



House of Commons
Science and Technology
Committee

**Building scientific
capacity for
development**

Fourth Report of Session 2012–13

Report, together with formal minutes, oral and written evidence

Additional written evidence is contained in Volume II, available on the Committee website at www.parliament.uk/science

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Science and Technology Committee

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Contacts

All correspondence should be addressed to the Clerk of the Science and Technology Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is: 020 7219 2793; the Committee's e-mail address is: scitechcom@parliament.uk.

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Summary

Scientific capacity building—a process that enables countries to shape and sustain their own long-term development—is important in international development. However, eight years ago our predecessors identified it as a particular area of weakness within the UK’s approach to international development policy.

The scientific culture in the Department for International Development (DFID) has improved in the intervening period. Not least because of the introduction of a Chief Scientific Adviser post within DFID. While this has led to some improvements, such as DFID’s commitment to using a robust evidence base and its understanding of the need for robust evaluation tools, there is no room for complacency. We remain concerned about the level of DFID’s in-house scientific and technical expertise and echo the Government Chief Scientific Adviser’s recommendation that DFID have mechanisms in place to keep under review its current and future needs for professional staff. DFID must also continue to draw on external scientific expertise. This is particularly important in providing technical support to generalist staff in DFID country offices.

Following the formation of the UK Collaborative on Development Sciences (UKCDS), there have also been improvements in communication and coordination between research funders in the UK with an interest in development. We recommend that UKCDS’s members, which include Government Departments and the Research Councils, publicly commit to the continuation of the Collaborative beyond 2013 for at least another five years.

While UKCDS works well in providing a forum for research funders, there remains a need for greater clarity about the way in which it relates to other cross-Government networks that are involved in the international coordination of science, for example, the Global Science and Innovation Forum (GSIF) and the Science and Innovation Network (SIN). We support a more joined up approach between DFID and other arms of the UK Government that function abroad. As such, we welcome DFID’s initiative to co-locate its overseas staff in “research hubs” with SIN officers in India and China, and we recommend that DFID and SIN make rapid progress on the development of proposals for further such research hubs, including at least one in Africa.

While we welcome the various ways in which DFID directly and indirectly provides financial support for scientific capacity building, we consider that there is a need for greater clarity about the different funding streams available. DFID acknowledge the widely agreed view that it is necessary to take a long-term approach to capacity building. To engender a more sustainable approach over the long-term, we consider that DFID should promote capacity building initiatives that become self-sustaining over time. The strengthening of local institutions in developing countries is part of the answer and we encourage DFID to play a more active role in working with such institutions to identify and overcome barriers to sustainable capacity building.

Strong local institutions provide a good base from which researchers can build their careers. However, there is a widely acknowledged problem in providing effective support to early career researchers in developing countries. We understand that this is a complex

issue with multiple causes. To help address it we recommend is that the Commonwealth Scholarship Commission (CSC) review the manner in which its much-valued scholarships are awarded to assess whether there is scope to provide some post-qualification funding. We also recommend that the CSC introduce a new early-career scholarship.

Scientific research collaboration between UK researchers and their partners in developing countries are valuable to both parties and should be actively encouraged by funders of research in the UK. We note that there are a number of disincentives working against UK researchers involved in such collaborations, for example, the way in which research and researchers are assessed. We recommend that funders ensure that researchers working on development issues are recognised for the impact they are having on the ground in addition to other traditional measures of success, such as publication record.

Beyond providing support for research and researchers, building capacity for innovation and economic growth is also crucial to sustainable development. We welcome DFID's recent interest in innovation and encourage the Department to work actively with the Technology Strategy Board in order to learn lessons from the UK's own experience in fostering innovation.

Achieving the full potential of innovative solutions to development issues provided by businesses will often require a helping hand from Governments. We recommend that the UK Government actively promote to developing countries the advantages of having Chief Scientific Advisers in Government. Furthermore, we recommend that the UK Government's Chief Scientific Adviser should play a leading role in building a strong international network in which scientific advisers from around the globe can share knowledge and provide a more joined-up approach to supporting robust decision-making processes in relation to development issues.

Finally, we recommend that in the future DFID should be much more explicit about both the importance of and its commitment to capacity building and the role of science and engineering in development. This may help to dispel the current perception that DFID's focus on the Millennium Development Goals may be to the detriment of capacity building.

1 Introduction

Background

1. Science, engineering and technology underpin solutions to many of the development issues facing the world today—from poverty reduction to improved health and sustainable economic growth. In 2004, our predecessor Committee held an inquiry into *The Use of Science in UK International Development Policy*, focusing predominantly on the work of the Department for International Development (DFID). The inquiry explored how science and technology informed decisions on the aid budget, how research was used to underpin policy making in international development, and how the UK was supporting science and technology in developing countries.¹ At that time, scientific capacity building—a crucial process in enabling countries to shape and sustain their own long-term development—was identified as a particular area of weakness. This follow up inquiry therefore examines how scientific capacity building in the context of UK international development policy has improved in the intervening eight years.

Our inquiry

2. We announced our inquiry on 9 November 2011 and issued a call for evidence based on the following terms of reference:

- i. How does the UK Government support scientific capacity building in developing countries and how should it improve?
- ii. What are the most effective models and mechanisms for supporting research capacity in developing countries?
- iii. How does the Government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?
- iv. What role does DFID's Chief Scientific Adviser play in determining priorities and in the development and assessment of capacity building policies?
- v. How are government activities co-ordinated with the private and voluntary sectors?

3. We received 34 written submissions and took oral evidence from a range of witnesses and organisations; we are grateful to all those who contributed.² In the course of our inquiry, we met with international scholars and fellows in order to hear about their experiences of carrying out research in the UK and their views on scientific capacity building challenges in their own countries. The meeting was hosted by staff from the Commonwealth Scholarship Commission, the Association of Commonwealth Universities and the London School of Hygiene and Tropical Medicine; we are extremely grateful to them for accommodating us. We also undertook a visit to Tanzania and Uganda, where we

¹ Science and Technology Committee, Thirteenth Report of Session 2003–2004, *The Use of Science in UK International Development Policy*, HC 133–I

² Written evidence and witnesses are listed at end of this report

saw firsthand many of the projects that DFID is supporting, spoke to scientists involved in building capacity locally, and met government officials and politicians with an interest in scientific capacity building for development. We would like to extend our thanks to all those who took the time to meet us during our time in East Africa.

2 Building scientific capacity for development

Definitions

4. The United Nations Development Programme (UNDP) defines capacity as “the ability of individuals, institutions, and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner”.³ Capacity building is the process through which these abilities are obtained, developed and maintained over time. The Department for International Development (DFID) explains in its working paper on capacity building:

Capacity building is a complex notion—it involves individual and organisational learning which builds social capital and trust, develops knowledge, skills and attitudes and when successful creates an organisational culture which enables organisations to set objectives, achieve results, solve problems and create adaptive procedures which enable it to survive in the long term.⁴

However, the Social, Technological and Environmental Pathways to Sustainability (STEPS) Centre cautioned that capacity development “seems to have become a catch-all that incorporates just about any form of technical assistance” and that more consideration needed to be given to the harder questions about capacity of whom, to do what, and to what ends.⁵

5. Capacity building makes use of a country’s human, scientific, technological, organisational, institutional, and resource capabilities to ensure that it has the ability to follow sustainable development paths.⁶ In the context of this report, scientific capacity building refers to two general concepts:

- i. research capacity building: the ability of developing countries—alone or in collaboration—to undertake and disseminate scientific research; and
- ii. broader scientific capacity building: the ability of developing countries to both support and make proper use of research and other outputs of science and engineering, allowing science and engineering to have maximum impact.

These concepts are distinct but intrinsically related. DFID describes these concepts across three levels of capacity building:

Individual: involving the development of researchers and teams via training and scholarships, to design and undertake research, write up and publish research findings, influence policy makers, etc.

³ United Nations Development Programme, *Capacity Development: Measuring Capacity*, July 2010, p 2

⁴ Department for International Development, *Working Paper Series: Capacity Building*, April 2008, p 3

⁵ Q 25 [Professor Leach] and Ev 10

⁶ United Nations Environment Programme, “*National mechanisms and international cooperation for capacity-building*”, www.unep.org

Organisational: developing the capacity of research departments in universities, think tanks and so on, to fund, manage and sustain themselves.

Institutional: changing the ‘rules of the game’ and addressing the incentive structures, the political and the regulatory context and the resource base in which research is undertaken and used by policy makers.⁷

We note that the “institutional” level is also sometimes referred to as the “environmental” level.⁸ There are no clear boundaries between these three levels.⁹ However, it was broadly acknowledged during the course of our inquiry that there is a need for a balanced approach to scientific capacity building, across these levels.¹⁰ Furthermore, capacity building “is not something that starts in one year and ends a couple of years later”, it is necessary to take a long-term approach.¹¹ We discuss the ways in which sustainable long-term capacity can be built later in this Report.

6. Scientific capacity building activities vary considerably. Examples of DFID programmes that support the strengthening of scientific capacity include programmes to strengthen agricultural research and development in Africa, to support African universities to raise the quality of social science MSc and PhD programmes, and to take a “whole systems” approach to health research capacity building that includes pulling health research into policy-making.¹² Scientific capacity building activities are also funded, managed or delivered by other organisations, sometimes in partnership with DFID. Specific examples of such activities can be found throughout the written evidence that we received.

Does it matter?

7. Capacity building enables a country to follow a sustainable development path. Sir Mark Walport, Director of the Wellcome Trust (and the Government Chief Scientific Adviser designate), considered that the development of capacity was “one of the most important activities to which DFID can contribute”.¹³ Moreover, strengthening scientific capacity in developing countries has the potential not only to ensure the provision of science, engineering and technology solutions to development issues, but also to train a technically literate entrepreneurial workforce, as well as instil a culture of evidence-based policy making in indigenous institutions. It is our view that scientific capacity building is tremendously important in international development.

8. Disappointingly, a number of witnesses were concerned that DFID placed insufficient emphasis on scientific capacity building. For example, the Institute of Physics (IOP) was

⁷ Department for International Development, *Research Programme Consortia: Guidance note on capacity building*, June 2009, p 2

⁸ UK Collaborative on Development Sciences, *Research capacity strengthening: Learning from experience*, Executive Summary, August 2012

⁹ UK Collaborative on Development Sciences, *Research capacity strengthening: Learning from experience*, Executive Summary, August 2012

¹⁰ Q 27 [Professor Westby]; Q 27 [Dr Kirkland]; Ev w16; Ev w27, para 15; Ev 19, paras 2 and 19; Ev w33, para 11.1; and Ev 31, para 24

¹¹ Q 6 [Professor Souhami]

¹² Ev 48-49, paras 9-16

¹³ Q 59 [Sir Mark Walport]

“concerned by the lack of visibility of the importance of scientific capacity building in the summary of the recent DFID report *UK Aid: Changing Lives and Delivering Results*”.¹⁴ This report was published in 2011 and sets out “a new direction for UK aid” following root and branch reviews of how and where UK aid is spent to ensure that DFID makes the greatest impact with every pound it spends.¹⁵ Dr Beth Taylor from the IOP told us that scientific capacity building “was not explicitly stated as an objective, and it would be very helpful, even just as a reminder, if that was the case”.¹⁶ The University College London (UCL) Institute for Global Health also considered that:

it is not clear that the UK Government overall has scientific capacity building as a key aim. Being more explicit across Government about aims with regard to capacity building would be helpful. In particular we would advocate a clear statement that Government wishes to support scientific capacity building where appropriate, and the inclusion of capacity building as an outcome in relevant research calls by Government departments.

