

Science and International Development:

Submission by the Royal Society, 20th December 2011

Background: In 2004, the Science & Technology Committee issued a report on “The use of Science in the UK international development policy”, identifying a number of concerns in the way DFID addressed capacity building in the developing world. The main issues that were raised, chimed with the concerns expressed by the Royal Society and other G8 academies on the donor’s lack of support for the institutions of higher education and research in the developing world, in the wake of the comments made at the 2005 G8 meeting at Gleneagles.

In 2009, the Society submitted a DFID consultation response on “Eliminating World Poverty: Assuring our Common Future”, highlighting the main issues for strengthening the educational and research base in developing countries. The seven points highlighted in this document were:

1. Need for investing in a strong and diverse higher education system at all levels.
2. Need for a demand-led research agenda driven by the developing countries.
3. Urgent need to improve in-country PhD training.
4. Lack of functioning post-doctoral research domain.
5. Lack of translational research.
6. Lack of linkage between researchers and institutions in and between developing countries.
7. Need to shift the focus of capacity building in Research & Technology from creating “centres of excellence” to a more realistic objective of developing “functioning institutions”.

We believe that the current consultation response need to be interpreted in the context of the above comments provided in 2009.

The views here reflect those of a select number of Fellows with experience in capacity building and working in, and with, developing countries. They do not necessarily reflect the views of the Royal Society.

The Royal Society’s role in capacity building: The Royal Society has endeavoured to address these major issues during the development of the Leverhulme - Royal Society Africa Awards. This funding scheme is based on consultation with science communities and institutions of higher education in Ghana and Tanzania. The research priority areas were defined by the recipient countries, and are linked to the wider developmental goals of the two nations. The consultation is a continuing process, mainly through regular award holder meetings co-organised with the national academies of Ghana and Tanzania. The first of these events held in 2010, resulted in the Royal Society’s successful submission of an application for a second phase of the scheme to the Leverhulme Trust, proposing a revised scheme design. For the next three rounds of applications, awards will provide additional ring-fenced support for a PhD student, who has to be registered at a university in Ghana or Tanzania, as well as the inclusion of an optional South-South collaboration component. In the context of the Leverhulme - Royal Society Africa Awards, the Society will be looking more closely over the next few years at developing a strategy for an incremental transition, during which resources provided through the Society’s programmes will be increasingly replaced by indigenous investments.

The Society is currently in discussions with DFID to explore the possibility of establishing a programme to support research consortia across sub-Saharan Africa.

The Royal Society has also partnered with Pfizer and NASAC (Network of African Science Academies) to support capacity building in Africa through the Pfizer African Academies Programme. The Royal Society plays a mentoring

and support role to the national science academies in Tanzania, Ghana and Ethiopia in order to help build their capacity to influence policy makers; communicate science effectively to wide constituencies (including funders); inspire the next generation of scientists; collaborate regionally and internationally; and ensure the quality of science in their respective countries. These themes reflect the role of a modern national science academy in recognising, promoting and supporting high quality science and encouraging its use in public policy. Bespoke business plans have been developed in partnership with the academies to reflect their different stages of development and their own respective priorities. By developing these capacities, the Academies have an important role to play in demonstrating the value of investment in science and innovation, and creating an in-country demand for it. The first National Science Congress in Ethiopia in December 2011 perhaps demonstrates the progress we have been able to make in working closely with the Ethiopian Academy and its dynamic research community. The Society is currently designing a second phase of this work, building on progress to-date and working more strategically with NASAC, as well as helping academies to engage with wider regional and continental bodies in Africa, in order to leverage resource and influence.

