

S&T for Growth - A new HMG Africa Approach

Stakeholder Questions

Please stick to 500 word limit for responses in each text box

Response from the British Geological Survey

- 1. Science, research, technology and innovation are widely recognised as drivers of economic growth. The UK Government wants to ensure that our future S&T partnerships with African countries are developed with economic growth as a joint and tangible goal.**

- (a) What are the best ways to ensure the UK and Africa embark on fair and equitable partnerships that can mutually deliver economic growth?**

Response to Q1a: Many African countries have strong academic, government, industry and civil society organisations that can support genuine bilateral, long-term, science & technology partnerships with UK organisations. There are many mutually aligned areas of interest that could deliver economic growth. At the British Geological Survey, we prioritise a variety of topics for collaboration including: clean drinking water and sustainable agriculture; natural resources such as critical minerals, construction minerals; geothermal energy and natural hydrogen; renewable energy generation and infrastructure; sustainable urban development; geohazards and resilience to climate change; and the digital transformation.

A first key step in embarking on partnerships is to ensure that UK experts can meet appropriate partners across Africa. Elsewhere in the world, the UK's Science and Innovation Network (SIN) plays an important role in supporting this, but the SIN currently has limited penetration in Africa.

Development of fair and equitable partnerships requires investment from both sides. Many current science and technology grants available within the UK are highly competitive and focused on funding solely for UK participants, with project partners from outside the UK asked to provide their contributions as in-kind support. Our extensive experience of working across Africa shows the importance of all partners receiving the funding that they need to deliver long-term projects. Hence prioritising the development of grant programmes that offer appropriate levels of funding to both African and UK partners would be another key step for developing equitable partnerships. These programmes require commitments over a meaningful length of time to enable the building of fair and equitable partnerships. In our experience, establishing a sustainable partnership takes two years or more, with funding support needed throughout.

(b) Can you envisage and outline briefly below how such a model partnership might work in practice?

Response to Q1b: At the British Geological Survey (BGS) we have many examples of such partnerships with African countries, from Morocco to Zimbabwe. Experience shows that the strongest partnerships develop gradually. A model that we have seen to work is where:

- networks are seeded and built initially through networking events, conferences or missions in-country.
- partnership development is encouraged through relatively small-scale funded 'catalyst' projects (as seen, for example, in NERC's recent Sustainable Mining in the Philippines research programme).
- well established and proven partnerships, and those with clear potential for success, are further developed through enabling access to long-term (at least two years) funding, which consolidates the partnership and supports sustainable, meaningful collaboration.

Having engaged in programmes such as DFID's Partnerships for Development (2017-2021), DFID's Unlocking the Potential of Groundwater for the Poor (2013-2021), and the Global Challenges Research Fund (GCRF) Growing Research Capacity (2016-2021), we have seen notable outcomes achieved by our African partners. Critical to their success was the availability of support that met the needs of both the African partners as well as the UK partners. These needs may be operational (e.g., infrastructure) as well as research oriented. For example, we have found that it is only possible to embark on a research partnership with African partners if their organisation has the infrastructure and funding to provide stable internet access.

Our experience has highlighted the importance and value of strengthening capacity and capability of our African peers, supporting them as they develop research and innovation. We found that flexible approaches are more likely to succeed, rather than 'one size fits all', with projects being co-developed with partners to suit their needs. Rather than focusing on research outcomes alone, we recommend that partnerships begin with a well-considered theory of change and clear objectives/ outcomes.

2. What are the most critical challenges currently facing Africa's science research, technology and innovation sectors?

Response to Q2: Our response in this section focusses on the research challenges of particular interest to BGS. However, it is important to note that Africa's science research, technology and innovation sectors face a number of more fundamental challenges, which are discussed as barriers (in section 3) below.

Key research challenges for Africa that align with the remit of BGS include:

- Clean energy resources and infrastructure
- Disaster risk reduction
- Resilience to climate change for communities and infrastructure
- Supply of critical minerals and other mineral resources to underpin the energy transition
- Improved water and food security
- Urbanisation and urban planning
- Digital transformation and management of big data.

3. What are the key barriers preventing UK and African scientists and innovators working together to resolve these challenges? How can governments help address these challenges?

Response to Q3: In our experience, many of the barriers preventing UK and African scientists working together are structural, related to government policy and approaches in both the UK and Africa. Although there can be some cultural differences on a personal level, it is our experience that where UK and African scientists can come together on funded projects, the resulting partnerships can be very successful and long-lasting. Key barriers to forming such partnerships include:

- Inconsistent government funding for research institutions and research projects, particularly in Africa but also in the UK, has a significant impact. There are issues with retaining staff within key organisations/ institutions within Africa as a result of structural and pay pressures. When equitable funding is not provided in partnership programmes, this serves to exacerbate inequalities and contributes to uneven power dynamics within partnerships.
- Varying commitment of decision-makers to recognising, valuing, and promoting international partnerships of this kind.
- Challenges in people's ability to travel (e.g. visas) to enable African colleagues to build networks and grow their expertise, and to develop the partnerships in the first place.
- Variable access to technology for African colleagues (e.g. maintaining up-to-date hardware and software, reliable internet, etc).
- Equality, diversity and inclusion remains a challenge for building fair and equitable collaborations on both sides.
- Working across multiple African countries can be particularly challenging, as frameworks to enable such collaborations do not always exist.
- African partners and their respective organisations still face the perception that their skills and knowledge are of lesser value than their western counterparts. BGS sees engagement with African partners as a key mechanism for two-way knowledge exchange – providing equal learning opportunities for staff from both the UK and our African counterparts.