While Professor Peter Guthrie, Fellow of the Royal Academy of Engineering (RAENG), agreed that insufficient attention was being paid to scientific capacity building, he added that “people like us will probably never be satisfied with the degree to which science is being taken into policy and the development of capacity”.¹⁷

9. In fact, neither the word “science” nor “capacity” appear anywhere in *UK Aid: Changing Lives and Delivering Results*. When we raised this with Stephen O’Brien MP, Parliamentary Under-Secretary of State for International Development, he told us that this report and other products of the root and branch reviews were “very public-facing documents” and therefore retained the “strategic, high-level wording that was geared to the MDGs [Millennium Development Goals]”.¹⁸ However, when we stressed to the Minister the importance to researchers and others involved in scientific capacity building of knowing that DFID values their efforts, he sympathised and conceded that we were “right to say that [DFID] ought perhaps to make a bit more visible what has been done”.¹⁹ Overall, we were impressed by the Ministers grasp and enthusiasm for the subject of capacity building, as well as his commitment to people living in malaria zones and those vulnerable to other risks.

10. The IOP also noted that progress in supporting scientific capacity building “may be overshadowed internally [in DFID] by more obviously immediate issues, for example support for poverty alleviation [and] conflict resolution”.²⁰ The British Academy added that the “short-term measures” frequently associated with DFID’s main priority, poverty alleviation, are “often at odds with the need to develop long-term strategies for fostering

¹⁴ Ev 59, para 5

¹⁵ Department for International Development, “A new direction for UK aid”, www.dfid.gov.uk

¹⁶ Q 17 [Dr Taylor]

¹⁷ Q 17 [Professor Guthrie]

¹⁸ Q 86 [Stephen O’Brien MP]

¹⁹ Q 88 [Stephen O’Brien MP]

²⁰ Ev 59, para 3

sustainable research culture and developing capacity”.²¹ Others expressed their concerns about DFID’s dominant focus on the Millennium Development Goals (MDGs),²² for example the Royal Society stated that:

In the past, the inclusion of Science and 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 stronger emphasis on S&T in the overall strategy of poverty reduction.²³

11. The eight MDGs, which the UK and other United Nations member states have agreed to achieve by the year 2015, are:

- i. Eradicate extreme poverty and hunger
- ii. Achieve universal primary education
- iii. Promote gender equality and empower women
- iv. Reduce child mortality
- v. Improve maternal health
- vi. Combat HIV/AIDS, malaria and other diseases
- vii. Ensure environmental sustainability
- viii. Develop a global partnership for development²⁴

12. We put some of these concerns to the Minister and asked him whether the focus on the MDGs was resulting in a lack of emphasis on capacity building; he responded:

That question has been presented on a number of occasions. I have to say that I have come across no evidence of that [...] What lies behind the MDG achievement will [...] be very long term, so we need to be prepared to look at the sustainability that attaches to that. That is why the MDGs are not excluding or crowding out science; on the contrary, they are encouraging the science and evidence to support the long-term sustainable attainment.²⁵

The important role played by science (including social sciences) and engineering in helping to achieve the MDGs was widely discussed in the evidence we received.²⁶

13. We welcome the many scientific capacity building activities that the Department for International Development (DFID) and its partners are involved in. It is our view that

²¹ Ev 71, para 7

²² Ev w6, para 4

²³ Ev w56

²⁴ United Nations, “*Millennium Development Goals*”, www.un.org/millenniumgoals/

²⁵ Q 87 [Stephen O’Brien MP]

²⁶ For example: Ev 67, para 4; Ev 76, para 5; Ev w55; and Ev 71

scientific capacity building is tremendously important in international development. We are therefore disappointed by the lack of explicit reference to both science and capacity building in DFID's report, *UK Aid: Changing Lives and Delivering Results*, which publicly sets out the Government's "new direction" for UK aid. We consider that, in the future, DFID should be much more explicit about both the importance of and its commitment to capacity building and the role of science and engineering in development.

14. We have heard from a number of organisations concerned that DFID's focus on the Millennium Development Goals may be to the detriment of capacity building. We accept the Minister's assurance that he has seen no evidence of this, but believe that a more explicit commitment to capacity building, as described above, may go some way to dispelling the current perception.

Financial support

15. Commitment by DFID to supporting scientific capacity building as a key development priority will require significant financial support.²⁷ As such we were keen to get information from DFID on its budget for scientific capacity building. The Minister provided the following overview:

The best way I can describe it is to say that, in the current year, our total programme budget for the Research and Evidence Division is £235.38 million. Of course, we can split that right down into about a dozen programme teams. It includes some budget that goes towards humanitarian and emergency relief research. The trend is also quite helpful. In the year 2007-08, the figure was £130 million. By 2014-15, we are intending to get to £320 million, so you can see where the £235 million lies on that rapidly increasing trajectory. [Our] stock take in 2011 of our central spend on scientific capacity building, which is one of the central issues on which this Committee has been focused, shows that we now have 36 centrally funded programmes in scientific capacity building, which is a core component of 16 of those programmes and the central objective of 10 of them. We have allocated £56.4 million up to 2020 to scientific and research capacity strengthening. That is the budget both overall and for capacity.²⁸

The Minister confirmed that this represented an increase both in absolute and relative terms since the Committee's previous report²⁹ in 2004 but added that:

I offer a slight caution on these numbers, which are obviously historic—I do not have access to all the documents—but, as I understand it, the equivalent number in 2003-04 was £78 million. On a broad inflator, that would still be just under £100 million.

²⁷ Ev w7

²⁸ Q 96 [Stephen O'Brien MP]

²⁹ Science and Technology Committee, Thirteenth Report of Session 2003-2004, *The Use of Science in UK International Development Policy*, HC 133-I

Compared with that period, you can see that the increase is in absolute terms as well as relative.³⁰

16. Capacity building programmes that are centrally funded by DFID will inevitably vary in size and one might expect a broad portfolio, from very small programmes through mid- and large-scale initiatives. However, the IOP explained that there was a “perception [amongst the learned societies] that DFID prefers to fund large scale initiatives and lacks the flexibility to provide support for smaller scale programmes”.³¹ The British Academy added that “large programmes can struggle to maintain coherence and focus in their project designs, and the pattern of making fewer, larger consortia grants reduces the different points of view around development theory and policy”.³² Professor Chris Whitty, DFID’s Chief Scientific Adviser (CSA), told us that he “agree[d] with the underlying principle [...] that small things often give you at least as much information as big things, and that a large number of smaller things, rather than big things, can often be the right approach”.³³

17. Dr Beth Taylor, from the IOP, went on to explain that “DFID is interested in funding things at the £1 million level, and somewhere in between at the £100,000 level there are things for which [...] the learned society community as a whole could gear up, but that sort of level is missing”.³⁴ Professor Robert Souhami, Foreign Secretary of the Academy of Medical Sciences (AMS), shared this view.³⁵ The British Academy also considered that there was a need for grants at the £100,000 level to be introduced by DFID.³⁶ It was acknowledged, however, that funding large-scale programmes was “attractive in terms of administrative economies of scale”,³⁷ and that DFID was currently “under pressure in terms of its administrative costs”.³⁸ For example, Professor Peter Guthrie, from the RAENG, was concerned that:

with DFID facing cuts in HQ, it will be driven more and more towards large amounts of money spent on fewer programmes so that it can disburse the target expenditure efficiently rather than having to micro-manage a whole lot of perhaps more appropriate programmes.³⁹

18. When we spoke to the Minister he refuted the premise that small or medium scale programmes were being “either deliberately [...] or de facto excluded or minimised”.⁴⁰ In fact, he told us that DFID funding at this level was often channelled through other

³⁰ Q 97 [Stephen O’Brien MP]

³¹ Ev 60

³² Ev 72

³³ Q 112 [Professor Whitty]

³⁴ Q 6 [Dr Taylor]

³⁵ Q 6 [Professor Souhami]

³⁶ Q 10 [Professor Furniss] and Int Dev 21, para 8 [British Academy]

³⁷ Ev 60, para 11

³⁸ Q 10 [Professor Furniss]

³⁹ Q 7 [Professor Guthrie]

⁴⁰ Q 112 [Stephen O’Brien MP]

organisations, such as the Research Councils.⁴¹ Professor Whitty suggested that this was because it was easier for DFID to manage larger programmes.⁴² Professor Whitty explained that unlike some organisations, such as the Wellcome Trust or the Research Councils, DFID did not have sufficient resources to effectively peer-review the number of grant proposals that might be generated by a larger number of centrally funded small programmes.⁴³ The channelling of funds through different organisations therefore allows DFID to take advantage of the skills of others and indirectly fund many smaller programmes thereby complementing the larger programmes supported by its own central funding stream.

19. Beyond centrally funded programmes and the channelling of funds through the Research Councils, DFID also provides bilateral funding for programmes at a country or regional level.⁴⁴ Furthermore, DFID delivers other programmes indirectly through the funding of multilateral organisations, for example, it provides funding to the UNDP, the Commonwealth Scholarship Commission (CSC) and the Global Fund.⁴⁵ Some of these programmes will also have scientific capacity building elements. The Wellcome Trust considered that:

Successful capacity-building initiatives should aim to become self-sustaining over time and demonstrate the ability to leverage additional funding from other sources. Funders need to seriously consider what will happen once funding runs out and develop plans to facilitate a transition to a model which does not include dependence on the original funder. To provide sustainable solutions, funders may need to consider support for research infrastructure, building national and international research networks and developing institutional research strategies alongside the provision of research and training grants.

20. We welcome the various ways in which DFID directly and indirectly provides financial support for scientific capacity building. However, it is clear to us that there is a need for greater clarity about the different funding streams available. We are specifically concerned about clarity over the provision of funding at the hundred thousand pound level and recommend that DFID’s Chief Scientific Adviser meet representatives of the learned societies, national academies, and other interested bodies, to alleviate their concerns. We recommend that DFID publish a breakdown of the various direct and indirect funding streams available for scientific capacity building activities.

21. We also encourage DFID to promote a sustainable approach to funding, which aims to ensure that capacity building initiatives become self-sustaining over time.

22. One of the strengths of DFID’s involvement in the funding of scientific capacity building is that as an organisation it brings “a very important policy angle to the research

⁴¹ Q 112 [Stephen O’Brien MP] and Q 112 [Professor Whitty]

⁴² Q 112 [Professor Whitty]

⁴³ Q 112 [Professor Whitty]

⁴⁴ Department for International Development, *Annual Report and Accounts 2011–12*, June 2012, p 36 and p 43

⁴⁵ Department for International Development, *Annual Report and Accounts 2011–12*, June 2012, p 36 and p 77-78

table”, which is different from the interests represented by, for example, the Research Councils.⁴⁶ While DFID “funds research in order to generate knowledge that will help directly to alleviate poverty in developing countries”, the seven Research Councils exist “primarily to support science of the highest international quality in the UK”.⁴⁷ However, we were reassured by Research Councils UK (RCUK) that these aims “are not mutually exclusive”.⁴⁸ RCUK added that while good working relationships with DFID have “allowed the amicable resolution of any operational differences” there is one issue that has posed particular challenges:⁴⁹

[Research Councils, such as the Biotechnology and Biological Sciences Research Council, are] able to provide funding only to universities, Research Council institutes and certain other institutions in the UK. On the other hand, under the provisions of the International Development Act 2002, DFID funding cannot be ‘tied’ to particular countries or institutions. The extension to DFID’s research funding of the requirement that the UK’s aid funding must not be tied has presented some difficulties for the Council and the Department in defining the terms of institutional eligibility to apply for support from their joint funding schemes.