Science & Technology Committee consultation: In order to formulate an official response, the Society has consulted with number of experts, the majority of whom are Fellows of the Royal Society:

1. Prof Martyn Poliakoff FRS, Foreign Secretary of the Royal Society and University of Nottingham
2. Prof Tony Cheetham FRS, University of Cambridge
3. Prof Brian Greenwood FRS, London School of Hygiene & Tropical Medicine
4. Prof John Pickett FRS, Rothamsted Research
5. Prof Richard Catlow FRS , UCL
6. Prof Paul O'Brien FRSC, University of Manchester

Terms of Reference of the Inquiry: Referring back to the Committee's 2004 report on "The Use of Science in the UK International Development Policy", submissions of comments on five matters have been invited. The Society will not be able to respond to all of the questions, others can only be partially addressed. In the following, some aspects have collated, which might be relevant to address at least some of the matters arising. Our comments should be viewed in the light of the fact that the Royal Society's contact with leading scientists in the developing countries indicates that DFID's support is widely appreciated and valued:

1. How does the government support scientific capacity building in developing countries and how should it improve? There are a number of ways, in which the government is currently supporting capacity building efforts. Amongst them are the MRC centres and units in the Gambia and Uganda, collaborations between DFID and certain research councils (MRC and BBSRC) on health and agricultural research, support for the Commonwealth Scholarship programme and such like. Other successful initiatives supported by DFID are the direct funding provided for the CGIAR system and other institutes working collaboratively with national programmes, thereby providing core funding for this purpose. However, several of those consulted felt that some of the research funded directly by DFID has been less effective in creating successful capacity building programmes, mainly due to a lack of adequate quality control. One of the main difficulties is that DFID has lost many of those in its workforce with the adequate qualifications to operate and deliver scientific programmes. DFID needs to improve its research management as well as considering the option of outsourcing specific programmes to agencies with the adequate skills to deliver such programmes. In addition, in the past, the inclusion of Science & Technology into poverty reduction strategies was significantly hampered by the strict interpretation of the Millennium Development Goals (MDGs). This strict adherence to the MDGs should be reviewed, as there is a need for a stronger emphasis on S&T in the overall strategy of poverty reduction, and there is an urgent need to develop new mechanisms to target younger talented researchers working or thinking of returning to institutes of higher education, especially in

sub-Saharan Africa. In addition, the consulted Fellows felt that special attention should be paid to significantly improving PhD programmes at universities in developing country, encouraging a tradition of post-doctoral research, and improving the overall quality of teaching and research. Selected universities and research centres in developing countries should be encouraged to become centres of excellence that can compete on the world stage. However, it is important to help existing institutions to develop to the stage where they can support the broader research needs of their country and act as a source of outstanding scientists who will become key members of the centres of excellence. The support should not be restricted to adaptation of existing technology platforms, but should also aim to develop an indigenous research portfolio. In the past, one issue that has rarely been address successfully is that of sustainability. More attention should be paid to succession planning; long-term strategies need to be developed to enable national institutions to gradually take over responsibilities of providing improved (ad hoc) funding for researchers in their own countries. We are encouraged that DFID, in partnership with the Wellcome Trust, is engaging in supporting the development of funding bodies in Kenya and Malawi, but such activities need to be expanded to other countries. In addition, if DFID were faced with limited capabilities of managing capacity building programmes, one possible solution, at least in the short-term, would be for DFID to enter into partnerships with other organisation, which are better positioned to deliver particular projects within a wider DFID strategy of capacity building. This is important, because there appears to be an increasing willingness on DFID's part to recognise the importance of capacity building in the higher education sector of developing countries, and the need for Science & Technology in the context of poverty reduction. There would also be merit in helping policy-makers in target countries to recognise the value of national investment in science, technology, and innovation, and to encourage them to use science to inform policy, i.e. creating an in-country demand or appetite for science and its application.

2. What are the most effective models and mechanisms for supporting research capacity in developing countries?

There is no particular single model available, neither tested or as a concept, that would provide the best mechanism of building capacity. In fact, one of the major current challenges is to develop novel strategies to successfully assist developing countries in their efforts to build their own capacity in higher education, research, research training, and innovation. The most promising scenario will be one in which several models are created, and evaluated over the next decade. However, there needs to be a set of principles guiding all organisations engaged in capacity building (resonating with the Five Principles of the Paris Declaration):