4. How can we leverage the strength of our existing Africa-UK partnerships in science, research, technology and innovation to create a step change that will deliver economic growth for both sides?

Response to Q4: Many highly successful Africa-UK partnerships already exist across a range of research and innovation topics, but these are not always well-joined up. Leverage of these partnerships could be increased by developing frameworks that ensure in-country Embassies/ High Commissions are fully aware of UK-Africa research partnerships and can support integration between different groups.

Delivery of impact is hampered by the short-term nature of some partnerships under current funding models. Approaches that enable long-term, equal partnerships are more likely to pay dividends and deliver long-term impact benefiting both African partners and the UK economy.

Partnering with business and industry as well as support for African SMEs in the science & technology space would ensure that research and innovation is translated into growth for both sides.

It is evidenced that science and technology partnerships are most likely to deliver impact if there is support through funding. For example, the European Commission funds large projects (€millions) that bring together multiple partners and deliver impact over a number of years. Such projects also exist within the UK funding landscape, but it can be difficult to identify and track the funding sources. A joined-up approach for supporting science and technology partnerships between the UK and African countries would provide the consistency needed to deliver growth and impact.

5. Are there any other forms of S&T collaboration that we are not currently thinking about?

Response to Q5: Many S&T collaborations benefit from being wrapped by initiatives relating to policy; equality, diversity and inclusion; education and outreach. It is important that the wider context for any S&T collaboration is considered.

6. Please outline specific S&T opportunities you have identified with individual African countries and set out what this could deliver for both countries?

Response to Q6:

Our response in this section focusses on topics and opportunities that fall within BGS' remit as the UK's geological survey organisation (GSO):

Critical Minerals

- Capacity building at national Geological Survey Organisations (GSOs) in areas such as mineral prospectivity and resource assessment to strengthen technical and institutional capacities in African GSOs. The BGS is already carrying out such work, with FCDO funding, in countries including Angola, Tanzania, Zambia and Zimbabwe.
- Supporting economic growth in African countries by enhancing technical expertise and resource management thereby enhancing economic development.
- Providing opportunities for UK partners to develop new research collaborations, fostering innovation, and expanding UK expertise as well as expansion of UK-Africa research partnerships.
- Identifying opportunities for UK businesses and increasing UK business engagement

Water Security

- Conducting groundwater resource and risk assessments to ensure resilient and sustainable groundwater use, supporting long-term economic transformation.
- De-risking emerging net-zero technologies, such as solar-powered groundwater pumping, fostering climate-smart solutions.
- Supporting the achievement of drinking water targets, with positive health, education, and gender-related outcomes.
- Expanding agricultural use of groundwater through sustainable management, contributing to local and national economic transformation and global food security.
- Providing avenues for UK researchers and experts to collaborate, expanding knowledge on climate resilience and water security, with lessons applicable to both African and UK contexts. BGS has longstanding partnerships, particularly on water, soils and agriculture, in Malawi and Zambia, which have been funded by UKRI and others.

Other topics where we see opportunities include:

- Food security
- Geohazards/ disaster risk reduction
- Renewable energy

7. What should the UK do more of and less of?

Response to Q7:

More

The UK should consider investing in long-term partnerships that focus on equitable partnerships, knowledge exchange and mutual learning.

Less

We would discourage support for funding research where UK scientists conduct work in African countries without engaging with or funding local partners. We would discourage funding models that encourage 'fly-in, fly-out' partnerships, rather we would endorse those that support long-term programmes of knowledge exchange, benefitting both African partners and UK organisations.

8. Are you aware of other nations working to address similar issues e.g. S&T for growth in Africa and, if so, which countries?

Response to Q8: We are aware of the following nations working to address similar issues: Australia, Japan, South Korea, China, France, Germany, Finland, Denmark, Sweden.

Historically, the USA has also been very active in Africa.

9. Are there opportunities for the UK to partner regionally or plurilaterally, involving other non-African partners? If so, what would the UK's bespoke offer be to enhance such a partnership?

Partnership with European countries brings many positives to this type of work. BGS already works, wherever possible, with European geological surveys. However, there is a need for improved frameworks and funding opportunities for collaborative projects to place the UK on an even / competitive funding, especially with counterparts within the European Union.