23. We welcome joint funding initiatives between DFID and Research Councils UK which we hope will ensure that high-quality science in the UK helps to alleviate poverty in developing countries. We invite DFID, in its response to us, to set out how it is addressing the difficulties presented by the extension to DFID’s research funding of the requirement that the UK’s aid funding must not be tied.

Ownership

24. One of the advantages of multiple funding streams is that different countries or regions can identify the funding stream that best suits the capacity building activity needed in their locale. However, as we heard from the London School of Hygiene and Tropical Medicine, there is a risk that this “multiplicity [...] can greatly hamper capacity strengthening – it can be capacity destroying”.⁵⁰ For example, the global health landscape has recently become crowded with new capacity building initiatives, “leading to concerns that internationally-funded research projects may not match national priorities and sometimes may even inadvertently work against them”.⁵¹ Therefore “local leadership (and supporting the creation of such leadership) to set priorities is critical”.⁵² Such local involvement and leadership is often referred to as “ownership”.

25. Ownership is a key principle that the UK Government has signed up to through the 2005 Paris Declaration on Aid Effectiveness and the subsequent 2008 Accra Agenda for Action. The former outlines five major principles for making aid more effective:

⁴⁶ Ev w11, para 3

⁴⁷ Ev w46, para 11

⁴⁸ *Ibid.*

⁴⁹ Ev w46, paras 11 and 18

⁵⁰ Ev w13, para 15

⁵¹ Ev w32

⁵² Ev w13, para 15

ownership; alignment; harmonisation; results; and mutual accountability, whilst the latter focuses on three main areas for improvement: ownership; inclusive partnerships; and delivering results. The UK Collaborative on Development Sciences (UKCDS) stated that “it has long been known that for development interventions to be successful a degree of local ownership is required”.⁵³ Other witnesses agreed that such local ownership is crucial to the success of scientific capacity building.⁵⁴ One of the reasons for this, as suggested by Professor Andrew Westby, Director of the Natural Resources Institute (NRI) at the University of Greenwich, was that local ownership could help to ensure that scientific capacity building programmes worked within existing indigenous mechanisms, thereby avoiding the risk of setting up potentially unworkable new mechanisms.⁵⁵ This was a problem recognised by Dr Julie Makani, a leading Tanzanian scientist, who told us that “the proliferation of relatively well-funded (and well meaning) programmes in health, research and education has resulted in parallel systems with difficulty in retention of people in academia and research”.⁵⁶

26. Furthermore, in the absence of local ownership, there is a danger that funders can become too directive about the type of scientific research they wish to support. We heard mixed views about the extent to which DFID and other funders were directive. Professor Anthony Costello, Director of the UCL Institute for Global Health, told us that “in the last five years there has been a definite trend towards the major funders, including people like the Gates Foundation, DFID and others, to be very directive, to a degree that is probably not healthy”.⁵⁷ However, Dr Andrée Carter, Director of the UKCDS, explained that their “experience has been that all of the funders with whom we work are very good at consultation and working with people from the south⁵⁸ in terms of opinions, and also across the spectrum in involving NGOs and academics”.⁵⁹ We also heard of DFID’s support for local ownership through the encouragement of South-South partnerships.⁶⁰ However, it is not easy to identify and facilitate local ownership.⁶¹ Professor Leach, from the STEPS Centre, told us that

I know that DFID has been desperate to have some [Research Programme Consortia (RPC)] that are genuinely southern-led. That has proved quite elusive, partly because the administrative and managerial requirements of running an RPC are much greater than most African or even Asian universities can manage.⁶²

As such it is necessary to consider how DFID supports scientific capacity building in its broadest sense, which will include supporting the sustainable development of the organisations and environment in which talented individuals are able to function.

⁵³ Ev w37, para 2.6

⁵⁴ For example, Q 29 [Professor Leach]; Q 68 [Sir Mark Walport]; and Ev w34, para 1.11

⁵⁵ Q 31 [Professor Westby]

⁵⁶ Ev w69

⁵⁷ Q 29 [Professor Costello]

⁵⁸ “South” refers to the Southern Hemisphere

⁵⁹ Q 62 [Dr Carter]

⁶⁰ For example, Q 14 [Professor Souhami] and Ev w31, para 12

⁶¹ Ev w37, para 2.6

⁶² Q 39 [Professor Leach]

Sustainable research capacity and the retention of talent

27. The decision-making process of how and where DFID supports scientific capacity was described by the Minister as “horses for courses”, that is, it depends on the needs identified in different locations.⁶³ Professor Tim Wheeler, DFID’s Deputy CSA, explained that, in terms of individuals, he did not think that DFID made a distinction based on where an individual came from.⁶⁴ For example:

Fellowship and scholarship holders for some big programmes like the Commonwealth Scholarship Commission, which supports up to 3,000 awards over a five-year period, come from a broad range of countries. Fellows for one of the climate change capacity-building programmes—Climate Change Adaptation in Africa—come from 33 countries.⁶⁵

28. DFID’s support for individuals through the Commonwealth Scholarship Commission (CSC) has been hugely important.⁶⁶ The CSC currently provides seven different types of award: “PhDs (full-time and split site); Master’s awards (standard, shared with universities, and distance based), academic fellowships and professional fellowships, both aimed at staff in mid-career”.⁶⁷ In 2004, our predecessor Committee expressed its particular support for the split site and distance learning awards.⁶⁸ The former award provides support for one year’s study at a UK university as part of a PhD being undertaken in a researcher’s home country, under the joint supervision of a home country and UK supervisor;⁶⁹ the latter offers the opportunity to study for a UK Master’s degree while students are living and working in their home country.⁷⁰ Given the evidence we have heard about the benefits of these types of awards,⁷¹ we share our predecessor’s support. Another interesting area of growth, which is similar to the split site approach, involves:

students [...] undertaking very substantial amounts of field work in [...] developing countries as part of their degrees. [...] It is now not unusual for a student on a three-year PhD programme in the UK to spend six or nine months in a block, still under UK supervision, in-country doing work that is relevant in the home country.⁷²

29. We heard from Dr John Kirkland, from the Association of Commonwealth Universities (ACU), that while the number of distance learning awards has “risen considerably” since 2004, formal split site degrees have expanded “less quickly”.⁷³ This is

⁶³ Q 98 [Stephen O’Brien MP]

⁶⁴ Q 98 [Professor Wheeler]

⁶⁵ Q 98 [Professor Wheeler]

⁶⁶ Q 5 [Professor Furniss] and Ev 16, para 19

⁶⁷ Ev w16

⁶⁸ Science and Technology Committee, Thirteenth Report of Session 2003-2004, *The Use of Science in UK International Development Policy*, HC 133-I, para 112

⁶⁹ Commonwealth Scholarship Commission in the UK, “Commonwealth Split-site Scholarships”, <http://cscuk.dfid.gov.uk>

⁷⁰ Commonwealth Scholarship Commission in the UK, “Commonwealth Distance Learning Scholarships”, <http://cscuk.dfid.gov.uk>

⁷¹ Q 37 [Professor Westby]; Q 37 [Dr Kirkland]; Q 37 Professor Costello]; Ev w11, para 4 and Ev w13 para 10; and, Ev w29, para 1.7 and para 2.2

⁷² Q 37 [Dr Kirkland]

⁷³ Q 37 [Dr Kirkland]

partly because, for “legal reasons” connected with the Commonwealth Scholarship programme, provision of support has only been at “the UK end” of the degree and there have been concerns about “what is happening at the other end”. Dr Julie Makani, a leading Tanzanian scientist, told us that excellence in education and training in developing countries could be developed through “core funding to research universities and institutions; funding institutional links that strengthen [...] education and research; [and] promoting excellence in graduate and research programmes”.⁷⁴ Concerns about the quality of education and training in developing countries also remind us of the need to ensure that capacity building of research institutes and other organisations, to supervise and manage research programmes, is effectively supported. As explained by Sir Mark Walport, from the Wellcome Trust, which also supports scientists through its own fellowships, you only achieve the full value of fellowships if there are institutions that can support well-trained investigators as well as a policy environment that is capable of taking up and using any relevant evidence.⁷⁵

30. The question of how and where DFID supports scientific capacity becomes much “more relevant” when we consider organisations and the wider environment.⁷⁶ At this level, DFID adopts a mixed approach, which includes “boosting [...] existing research expertise” through support for specific national research institutes, such as the Makerere University in Uganda, as well as broader support for regional organisations.⁷⁷ However, we heard some concerns that too little attention has been paid to research institutes and the broader university system in developing countries.⁷⁸ Professor Anthony Costello, Director of the UCL Institute of Global Health, explained that historic investment in largely British-run international research stations had resulted in “short-term benefits for high-quality research” but had not provided investment in the local institutions that needed to be strengthened in developing countries.⁷⁹

31. One of the consequences of weak local institutions is that researchers receiving training abroad—often in the UK, or elsewhere in the Northern Hemisphere—subsequently return home to find they have “nowhere to go” because their local university system has “collapsed”.⁸⁰ The danger of this is that researchers might choose not to return home. The loss of a country’s intellectual capital to other nations is often referred to as ‘brain drain’. However Dr John Kirkland, from the ACU, told us that the Commonwealth Scholarship programme, for example, has “high numbers of students returning home”.⁸¹ The ACU added that “while there is understandable concern over brain drain, in a world where research is increasingly international and collaborative, the question of whether people ‘return home’ is now far too simplistic”.⁸² Nonetheless, the UK has benefited hugely from

⁷⁴ Ev w69

⁷⁵ Q 61 [Sir Mark Walport]

⁷⁶ Q 98 [Professor Wheeler]

⁷⁷ Q 98 [Professor Wheeler]

⁷⁸ Q 27 [Professor Costello] and Q 27 [Dr Kirkland]

⁷⁹ Q 27 [Professor Costello]

⁸⁰ Q 27 [Professor Costello]

⁸¹ Q 35 [Dr Kirkland]

⁸² Ev 64, para 25

the influx of talented individuals from developing countries.⁸³ However, in the longer term these individuals should have a more meaningful choice about where they work. It should not be a necessity for them to move to Northern countries in order to develop their careers in Northern institutions. Talented individuals should be able to get good training and gain high-quality research experience in their home country, if they so choose.