- a. Agenda setting by the South, and a programme that is demand-driven.
- b. Safeguards to avoid dominance of one partner, especially the Northern partner.
- c. Definition of clear objectives against which the success of a programme can be measured.
- d. Integration of evaluation in to the programme at the outset of every project.
- e. Development of an overarching evaluation framework, to provide compatible data derived from different programmes.
- f. Long-term commitment.
- g. Acceptance that a programme needs to be repeatedly adjusted during its life-span, based on consultation with recipient countries, to react to a changing historical context.
- h. Succession planning to be an integral part of the initial concept of any new capacity building programme; this requires a clearer definition of the role of the recipient partner and (agreed) mechanisms for holding the partner accountable to the agreed contributions (i.e. a stronger onus on recipients, e. g. as part of the Paris Declaration to mobilise indigenous resources to sustain programmes following the end of external funding).

In the context of capacity building of Science & Technology, those consulted believe that the focus should be placed on the following issues to maximise the long-term benefits of the investments:

- i. Assistance in strengthening the quality of in-country PhD programmes.
- j. Assistance in the development of career structures at HEIs and strategies for the retention/recruitment of younger scientists.
- k. Assistance in the development of the post-doctoral research domain including the provision of a career structure.
- l. Support for infrastructure (plus maintenance), but accompanied by the necessary training for researchers and technicians to use the equipment adequately and professionally (skill transfer).
- m. Facilitation of the integration of African scientists into the global scientific community.
- n. Inclusion of vocational training elements through skill transfer (seminars and workshops on grant-writing, training for senior researchers on the supervision and mentorship of graduate students and post-doctoral researchers, etc.).
- o. Support of indigenous institutions to develop national merit-based ad hoc funding programmes.
- p. Institutional support for the national funding bodies in terms management of scientific programmes, governance, accounting and reporting.
- q. Institutional support for organisations that promote science and its application, and in doing so create an in-country demand for it.

The UK has also to ensure that its own institutions retain and develop their own capacity to engage successfully and efficiently in capacity building. One option could be to establish UK centres, focussing on specific research areas that could provide training through summer schools, workshops, and exchange programmes with partners in developing countries. In addition, a programme to support short visits by UK-based scientists to lecture in developing countries, could yield significant returns.

3. How does government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight needed? The Society cannot provide a comprehensive response to these questions. There is a sense that, in the past, there have been shortcomings in the DFID approach to the issue of evaluation. However, it appears that DFID is becoming increasingly aware of the necessity of robust and effective evaluation tools. The main challenge is how to develop an evaluation programme that can be used across different capacity building programmes to produce compatible data, and to identify indicators that can be used as predictors. In this way donors and funding bodies can detect problems, and undertake course corrections during the lifespan of a programme, rather than just using evaluation as a “post-mortem” device.

4. What role does the DFID’s Chief Scientific Adviser play in determining priorities and in the development and assessment of capacity building policies? The Society does not feel in the position to comment on this matter, other than to note that it welcomes the decision of DFID to appoint a CSA who has been provided with the actual power and resources to formulate and deliver capacity building programmes, by combining the important role of CSA with the post of Director Research and Evidence Division. The Society has noticed a growing readiness by the CSA to recognise the value of Science & Technology and to put a stronger emphasis on capacity building in this area in the future. It is pivotal that the CSA engages with the DFID Scientific Advisory Board led by Prof Sir Leszek Borysiewicz FRS to create an effective two-way dialogue.

5. How are government activities co-ordinated with the private and voluntary sectors? The Society is again not in a position to address this matter comprehensively. One issue that needs to be address is the

possibility of DFID entering into partnerships with organisations such as the Royal Society to deliver specific capacity building projects as part of DFID's overall strategy and ambition, particularly in cases where DFID's current in-house capability might be insufficient to manage certain projects directly. In the context of capacity building, DFID is already delivering certain programmes in collaboration with other funding bodies, for example with the MRC, BBSRC, and the Wellcome Trust. One issue of concern is the lack of co-ordination and perhaps governance of the many initiatives managed by the private and voluntary sector. There appears to be an overall lack of leadership by government to harness the undoubted enthusiasm and resources within this sector to increase the effectiveness of the assistance offered.