforts.

Finally, some of the African academies did state that they found ASADI's approach lacking in cultural sensitivity on occasion, although they overwhelmingly welcomed ASADI and regarded it positively. Future capacity building initiatives of this type can and should be African-led. They might also gain from more advance thinking about their style and ethos, and about whether it is possible for decision-making to be brought closer to the end user. It is likely that these issues of accountability and control will continue to arise, and that academies and donors will need to address them further in future.