32. In thinking about how best to empower individuals faced with the choice of where to train and develop their careers, it is important to think about how funders, such as DFID, can help to ensure that the local environment in which they would be operating is sufficiently attractive.⁸⁴ Professor Guthrie, from the RAENG, considered that DFID had a “crucial role to play” because it had “the opportunity to put a much higher priority on the development of skills and to make longer-term commitments” so that development projects could have a broader influence.⁸⁵ Professor Souhami, from the Academy of Medical Sciences (AMS), agreed and provided an example of how donors are already supporting the development of research institutes:

[The] Wellcome Trust African Institutions Initiative is [doing] exactly that; it is an investment in building the infrastructure necessary to support young researchers—not to fund young researchers—across a network of African institutions in the kind of informatics they need, the ability to apply for research grants, and the financial and administrative help they need.⁸⁶

33. The Glasgow Centre for International Development, at the University of Glasgow, considered that retention of talented individuals in developing countries might also be achieved by “the increased availability of significant local grant funding” for researchers to develop their careers in the early stages.⁸⁷ Professor Andrew Westby, from the NRI, added that:

One interesting scheme with which I had a very long association was run by the International Foundation for Science in Sweden. That provided relatively small amounts of money—\$10,000 to \$12,000—to encourage scientists, once they got their qualification, be it an MSc or more usually a PhD, to go back, have a bit of money to enable them to get going and get a bit of a reputation, and take forward the publishing that they did before.⁸⁸

Access to “modest seed funding to build on doctoral work” was also one of the six areas recently identified by the British Academy and the ACU where support is needed for early career researchers.⁸⁹

⁸³ Q 15 [Professor Guthrie]

⁸⁴ Q 15 [Professor Guthrie] and Q 27 [Professor Westby]

⁸⁵ Q 15 [Professor Guthrie]

⁸⁶ Q 15 [Professor Souhami]

⁸⁷ Ev w7, para 9

⁸⁸ Q 35 [Professor Westby]

⁸⁹ British Academy and the Association of Commonwealth Universities, “*Foundations for the future: Supporting the early careers of African researchers*”, December 2011, Executive Summary

34. Dr John Kirkland, from the ACU, stated that improving researchers' career structures in developing countries was "a very important issue and one that historically has not been thought through very well".⁹⁰ He explained that:

Historically, the support given for developing the career of researchers and academics at the start is by way of scholarships—the UK and DFID have a good record on scholarships—followed perhaps by mid-career training or what we call typically fellowships. One of the problems is that the fellowship world tends to concentrate on people in their mid-40s, if I may say so. When somebody returns home with a PhD, they are assumed to have had their share of training for the last few years and therefore should now get on with building a career. In 10 years' time they may need some updating and so on.⁹¹

The funding disconnect between the masters or PhD scholarship and the mid-career fellowship was highlighted as a problem by many of the researchers we met during our two visits in relation to this inquiry: the first to speak with Commonwealth scholars and fellows based in the UK; and the second to speak with researchers in Uganda and Tanzania. During the former visit, we heard that the current "gap in the market" for early career funding might be best delivered through the CSC, alongside its existing portfolio of awards (see paragraph 28). This sort of early career scholarship would be particularly welcome in countries that do not have the indigenous capacity to provide their own funding to support early career researchers. However, within a fixed budget, the consequences of introducing such a fellowship, we were warned, might be fewer scholarships and fellowships at other stages in the research career pipeline.

35. We raised these concerns about support for early careers with DFID and Professor Tim Wheeler, DFID's Deputy CSA, explained that:

One of the problems is that, in the career path of academia, the big bottleneck is different in different countries and different disciplines. For example, in health—my own field—by and large, many able people in Africa can get a PhD, but they get a fall-off when it gets to the postdoctoral stuff that they can go on to; [...] In the social sciences, people cannot even get on to masters; the blockage occurs at an earlier stage of the pathway. [...] The reasons for this are weak institutions that are not able to support people, or not being able to get research grants. There are multiple reasons for this; there is not a single fix.

First, we acknowledge that there is a big problem. Secondly, where possible, we try to support people like the Royal Society, who are taking these things seriously. Thirdly, this is not an area where DFID feels it has a particular competence; it is very much an area where we would have to work through others.⁹²

36. There is a widely acknowledged problem in providing effective support to early career researchers in developing countries. We acknowledge that this is a complex issue with multiple causes. However, we have identified one possible solution that would go

⁹⁰ Q 33 [Dr Kirkland]

⁹¹ Q 33 [Dr Kirkland]

⁹² Q 113 [Professor Wheeler]

some way to improving the current situation. We recommend that the Commonwealth Scholarship Commission (CSC) introduce a new early-career award. This would be particularly welcome in countries that do not have the indigenous capacity to provide their own funding to support early career researchers. The new award would complement the CSC's existing portfolio of seven awards at various stages in the research career pipeline, and ideally it would not be at the expense of the support provided by the other awards. DFID should work with the CSC to identify and overcome any barriers to introducing the new award. The CSC should also review the manner in which its other scholarships are awarded to assess whether there is scope to provide some post-qualification funding.

37. In addition to the lack of financial support for early career researchers, there are a host of other challenges, which are discussed at length in the British Academy and ACU joint report on supporting early career researchers.⁹³ For example, Dr John Kirkland, from the ACU, mentioned some of the expected challenges, such as a “lack of equipment and facilities”, as well as the somewhat surprising problem of “receiving promotion too early”.⁹⁴ He explained that “to be made head of a department in an African university is a double-edged sword, because it means that critical years of research can be spent working out timetable rotas and things like that”.⁹⁵ Professor Andrew Westby, from the NRI, agreed but added that it was “an issue [...] for the universities themselves to work out”.⁹⁶ However, Dr Kirkland noted that in some developing countries the incentive structure itself runs against getting research done.⁹⁷ He provided three reasons for this:

first, because of the balance of time and an overwhelming amount of teaching; secondly, there is no clear structure for buying out time; and thirdly, [...] because of] the de-institutionalisation of research, whereby personal consultancy drives an awful lot of people's salaries and international exposure.⁹⁸

38. The Glasgow Centre for International Development supported “the provision of some source of salary buy-out to allow local researchers and scientists the time and space to do research, instead of being burdened by large administration and/or teaching loads”.⁹⁹ However, recent experience suggests that a simple buy-out of a researchers time might not be so easy. The BBSRC, one of the UK Research Councils, recently issued a call for agricultural research funding proposals that included a distinct element targeted towards early-career researchers in developing countries. Research Councils UK informed us that:

The purpose of [this was] to enable the Fellow, as lead investigator, to devote himself or herself to the proposed project, and to spend significant periods of time working in another relevant laboratory outside his or her own country, as well as in his or her

⁹³ British Academy and the Association of Commonwealth Universities, “*Foundations for the future: Supporting the early careers of African researchers*”, December 2011,

⁹⁴ Q 35 [Dr Kirkland]

⁹⁵ Q 35 [Dr Kirkland]

⁹⁶ Q 35 [Professor Westby]

⁹⁷ Q 28 [Dr Kirkland]

⁹⁸ Q 28 [Dr Kirkland]

⁹⁹ Ev w7, para 9

home institution which would be expected to relieve him or her of all teaching and administration duties for the duration of the award. The award [was] intended to contribute to improving the scientific capacity of the Fellow's home institution in Africa or Asia, as well as enhancing his or her individual development and career progression. The response to this aspect of the call was relatively disappointing, for reasons that are not entirely clear but appear to include the reluctance of institutions to release potential Fellows from all of their existing responsibilities should an application be successful.¹⁰⁰

39. With a heavy focus on teaching in universities based in developing countries, Professor Anthony Costello, from the UCL Institute of Global Health, told us that “there is very little research culture there [...] A lot of the time, people in senior positions feel that they lack the skills or are disempowered about [driving a research agenda]”.¹⁰¹ The UCL Institute for Global Health considered that “DFID has an important role in improving the leadership and capacity of researchers so they can design and deliver appropriate research”.¹⁰²

40. We believe that strengthening local institutions leads to more sustainable scientific capacity building by, for example, providing a strong foundation based on the development and retention of high-quality skills in country. The UK Government, through DFID, should continue to boost existing research expertise in developing countries through support for specific national research institutes and through broader support for regional organisations. However, DFID must not be complacent, the evidence we have received suggests that there is room for improvement. DFID should play a more active role in working with institutions in developing countries to identify and overcome barriers to sustainable capacity building.

41. Local institutions may also benefit from collaboration opportunities with partners—in the UK and elsewhere—that have a strong reputation for scientific research. A recent report by the Royal Society explained that:

collaborating with other nations enables access to facilities, funding, equipment and networks that are often limited in [developing] countries. In return, partners from overseas often get access to unique geographical resources [...] as well as being able to draw on local knowledge and understanding. [...] Access to funding is an important factor. Many governments' science budgets barely cover salaries and institutional running costs, let alone providing research grants. [...] While there are some arguments that international funding deters domestic governments from making their own investments, international collaboration remains a highly effective tool through which to complement (rather than replace) the limited budgets available in poorer countries.¹⁰³

¹⁰⁰ Ev w46, para 16

¹⁰¹ Q 29 [Professor Costello]

¹⁰² Ev 74

¹⁰³ Royal Society, “*Knowledge, networks and nations: Global scientific collaboration in the 21st century*”, March 2011, p 61

The AMS acknowledged the need for strong partnerships between UK academic institutions and those in developing countries.¹⁰⁴

42. We were disappointed to hear from scientists we met during our visit to Uganda and Tanzania that there are many disincentives working against UK researchers who are trying to set up partnerships with scientists in Africa. These included many of the general problems faced by researchers working across the UK, for example, short-term research contracts, availability of Research Council funding, and a lack of career development. We were also told that the way in which research and researchers are assessed caused particular problems for those working on development issues. In development work, research is slower, publication is slower, and a researcher's work is often a small part of a much larger body of research. Assessment, and therefore the "success" of a researcher's career, can often be based on metrics such as the number of research papers published as a first author, rather than the impact those researchers are having on the ground; this may cause difficulties for those working in developing countries. We also heard that researchers working on development issues did not always get the formal recognition they deserve for their work on strengthening capacity when applying for research grants. We put these concerns to DFID, who responded:

Where DFID co-fund research programmes and projects with the Research Councils we ensure that there is equal access for developing countries in terms of peer-review; and developing country peer-reviewers are usually on the expert panels. [...] Research Councils funding [...] is mainly aimed at strategy for the UK research base; which includes support of science which will assist in development. However, these funds are not specifically for development purposes and therefore, inevitably this funding supports a different set of priorities.¹⁰⁵

43. There is much to be gained, both by UK researchers and their partners in developing countries, through scientific research collaboration; it should therefore be actively encouraged by funders of research in the UK. While there may be disincentives working against UK researchers who are working in partnership with scientists in developing countries, we recognise that many of these are common problems across many parts of the UK research community. Specific concerns include short-term research contracts, the availability of Research Council funding, a lack of career development and the way in which research and researchers are assessed. Although these issues are beyond the scope of this inquiry, they are nonetheless of great interest to us and as such we may return to them in more detail in the future.

44. In the context of some of the more specific problems we have identified for those working on development issues, we recommend that the Research Councils consider how they can best assess the work of researchers working on development issues. Funders should ensure that researchers are recognised for the impact they are having on the ground in addition to other traditional measures of success, such as publication record.

