

eventually stop sending glass to landfill. That will automatically create greater incentives for glass to be recycled. Europe already mandates that 70% of waste building and construction materials are recycled. The remainder currently ends up being used as aggregate for road filling or other basic building processes; this is a huge waste of a valuable resource.

Carbon can also be saved by decarbonizing the process of melting the chemical mix during manufacturing. A demonstration project called Furnace for the Future, run by FEVE, makes glass using electricity instead of natural gas to heat recycled glass cullet. If the electricity source were fully decarbonized, it would mean that the entire process of glass-making would effectively be carbon-free.

Glass is an essential material. And it is possible for its manufacture to become almost carbon-free in a relatively short time. But legislation is required to ensure that it is properly collected and recycled, and that it doesn't end up in landfill. Communities and companies should be helped to create infrastructure to collect glass and recycle it. The answers are there, and they are relatively simple. They need to be put into practice – and we can all raise a glass to that.

## African Academy of Sciences needs support, not rejection

**The pan-African science academy is in turmoil. Funders and fellows must jointly own the crisis, and work to stop it happening again.**

**T**he African Academy of Sciences (AAS) is facing its worst crisis since its foundation 36 years ago. The Nairobi-based organization has lost more than half of its staff after key international funders, including the Bill & Melinda Gates Foundation, the UK government and the UK charity Wellcome withdrew from a flagship funding partnership. African researchers and scientific institutions are horror-struck at the resulting devastation of the continent's apex science academy. This did not need to happen.

Funders say they have lost confidence in the academy's governance. This follows internal tensions that led to the suspension of senior staff members. The basis of the disagreement has not been made public, but it does concern the academy's relatively new role as a funding body. In 2015, it was given the extra responsibility of disbursing large amounts of money on behalf of regional and international sponsors. The role is unusual, because academies do not generally process large grants on behalf of other

funders. This is partly because they also award their own funding – which is often highly sought-after and prestigious – and partly to avoid conflicts of interest.

Where academies are involved in grant-making, it tends to be on a modest scale, focusing for example on funding for early-career researchers. There are good reasons for this: an organization that represents the interests of scientists should not be responsible for distributing large amounts of funding to people who would include its own members and fellows. To prevent potential bias, many countries have set up separate grant-funding agencies, which operate at arm's length from both academies and government ministries.

For most of its existence, the AAS was largely responsible for capacity building and science advocacy. But in 2015, the AAS, the African Union and international funders agreed that the academy would host and manage a new and significantly more ambitious funding platform, called the Alliance for Accelerating Excellence in Science in Africa (AESA), to help shift “the centre of gravity” for African research funding closer to Africa.

The platform included schemes such as the US\$176-million Human Heredity & Health in Africa (H3Africa) project, a consortium that undertakes fundamental research into diseases in Africa. Another is a \$100-million initiative called Developing Excellence in Leadership, Training and Science in Africa. Thus, in just 5 or so years, the AAS changed from an organization of 22 staff members doing the work of a conventional academy, into an agency employing almost 70 people and disbursing multi-year grants worth hundreds of millions of dollars.

Some science academies were once much more involved in distributing research grants than they are today. But over time, independent grants agencies have been set up, and are designed such that clear boundaries separate funders and grant recipients; governance and peer review, especially, need to be independent. It's not that the staff of science academies couldn't do the work of a grant-making organization – but that scientists and policymakers agreed that it was not appropriate.

Questions need to be asked about whether this arm's-length principle – which all the AAS funders know well from their home countries – was considered when they set up AESA. Ultimately, of course the fellows who make up the AAS's governing council should never have allowed internal disagreements between members of the leadership to get in the way of the organization's functioning. But funders need to accept their share of responsibility, too.

Good leadership involves learning from failure and accepting responsibility for mistakes. All parties must therefore stay engaged, not walk away, and together assess what has happened and why. That includes determining whether forgoing the arm's-length principle in science funding contributed, even if in a small way, to the present crisis.

This all needs to happen quickly. All those involved have a responsibility to make sure that Africa's premier science academy succeeds and fulfils its mission to represent and boost science on the continent.

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