¹⁰⁴ Ev 68, para 13

¹⁰⁵ Ev 54

Strengthening broader capacity

45. There is a need to build capacity to ensure that developing countries also make proper use of their research capacity by disseminating widely their findings, thus allowing science and engineering to have maximum impact. For example, the wider dissemination of research findings can help to promote innovation and economic growth. Sir Mark Walport, from the Wellcome Trust, told us that “building economic capacity is absolutely vital to development. Ultimately, it is economic activity that will keep a country in a developed state”.¹⁰⁶

46. The Minister explained that one of the “essential pillars” currently embedded within DFID was the challenge to produce “wealth creation interventions that will have a major effect” and that much of this rested on private sector development.¹⁰⁷ We also heard that the UK is a member of the Private Infrastructure Development Group (PIDG), which aims to “encourage private infrastructure investment in developing countries that contributes to economic growth and poverty reduction”.¹⁰⁸ Furthermore, the UK Government owns a development finance institution, CDC Group plc, which does not provide aid but does invest its capital in developing countries where a lack of capital is holding back growth. DFID also works with UK Trade and Investment (UKTI) but as “UK aid is untied, DFID is not involved in promoting UK plc overseas”.¹⁰⁹

47. Professor Melissa Leach, Director of the STEPS Centre, explained how capacity building can be used to improve economic livelihoods:

Build[ing] the capacity to deliver innovations and applied technologies that will improve the livelihoods and health of people on the ground [...] requires a broader approach both to individuals and institutions that recognises there is knowledge, innovation and capacity among citizens, small businesses, farmers, health practitioners and extension workers. Part of the requirement is to get those networks and people talking to one another so that science and research can respond to the needs of users and, in turn, can get out better to the people who need to make use of it and allow their innovations to flourish.¹¹⁰

48. The British Council told us that “the organisational mechanisms” would have to be put in place for DFID to bridge the gap between the research base and small-scale business.¹¹¹ The British Council itself runs an “African Knowledge Transfer Partnership” scheme to link business and the knowledge base.¹¹² This scheme is now running in a number of African countries and is based on the UK Knowledge Transfer Partnerships scheme, which

¹⁰⁶ Q 63 [Sir Mark Walport]

¹⁰⁷ Q 116 [Stephen O’Brien MP]

¹⁰⁸ Ev 54

¹⁰⁹ *Ibid.*

¹¹⁰ Q 27 [Professor Leach]

¹¹¹ Ev w31

¹¹² *Ibid.*

is run by the UK's Technology Strategy Board (TSB).¹¹³ Dr Andrée Carter, from the UK Collaborative on Development Sciences (UKCDS), considered that there was:

an opportunity within the UK to apply our own structures more effectively in [...] innovation. We have very strong advocates through TSB, the Research into Use programme, KTNs [Knowledge Transfer Networks] and Knowledge Exchange programmes, but their focus is very much on UK benefit. We are beginning to see a move towards looking at opportunities overseas, particularly in low and middle income countries, but we could do more.¹¹⁴

DFID explained that it was:

keen to explore opportunities to partner with the TSB in order to help to stimulate innovation and growth in developing countries. To do this, we are in the early stages of working with TSB with the aim of developing a pilot platform for science and innovation for development.¹¹⁵

DFID is also in the process of setting up an “Innovation Hub”, which will “support innovative thinking and the development and implementation of practical, value-for-money, high impact solutions”.¹¹⁶

49. Building capacity for innovation and economic growth is crucial to sustainable development. We welcome DFID's recent interest in innovation. We encourage DFID to work actively with the Technology Strategy Board in order to learn lessons from the UK's own experience in fostering innovation.

50. Achieving the full potential of innovative solutions to development issues provided by businesses will often require a helping hand from Governments. Consider the example of insecticide-treated bed nets, which are known to be effective in helping to tackle malaria. We witnessed firsthand a programme run by the Tanzania Ministry of Health and Social Welfare, which is supported by DFID and other donors, to distribute these bed nets using an electronic voucher scheme. The vouchers are distributed centrally by mobile phone technology to local healthcare workers at clinics. Patients receive a unique voucher code from the clinic. They then visit a local private retailer who validates the code by mobile phone technology before handing over the product. Economic research determined that the bed net usage was at its highest when users were charged a token fee (equivalent to the price of a loaf of bread) by the retailer. This ensured that users valued—and therefore made use of—the product more than they would if it were given to them for free. The programme utilises a very effective public-private partnership approach to promote the use of this innovative product. This example demonstrated to us the point made well by John Young, Director of Impact Assessment, Partnerships and RAPID at the Overseas Development Institute (ODI), that it was necessary to:

¹¹³ *Ibid.*

¹¹⁴ Q 61 [Dr Carter]

¹¹⁵ Ev 54

¹¹⁶ *Ibid.*

strengthen the capacity of developing country policy makers and programme managers to make use of research-based evidence. You also need to strengthen the capacity of all the intermediary groups responsible for getting the research-based evidence into the policy process.¹¹⁷

51. Dr Andrée Carter, from UKCDS, considered that it was “important to increase demand from policy makers” for scientific evidence and advice.¹¹⁸ In addition to creating demand for evidence, it is also necessary to foster an environment in which decision-makers in developing countries are confident to act upon such evidence. We were concerned, for example, by this year’s report by Oxfam and Save the Children which suggested that scientific evidence predicting the 2011 humanitarian crisis in the horn of Africa was not responded to quickly enough.¹¹⁹ Sir Mark Walport, from the Wellcome Trust told us that “it is always easy to predict the future by looking backwards. [...] In a sense the answer is obvious. People have to take forecasting very seriously and understand its limitations”.¹²⁰ However, the Minister was not as convinced as Oxfam and Save the Children that there had been a massive delay.¹²¹ He considered that the response to the humanitarian crisis in the horn of Africa had been “pretty rapid”.¹²² The Minister explained that DFID “took the issue seriously and examined [the report, but] did not find that there were quite the shortcomings that [the report] would indicate.”¹²³

52. In response to recent concerns about disaster preparedness, the UK Government asked the Government Chief Scientific Adviser (GCSA), Sir John Beddington, to carry out two relevant pieces of work. The first project, on *The Use of Science in Humanitarian Emergencies and Disasters*, was completed in June 2012. The resulting report primarily focused on the UK government, and changes to the way it plans and prepares for international humanitarian emergencies. It made a number of recommendations, including the creation of a new expert group to advise Ministers on emerging international risks and the uncertainties in assessing those risks, led by the GCSA.¹²⁴ The second project explores how emerging science and technology might improve the UK’s ability to improve anticipation of and resilience to disasters and is due to report at the end of this year.¹²⁵

53. Professor Chris Whitty, DFID’s CSA, explained that it was important not to conflate two separate but equally important issues. Firstly, that DFID was getting its own research evidence out into the public domain in a timely fashion, and secondly, that there was capacity for people to assimilate the evidence and help advise Ministers and other decision makers.¹²⁶ We had confidence in the former and in this discussion were primarily

¹¹⁷ Q 59 [John Young]

¹¹⁸ Q 66 [Dr Carter]

¹¹⁹ Oxfam and Save the Children, “*A Dangerous Delay: The cost of late response to early warnings in the 2011 drought in the Horn of Africa*”, January 2012

¹²⁰ Q 69 [Sir Mark Walport]

¹²¹ Q 101 [Stephen O’Brien MP]

¹²² Q 101 [Stephen O’Brien MP]

¹²³ Q 101 [Stephen O’Brien MP]

¹²⁴ Government Office for Science, “*The Use of Science in Humanitarian Emergencies and Disasters*”, June 2012

¹²⁵ Department for Business, Innovation and Skills, Foresight website, “*Improving Future Disaster Anticipation and Resilience*”, <http://www.bis.gov.uk/foresight>

¹²⁶ Q 101 [Professor Whitty]

interested in the latter. Sir Mark Walport emphasised the need for “good scientific advice” and “good chief scientific advisers” to help make sense of scientific evidence and understand its limitations.¹²⁷ Dr Andrée Carter, from UKCDS, added that it was also important to have the information in a form decision makers are able to digest.¹²⁸ In the UK, the focal point for ensuring that scientific evidence and advice is at the heart of Government decision-making is the GCSA, Sir John Beddington, and his network of Departmental CSAs. Many other developed countries have adopted a similar approach and recently, the European Commission appointed its first CSA.¹²⁹ We questioned whether it would be advisable to encourage developing countries to strengthen scientific capacity in governance by adopting the UK system of scientific advisers in Government. Professor Chris Whitty, DFID’s CSA, told us that DFID was trying to support scientific capacity building in “the machinery of Government, both ministerial and Civil Service-wide” in developing countries in a number of ways.¹³⁰ Furthermore, we noted that in addition to DFID’s work on behalf of the Government, the UK Parliament itself was involved in supporting capacity building in the Parliaments of some developing countries; for example, through the Overseas Offices of the House of Commons and House of Lords, and also through the Africa Programme of the Parliamentary Office of Science and Technology. Professor Whitty stated that it was “important to remember that many African Ministers are themselves very educated scientists. It is a false assumption, in both Asia and Africa, that the Ministers will know nothing about science [...] We should not feel that they are always the poor relation in this setting”.¹³¹ However, John Young, from ODI, reminded us that it was important to recognise policy making as a political process whereby “policy makers and politicians have a whole range of other factors that they are balancing when making decisions”.¹³² Indeed, one of the important functions of CSAs in the UK is that they provide “a source of independent challenge which seeks to ensure that policy decisions are informed by the best science and engineering advice and evidence available”.¹³³

54. We recommend that the UK Government actively promote to developing countries the advantages of having Chief Scientific Advisers in Government. While we acknowledge that a system designed for the UK may not directly transpose into other countries—it is our view that the adoption of a system that allows independent scientific advisers to challenge the decision-making process should be considered. Furthermore, we recommend that the UK Government’s Chief Scientific Adviser should play a leading role in building a strong international network in which scientific advisers from around the globe can share knowledge and provide a more joined-up approach to supporting robust decision-making processes in relation to development issues.

¹²⁷ Q 70 [Sir Mark Walport]

¹²⁸ Q 66 [Dr Carter]

¹²⁹ R Doubleday and J Wilsdon, “*Science policy: Beyond the great and good*”, *Nature*, Volume 485, Issue 7398, 17 May 2012

¹³⁰ Q 100 [Professor Whitty]

¹³¹ Q 100 [Professor Whitty]

¹³² Q 70 [John Young]

¹³³ House of Lords Select Committee on Science and Technology, 4th Report of Session 2010–12, *The role and functions of departmental Chief Scientific Advisers*, HL Paper 264

Communication

55. While there is “not a convincing evidence base” on the link between the effective communication of scientific research and its use and policy making in the developing world,¹³⁴ it is clear that “if you do not communicate the results of research, you can guarantee that there will be no impact”.¹³⁵ John Young, from the ODI, explained that “the problem with the lack of convincing empirical evidence of the added value of investing in research communications activities is that it is relatively easy for donors to regard that as a sort of optional add-on rather than to invest very substantially in it. [...] DFID are slightly in that position at the moment”.¹³⁶ Dr John Kirkland, from the ACU, added that:

DFID was one of the pioneers of the idea that you build into a research grant a small element of the budget for transfer or dissemination activities. [...] It is now time to build on that. It was a great step forward, but it is increasingly recognised now that, however much you recognise it in the funding, many researchers and academics have neither the time nor inclination, or in many cases the ability, to be great communicators of their research.¹³⁷

56. The Minister told us that he accepted that “if you do not communicate and broadcast [...] your findings—they will be of less application going forward”.¹³⁸ DFID also explained that the recent Government-wide moratorium on communications “has had limited impact on DFID in terms of our science and research work in assisting developing countries; within DFID the moratorium’s major effect was on UK-based communications and non-technical communications”.¹³⁹ The Minister added that DFID works hard through its country offices to ensure that there is dissemination of research findings. We were also informed that:

The DFID Research for Evidence (R4D) website is a free access on-line portal containing the latest information about research funded by DFID, including details of current and past research in over 30,000 research project and document records. Information on the site is searchable in many different ways - browsing by region, country or subject, or searching using key words, and an advanced search. There is also a search for research contacts. This repository allows any external audience to keep up-to-date on DFID research.¹⁴⁰

This repository includes research projects that are both centrally funded by DFID and those funded by country offices.

57. We welcome DFID’s commitment to increasing awareness and dissemination of research findings. DFID should support activities to expand the evidence base for the

¹³⁴ Q 72 [John Young]

¹³⁵ Q 72 [Sir Mark Walport]

¹³⁶ Q 72 [John Young]

¹³⁷ Q 29 [Dr Kirkland]

¹³⁸ Q 114 [Stephen O’Brien MP]

¹³⁹ Ev 54

¹⁴⁰ Ev 54

potential added value of investing in research communication to help justify future investment decisions in dissemination activities.

Coordination

58. The UK approach to support for scientific capacity building and broader development science activities is coordinated by the UK Collaborative on Development Sciences (UKCDS), which was formed 2007.¹⁴¹ The UKCDS is funded by its 13 UK members, which include Government departments, Research Councils and the Wellcome Trust. Its aim is to “provide a more coordinated approach to development sciences research [and] maximise the impact of UK research funding on international development outcomes”.¹⁴² The UKCDS manages a ‘Research Capacity Strengthening Group’ that brings together a broader group of UK stakeholders, including the some of the learned societies and national academies, all of whom “have some interest or involvement in strengthening research capacity in low income countries”.¹⁴³

59. The UKCDS is “very small” and it has a “very limited budget”.¹⁴⁴ Despite this, we were pleased to hear from a number of individuals and organisations that it has been effective in providing a forum in which funders of development sciences can communicate and coordinate their efforts.¹⁴⁵ Professor Chris Whitty, DFID’s CSA, agreed that funders were currently “joined up very well [...] through formal mechanisms like UKCDS”.¹⁴⁶ A recent evaluation of the UKCDS, involving interviews with a number of its Board members and key stakeholders, was broadly positive.¹⁴⁷ The evaluation report indicated that the vast majority of interviewees felt that “the Collaborative should continue beyond March 2013”, which is when the formal collaboration is due to end.¹⁴⁸

60. We welcome the improvements in communication and coordination between research funders in the UK with an interest in development since the formation of the UK Collaborative on Development Sciences (UKCDS). We reiterate the views expressed in a recent UKCDS evaluation report and recommend that its members, which include Government Departments and the Research Councils, should publicly commit to the continuation of the Collaborative beyond 2013 for at least another five years, at which point another evaluation should take place.

61. While the role fulfilled by the UKCDS was clear to us, we were less clear about the way in which UKCDS relates to other cross-Government networks that are involved in the international dimensions of science, for example:

¹⁴¹ Science and Technology Committee, Thirteenth Report of Session 2003-2004, *The Use of Science in UK International Development Policy*, HC 133-I; and UK Collaborative on Development Sciences, “About us”, <http://www.ukcds.org.uk>

¹⁴² UK Collaborative on Development Sciences, “About us”, <http://www.ukcds.org.uk>

¹⁴³ Ev w39, para 5.2

¹⁴⁴ Q 20 [Professor Guthrie]

¹⁴⁵ Q 20 [Professor Guthrie]; Q 20 [Professor Furniss]; Q 20 [Dr Taylor]; Q 42 [Dr Kirkland]; Q 58 [Sir Mark Walport]; 54. Q 58 [Dr Beall]; and Ev w30, para 1

¹⁴⁶ Q 105 [Professor Whitty]

¹⁴⁷ UKCDS, “UKCDS evaluation 2012”, Summary

¹⁴⁸ UKCDS, “UKCDS evaluation 2012”, Summary

- **Global Science and Innovation Forum (GSIF):** a vehicle for cross-governmental information and exchange of ideas to improve the co-ordination of UK engagement in international science and innovation activities. GSIF members include departmental Chief Scientific Advisors and senior officials, experts and academics from learned societies (such as the Royal Society), and other key partners like the British Council.¹⁴⁹
- **Science and Innovation Network (SIN):** a network of overseas Science Officers, jointly funded by the Department for Business, Innovation and Skills (BIS) and the Foreign and Commonwealth Office (FCO). SIN staff are based in UK Embassies, High Commissions and Consulates abroad. They engage with the local science and innovation community in support of UK policy overseas.¹⁵⁰

Interestingly, the need for greater clarity about these relationships was also expressed in the recent UKCDS evaluation report.¹⁵¹

62. In terms of the GSIF, the British Council—itself a member of the forum—told us that:

GSIF leads on the strategy for the UK’s international engagement in science and innovation which covers four key areas: research, innovation, influence and development. We see the latter as being a critical component of the UK’s international strategy and we would recommend a consistent focus on this, together with a strong DFID presence at the group meetings of core officials. The group would benefit from regular development-related items, perhaps bringing in specialist expertise from relevant DFID sector advisors as appropriate.

In addition to the absence of a strong DFID presence, we were also surprised to hear that UKCDS is not a formal member of GSIF.¹⁵² Dr Andrée Carter, from UKCDS, told us that in recent months UKCDS has had “greater engagement” with GSIF, initially due to the interest of Sir John Beddington, the GCSA. She added that “a number of the UKCDS members sit on the GSIF group and are able to report in. [However,] I do not think they have looked at development and science for development as a priority in the past”.¹⁵³

63. In terms of the SIN, the overseas network of science officers, the Academy of Medical Sciences told us that it was in favour of “widening the reach of SIN so that it covers more countries”.¹⁵⁴ Furthermore, the broader need for a more joined up approach between DFID and the FCO—in terms of the functions of ambassadors and high commissioners—was raised by some witnesses during this inquiry.¹⁵⁵ Professor Chris Whitty, DFID’s CSA, informed us that there were two countries where DFID staff co-locate with SIN officers, these were India and China.¹⁵⁶ He stated that the first of these experimental research hubs had been placed in India, where the staff from SIN, DFID and Research Councils UK sat in

¹⁴⁹ Department for Business, Innovation and Skills, “*Global Science and Innovation Forum*”, <http://www.bis.gov.uk/>

¹⁵⁰ Department for Business, Innovation and Skills, “*Global Science and Innovation Network*”, <http://www.bis.gov.uk/>

¹⁵¹ UKCDS, “*UKCDS evaluation 2012*”, Summary

¹⁵² Q 60 [Dr Carter]

¹⁵³ Q 60 [Dr Carter]

¹⁵⁴ Ev 70, para 28

¹⁵⁵ Q 46 [Professor Westby] and Q 65 [Sir Mark Walport]

¹⁵⁶ Q 107 [Professor Whitty]

the same room.¹⁵⁷ In addition to fostering stronger working relations with DFID’s partners across Government these research hubs also provide a focal point for communication between DFID’s headquarters in the UK and its country offices in the surrounding area. For example, the India research hub covers India, Bangladesh and Nepal.¹⁵⁸ Dr Andrée Carter considered that the India research hub had been “extremely helpful in feeding local opinion back to London”.¹⁵⁹ We were particularly interested in this approach, as a number of witnesses had raised their concerns about a “disconnect” between DFID in London and its country offices.¹⁶⁰ Professor Whitty recognised this problem and acknowledged that while things had improved over recent years, there was still “a way to go” and that the research hub in India had indeed “worked well”.¹⁶¹ He also informed us that DFID has “dedicated a team whose job it is to interact with the country offices”.¹⁶²

64. We were keen to find out whether there was a possibility to extend the research hub model to other parts of the developing world. Professor Whitty explained that most of the SIN was currently focused in the developed north.¹⁶³ This may be because in the developed north, including countries such as India and China, there are multiple interests—for example trade, investment, diplomacy—from the UK. Professor Whitty summarised DFID’s current perspective on expanding the research hub model:

From a DFID perspective, we are looking seriously at whether we should put a research hub in Africa. There are a number of reasons why just replicating across may not be the right thing to do, but we want to see whether we can do that. The SIN is [also] looking seriously at putting people into Africa. [...] It is probably something to ask the SIN rather than me.¹⁶⁴

65. There is a need for greater clarity about the way in which the UKCDS relates to other cross-Government networks—for example the Global Science and Innovation Forum (GSIF) and the Science and Innovation Network (SIN)—that are involved in the international coordination of science. We support a more joined up approach between DFID and other arms of the UK Government that function abroad. As such, we welcome DFID’s initiative to co-locate its overseas staff in “research hubs” with SIN officers in India and China, which may go some way to help address the acknowledged “disconnect” between DFID in London and its country offices. We recommend that DFID and SIN make rapid progress on the development of proposals for further such research hubs, including at least one in Africa.

66. Taking UKCDS as an example, Professor Whitty, DFID’s CSA, told us that while formal mechanisms to bring funders together worked well, the links with UK universities were “more problematic”. He explained that if he had to see “a representative of every

¹⁵⁷ Q 107 [Professor Whitty]

¹⁵⁸ Q 111 [Professor Whitty]

¹⁵⁹ Q 62 [Dr Carter]

¹⁶⁰ Q 41 [Professor Costello]; Q 66 [John Young]; Ev 27; and Ev w55

¹⁶¹ Q 111 [Professor Whitty]

¹⁶² Q 111 [Professor Whitty]

¹⁶³ Q 107 [Professor Whitty]

¹⁶⁴ Q 108 [Professor Whitty]

university that writes in to say it would like to have a bilateral meeting, [he] would spend almost all [his] time meeting universities on a one-to-one basis”. Professor Whitty added that DFID was “trying to put together a mechanism by which we can meet groups of universities, where the discussion can be open and no university is privileged”. Another group that appeared to have poor links with DFID was UK expert agencies. For example, the Health Protection Agency (HPA) told us that:

The poor acknowledgement of and coordination with UK agencies to date has meant that any existing DFID links have not capitalised on the expertise that the UK holds. The need for DFID to coordinate with and involve relevant UK agencies in their capacity building activities is critical to longer-term approaches to capacity building in a holistic manner in low income countries.¹⁶⁵

Similarly, the Met Office, the UK’s expert agency on meteorology, stated that closer coordination between the Met Office and DFID “through more regular engagement and communications activities” would also help to achieve development outcomes.¹⁶⁶

67. We welcome DFID’s attempts to develop a mechanism by which it can meet groups of universities, where the discussion can be open and no university is privileged. In addition to this, we recommend that DFID also consider how it can best open regular dialogue with UK expert agencies that have an interest in capacity building and broader development work.

Assessing effectiveness

68. In addition to providing a joined up approach to scientific capacity building, another reason coordination between funders and wider stakeholders is so important is that there is much to be gained from sharing knowledge on the effectiveness of different types of programmes, “so as to avoid “reinventing the wheel””.¹⁶⁷ In addition to the importance of sharing knowledge on programmes that work well, Professor Anthony Costello, from the UCL Institute for Global Health, also alluded to the need for funders to be honest about sharing negative studies relating to programmes that do not work as well.¹⁶⁸ Sir Mark Walport, from the Wellcome Trust, explained that “as a funder we are funding the results, [...] so we are interested in knowing what is discovered and what the evaluation is. [Evaluation] is terribly important and is clearly something that DFID take seriously”.¹⁶⁹ Furthermore, early agreement of how things will be assessed helps funders to effectively manage capacity building programmes, particularly where there are competing drivers, for example, the contribution of the programme through scientific publication versus the impact on policy on the ground.¹⁷⁰ Examples of forums that facilitated the exchange of best practice in evaluating and monitoring programmes included the UKCDS, which recently published a report based on a workshop between it and other organisations that sought to

¹⁶⁵ Ev w34, paras 1.15 and 1.16

¹⁶⁶ Ev w3, para 10

¹⁶⁷ Ev w27, para 18

¹⁶⁸ Q 54 [Professor Costello]

¹⁶⁹ Q 77 [Sir Mark Walport]

¹⁷⁰ Q 62 [John Young]

share lessons on strengthening research capacity.¹⁷¹ Another example, we heard about was the ESSENCE (Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts) on Health Research Initiative, which is an international collaborative framework that brings together funders of health research in Africa—including DFID—to share best practice.¹⁷²

69. Monitoring and evaluating capacity building programmes was widely considered, including by DFID, to be difficult.¹⁷³ In particular, Dr John Kirkland, from the ACU, and Professor Melissa Leach, from the STEPS Centre, told us that it was harder to measure the success of capacity building of institutions than that of individuals.¹⁷⁴ Professor Leach explained that this was because there would often be “multiple influences” on the strengthening of institutional capacity, which made it harder to track the specific impact of UK support.¹⁷⁵ She suggested that there was a role for both quantitative and qualitative measures of impact.¹⁷⁶ It was also acknowledged that this was part of a bigger challenge faced by the UK research community, that is, the Research Excellence Framework (REF)—the new system for assessing the quality of research in UK higher education institutions.¹⁷⁷ The REF will replace the old “Research Assessment Exercise” system in 2014.¹⁷⁸

70. Given the need for a long-term approach to capacity building,¹⁷⁹ it was not surprising to hear that monitoring and evaluation over long periods of time was necessary, and that this required the development of more sophisticated evaluation tools.¹⁸⁰ John Young, from the ODI, told us that he “would like to be able to do much more follow-up work of our research to find out what impact it has had” but that this needed to be done “some time after the project has finished” in order to capture longer-term impacts.¹⁸¹ He considered that this was difficult to do in “a contract-funded environment” where it was difficult to find the resources after a programme had ended.¹⁸²

71. In addition to capturing longer-term impacts, the Royal Society suggested that a robust evaluation programme would also allow funders to “detect problems, and undertake course corrections during the lifespan of a programme, rather than just using evaluation as a “post-mortem” device”.¹⁸³ Dr John Kirkland added that “DFID needs to be seen to engage as the project develops rather than simply relying on a mechanism five years afterwards to say whether or not it succeeded”.¹⁸⁴ The Minister acknowledged the benefits of being

¹⁷¹ UK Collaborative on Development Sciences, *“Research Capacity Strengthening: Learning from Experience”*, July 2012

¹⁷² Ev w27, para 18; Ev w32; Ev w38, para 3.3; and, Ev w50, para 48

¹⁷³ For example: Q 21 [Professor Souhami]; Q 119 [Stephen O’Brien]; Ev 6, para 39; Ev w27, para 14 and Ev w28 para 20; Ev 26, para 16; and, Ev w38, para 3.1

¹⁷⁴ Q 27 [Dr Kirkland] and Q 52 [Professor Leach]

¹⁷⁵ Q 52 [Professor Leach]

¹⁷⁶ Q 52 [Professor Leach]

¹⁷⁷ Q 52 [Professor Leach] and Research Excellence Framework, *“Home”*, <http://www.ref.ac.uk/>

¹⁷⁸ Q 52 [Professor Leach] and Research Excellence Framework, *“Home”*, <http://www.ref.ac.uk/>

¹⁷⁹ For example: Ev 24, para 6; Ev w37, para 2.6; and, Ev 31, para 23

¹⁸⁰ Q 52 [Dr John Kirkland] ; Ev 17, para 27; and Ev w16

¹⁸¹ Q76 John Young

¹⁸² Q76 John Young

¹⁸³ Ev w56

¹⁸⁴ Q 54 [Dr Kirkland]

“nimble” with capacity building contracts and accepted that the danger of using monitoring and evaluation as a post-mortem device was that, “by the time you have learned the lessons and applied them to the next time you issue a grant or commission work, it is almost a six-year time lag. Of course, within six years in development, things can change dramatically”.¹⁸⁵

72. We heard 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”.¹⁸⁶ Moreover, Professor Guthrie, from the RAENG, considered that “DFID probably leads the international community in its monitoring and evaluation and attitude to international development. An awful lot of international development agencies see DFID as a thought leader in the area and have done so for a decade”.¹⁸⁷ However, there were also some concerns expressed to us that the ways in which DFID monitors and evaluates the effectiveness of scientific capacity building were “unclear”, and Professor Furniss, from the British Academy, expressed an interest in knowing more about DFID’s approach.¹⁸⁸ Professor Leach considered that it was “not DFID’s role to produce a top-down, point-by-point guide”, rather DFID needed to play a coordinating role to ensure that best practice was shared and lessons learned.¹⁸⁹

73. We were also interested to hear that the recent science and engineering assurance review of DFID, carried out by the Government Office for Science, recommended that:

DFID needs to do more to systematically learn lessons from evaluation of work, including, for example, in disaster areas or conflict states, or the impact on health and poverty of various sectoral policies; and make sure the lessons are used across the organisation.¹⁹⁰

We asked the Minister what DFID was doing in response to this, he responded:

there is a real commitment to rigorous evaluation processes. Through annual reviews, through the Chief Scientific Adviser’s very detailed appraisal of people, programmes and timelines, and through independent, external peer review and scrutiny practices, we are really committed to this. [...] In building our evaluation capability of staff, at the moment we are in the process of recruiting more—if I remember correctly—both at the centre and in the country offices, so you are getting it as near 360° as is practicable.¹⁹¹

74. We welcome DFID’s support for and involvement in national and international forums that facilitate the exchange of best practice in evaluating and monitoring scientific capacity building programmes. We are confident that DFID understands the

¹⁸⁵ Q 119 [Stephen O’Brien MP]

¹⁸⁶ Ev w56

¹⁸⁷ Q 21 [Professor Guthrie]

¹⁸⁸ Ev w7, para 11 and Q 21 [Professor Furniss]

¹⁸⁹ Q 55 [Professor Leach]

¹⁹⁰ Government Office for Science, “*Science & Engineering Assurance Review of the Department for International Development*”, September 2011, p 19

¹⁹¹ Q 119 [Stephen O’Brien MP]

difficulties of evaluation and the need for robust evaluation tools, evident by the Minister's commitment to build the evaluation capability of DFID's staff, which we welcome. We encourage DFID to continue to work on developing robust evaluation tools, particularly those that are able to capture the longer-term benefits of capacity building in the years after a programme ends. DFID's approach to monitoring and evaluation should be both clear and publicly visible. We also consider that it is important for DFID to engage with those that it funds throughout the lifespan of a programme to ensure that problems are being continuously detected and corrected. DFID should have in place processes by which relevant stakeholders can formally make known their concerns about the effectiveness of its evaluation procedures.

Scientific capacity within DFID

75. The need for scientifically literate staff within DFID stretches beyond simply being able to monitor and evaluate scientific capacity building programmes. A major concern arising from our predecessor Committee's 2004 Report, *The Use of Science in UK International Development Policy*, was that there was a general lack of a scientific culture in DFID, with little in-house expertise and no CSA. This, it was felt, led to a failure to appreciate the importance of applying science and technology to development issues. Since the publication of the report, DFID has appointed a CSA and has helped to set up the UKCDS, which brings together key funders and stakeholders that support research in development science. We were keen to find out what the impact of these changes had been over the intervening eight years.

76. In general, it was acknowledged that the situation had improved.¹⁹² For example, the Wellcome Trust, considered that since the 2004 Report was published, DFID had made progress by "improving its ability to generate and use research evidence; more effectively integrating research and policy within its departmental structure; and strengthening links with charities and other partners".¹⁹³ The major driver behind these changes was considered to be "the appointment of a highly capable Chief Scientific Adviser".¹⁹⁴ Professor Peter Guthrie, from the RAENG, added that "the way [the CSA] has been given a research budget under his control, rather than CSAs in some Departments being budget-free and having very much an advisory role, is very welcome".¹⁹⁵

77. One of the areas in which Professor Chris Whitty, DFID's CSA, considered that there had been "a dramatic turnaround" was in the use of robust evidence by DFID.¹⁹⁶ This was challenged by Professor Anthony Costello, from the UCL Institute for Global Health, who told us that he had seen a DFID paper that did not follow robust rules of evidence, for example, "it did not have any methodology about searching. Of the 170 publications it reviewed, 160 were websites, and it came to the wrong conclusion because it did not look at

¹⁹² Q 16 [Professor Guthrie]; Q 16 [Professor Souhami]; Q 16 [Professor Furniss]; Q 43 [Professor Westby]; Ev w25, para 3; and, Ev w35, para 1.2

¹⁹³ Ev w25, para 3

¹⁹⁴ Ev w25, para 3

¹⁹⁵ Q 16 [Professor Guthrie]

¹⁹⁶ Q 99 [Professor Whitty]

some of the published literature”.¹⁹⁷ Professor Whitty explained that this was a paper produced “a while ago” and that since then a number of new employees had been brought into DFID to “systematically to look at evidence [...] in a neutral way and, in some sense, qualitatively to grade it”.¹⁹⁸ He added that DFID have “really tried to say to people that it is far better to use no evidence than to use bad evidence”.¹⁹⁹ Professor Costello acknowledged that DFID’s CSA and others were “trying to bring about an evidence-informed culture to DFID in trying to change the system, but it is a slowly-moving juggernaut”.²⁰⁰

78. An area in which we had greater concerns was the level of DFID’s in-house scientific and technical expertise. For example, concerns were raised that “DFID’s in-house engineering capacity has declined”.²⁰¹ These concerns were corroborated by the Government Office for Science 2011 review of DFID, which stated that:

DFID needs to have mechanisms in place to keep under review its current and future needs for professional staff. Gaps in capability in the following areas should be addressed: quantitative social science; operational research; engineering and infrastructure; agriculture; and veterinary science.²⁰²

The Minister was reluctant to describe this comment about DFID’s internal capabilities as a “lack of progress” despite the fact that our predecessor Committee raised similar concerns in 2004.²⁰³ He considered that DFID had, in the past eight years, shown “an outstanding and massive commitment to the recognition of how important science, research and evidence are”.²⁰⁴ However, he welcomed the “advice on the gaps that have been identified”.²⁰⁵ Professor Whitty added that DFID has “multiple different specialist groups [...] and] you can always look at a subgroup and say, “This one has gone down,” but overall [...] the number of specialists has gone up over the last two years, at a time when the number of generalists in DFID has gone down”.²⁰⁶ The point was also made that DFID could and should continue to draw external scientific expertise, where appropriate, by building and maintaining links with the UK academic community.²⁰⁷

79. In some cases, for example in the area of agriculture, there were particular concerns that there had been a reduction in capacity in DFID’s country offices.²⁰⁸ We were also told

¹⁹⁷ Q 31 [Professor Costello]

¹⁹⁸ Q 99 [Professor Whitty]

¹⁹⁹ Q 99 [Professor Whitty]

²⁰⁰ Q 39 [Professor Costello]

²⁰¹ Q 7 [Professor Guthrie]

²⁰² Government Office for Science, “*Science & Engineering Assurance Review of the Department for International Development*”, September 2011, p 28

²⁰³ Q 89 [Stephen O’Brien MP]

²⁰⁴ Q 89 [Stephen O’Brien MP]

²⁰⁵ Q 89 [Stephen O’Brien MP]

²⁰⁶ Q 90 [Professor Whitty]

²⁰⁷ Q 46 [Professor Westby] and Q 46 [Professor Leach]

²⁰⁸ Ev 79, para 29

that there was not a universal presence of engineering expertise in DFID's country offices.²⁰⁹ In response to these concerns, Professor Whitty told us that:

It is difficult in a country office, unless it is a very large one, to have someone who is a sub-specialist in every single possible area. That is just not realistically possible. You have to have generalists in a broad field, who can then call on specialist skills from the UK or externally.

However, Professor Guthrie, from the RAENG, pointed out that “you need capability in-house to know what question to ask before you know who to go and ask”.²¹⁰

80. We consider that the introduction of a Chief Scientific Adviser, following our predecessor Committee's 2004 Report, *The Use of Science in UK International Development Policy*, has improved the scientific culture in DFID. We were impressed by DFID's commitment to using a robust evidence base. However, we remain concerned about the level of DFID's in-house scientific and technical expertise and we reiterate the Government Office for Science's recent recommendation that “DFID needs to have mechanisms in place to keep under review its current and future needs for professional staff”. DFID should also continue to draw on external scientific expertise, where appropriate, by strengthening its links with the UK academic community. This is particularly important in providing technical support to generalist staff in country offices, where we acknowledge it is difficult to have a full range of subject specialists. DFID should ensure that its generalist staff in country offices are appropriately trained to get the most out of the technical experts that they draw on for advice.

²⁰⁹ Q 8 [Professor Guthrie]

²¹⁰ Q 8 [Professor Guthrie]

3 Final remarks

81. Scientific capacity building is a crucial process that enables developing countries to shape and sustain their own long-term development. We have been impressed by the improved scientific culture in DFID since our predecessor Committee's 2004 Report, *The Use of Science in UK International Development Policy*. While this has led to some improvements to the way in which DFID supports scientific capacity building, there is no room for complacency. The evidence we have received suggests that there is still potential for much improvement.

82. Many of the challenges faced by developing countries trying to build scientific capacity mirror those faced by the UK, such as, effectively supporting the in-country research base and improving the use of scientific evidence and advice by the Government. DFID should work actively with groups that are addressing these common challenges in the UK—for example, supporting early career researchers—in order to determine whether solutions here might be applicable in the developing world.

Conclusions and recommendations

Making a commitment to scientific capacity building

1. We welcome the many scientific capacity building activities that the Department for International Development (DFID) and its partners are involved in. It is our view that scientific capacity building is tremendously important in international development. We are therefore disappointed by the lack of explicit reference to both science and capacity building in DFID's report, *UK Aid: Changing Lives and Delivering Results*, which publicly sets out the Government's "new direction" for UK aid. We consider that, in the future, DFID should be much more explicit about both the importance of and its commitment to capacity building and the role of science and engineering in development. (Paragraph 13)
2. We have heard from a number of organisations concerned that DFID's focus on the Millennium Development Goals may be to the detriment of capacity building. We accept the Minister's assurance that he has seen no evidence of this, but believe that a more explicit commitment to capacity building, as described above, may go some way to dispelling the current perception. (Paragraph 14)

Getting clarity about funding

3. We welcome the various ways in which DFID directly and indirectly provides financial support for scientific capacity building. However, it is clear to us that there is a need for greater clarity about the different funding streams available. We are specifically concerned about clarity over the provision of funding at the hundred thousand pound level and recommend that DFID's Chief Scientific Adviser meet representatives of the learned societies, national academies, and other interested bodies, to alleviate their concerns. We recommend that DFID publish a breakdown of the various direct and indirect funding streams available for scientific capacity building activities. (Paragraph 20)
4. We also encourage DFID to promote a sustainable approach to funding, which aims to ensure that capacity building initiatives become self-sustaining over time. (Paragraph 21)
5. We welcome joint funding initiatives between DFID and Research Councils UK which we hope will ensure that high-quality science in the UK helps to alleviate poverty in developing countries. We invite DFID, in its response to us, to set out how it is addressing the difficulties presented by the extension to DFID's research funding of the requirement that the UK's aid funding must not be tied. (Paragraph 23)

Science careers in developing nations

6. There is a widely acknowledged problem in providing effective support to early career researchers in developing countries. We acknowledge that this is a complex issue with multiple causes. However, we have identified one possible solution that would go some way to improving the current situation. We recommend that the

Commonwealth Scholarship Commission (CSC) introduce a new early-career award. This would be particularly welcome in countries that do not have the indigenous capacity to provide their own funding to support early career researchers. The new award would complement the CSC's existing portfolio of seven awards at various stages in the research career pipeline, and ideally it would not be at the expense of the support provided by the other awards. DFID should work with the CSC to identify and overcome any barriers to introducing the new award. The CSC should also review the manner in which its other scholarships are awarded to assess whether there is scope to provide some post-qualification funding. (Paragraph 36)

7. We believe that strengthening local institutions leads to more sustainable scientific capacity building by, for example, providing a strong foundation based on the development and retention of high-quality skills in country. The UK Government, through DFID, should continue to boost existing research expertise in developing countries through support for specific national research institutes and through broader support for regional organisations. However, DFID must not be complacent, the evidence we have received suggests that there is room for improvement. DFID should play a more active role in working with institutions in developing countries to identify and overcome barriers to sustainable capacity building. (Paragraph 40)
8. There is much to be gained, both by UK researchers and their partners in developing countries, through scientific research collaboration; it should therefore be actively encouraged by funders of research in the UK. While there may be disincentives working against UK researchers who are working in partnership with scientists in developing countries, we recognise that many of these are common problems across many parts of the UK research community. Specific concerns include short-term research contracts, the availability of Research Council funding, a lack of career development and the way in which research and researchers are assessed. Although these issues are beyond the scope of this inquiry, they are nonetheless of great interest to us and as such we may return to them in more detail in the future. (Paragraph 43)
9. In the context of some of the more specific problems we have identified for those working on development issues, we recommend that the Research Councils consider how they can best assess the work of researchers working on development issues. Funders should ensure that researchers are recognised for the impact they are having on the ground in addition to other traditional measures of success, such as publication record. (Paragraph 44)

The value of scientific advice and challenge

10. Building capacity for innovation and economic growth is crucial to sustainable development. We welcome DFID's recent interest in innovation. We encourage DFID to work actively with the Technology Strategy Board in order to learn lessons from the UK's own experience in fostering innovation. (Paragraph 49)
11. We recommend that the UK Government actively promote to developing countries the advantages of having Chief Scientific Advisers in Government. While we acknowledge that a system designed for the UK may not directly transpose into other

countries—it is our view that the adoption of a system that allows independent scientific advisers to challenge the decision-making process should be considered. Furthermore, we recommend that the UK Government’s Chief Scientific Adviser should play a leading role in building a strong international network in which scientific advisers from around the globe can share knowledge and provide a more joined-up approach to supporting robust decision-making processes in relation to development issues. (Paragraph 54)

Communicating needs

12. We welcome DFID’s commitment to increasing awareness and dissemination of research findings. DFID should support activities to expand the evidence base for the potential added value of investing in research communication to help justify future investment decisions in dissemination activities. (Paragraph 57)
13. We welcome the improvements in communication and coordination between research funders in the UK with an interest in development since the formation of the UK Collaborative on Development Sciences (UKCDS). We reiterate the views expressed in a recent UKCDS evaluation report and recommend that its members, which include Government Departments and the Research Councils, should publicly commit to the continuation of the Collaborative beyond 2013 for at least another five years, at which point another evaluation should take place. (Paragraph 60)
14. There is a need for greater clarity about the way in which the UKCDS relates to other cross-Government networks—for example the Global Science and Innovation Forum (GSIF) and the Science and Innovation Network (SIN)—that are involved in the international coordination of science. We support a more joined up approach between DFID and other arms of the UK Government that function abroad. As such, we welcome DFID’s initiative to co-locate its overseas staff in “research hubs” with SIN officers in India and China, which may go some way to help address the acknowledged “disconnect” between DFID in London and its country offices. We recommend that DFID and SIN make rapid progress on the development of proposals for further such research hubs, including at least one in Africa. (Paragraph 65)
15. We welcome DFID’s attempts to develop a mechanism by which it can meet groups of universities, where the discussion can be open and no university is privileged. In addition to this, we recommend that DFID also consider how it can best open regular dialogue with UK expert agencies that have an interest in capacity building and broader development work. (Paragraph 67)
16. We welcome DFID’s support for and involvement in national and international forums that facilitate the exchange of best practice in evaluating and monitoring scientific capacity building programmes. We are confident that DFID understands the difficulties of evaluation and the need for robust evaluation tools, evident by the Minister’s commitment to build the evaluation capability of DFID’s staff, which we welcome. We encourage DFID to continue to work on developing robust evaluation tools, particularly those that are able to capture the longer-term benefits of capacity building in the years after a programme ends. DFID’s approach to monitoring and

evaluation should be both clear and publicly visible. We also consider that it is important for DFID to engage with those that it funds throughout the lifespan of a programme to ensure that problems are being continuously detected and corrected. DFID should have in place processes by which relevant stakeholders can formally make known their concerns about the effectiveness of its evaluation procedures. (Paragraph 74)

Progress of DFID since 2004

17. We consider that the introduction of a Chief Scientific Adviser, following our predecessor Committee's 2004 Report, *The Use of Science in UK International Development Policy*, has improved the scientific culture in DFID. We were impressed by DFID's commitment to using a robust evidence base. However, we remain concerned about the level of DFID's in-house scientific and technical expertise and we reiterate the Government Office for Science's recent recommendation that "DFID needs to have mechanisms in place to keep under review its current and future needs for professional staff". DFID should also continue to draw on external scientific expertise, where appropriate, by strengthening its links with the UK academic community. This is particularly important in providing technical support to generalist staff in country offices, where we acknowledge it is difficult to have a full range of subject specialists. DFID should ensure that its generalist staff in country offices are appropriately trained to get the most out of the technical experts that they draw on for advice. (Paragraph 80)
18. Scientific capacity building is a crucial process that enables developing countries to shape and sustain their own long-term development. We have been impressed by the improved scientific culture in DFID since our predecessor Committee's 2004 Report, *The Use of Science in UK International Development Policy*. While this has led to some improvements to the way in which DFID supports scientific capacity building, there is no room for complacency. The evidence we have received suggests that there is still potential for much improvement. (Paragraph 81)
19. Many of the challenges faced by developing countries trying to build scientific capacity mirror those faced by the UK, such as, effectively supporting the in-country research base and improving the use of scientific evidence and advice by the Government. DFID should work actively with groups that are addressing these common challenges in the UK—for example, supporting early career researchers—in order to determine whether solutions here might be applicable in the developing world. (Paragraph 82)

Formal Minutes

Wednesday 17 October 2012

Members present:

Andrew Miller, in the Chair

Mr Stephen Metcalfe
Mr Stephen Mosley

Mrs Sarah Newton
Mr Graham Stringer

Draft Report (*Building scientific capacity for development*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 82 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Fourth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Wednesday 24 October at 9.00 am]

Witnesses

Wednesday 1 February 2012

Page

Professor Graham Furniss, Chair of the Africa Panel, British Academy, **Professor Peter Guthrie OBE FREng**, Fellow, The Royal Academy of Engineering, **Professor Robert Souhami CBE**, Foreign Secretary, The Academy of Medical Sciences, and **Dr Beth Taylor**, Director of Communications and External Relations, Institute of Physics

Ev 1

Wednesday 8 February 2012

Professor Anthony Costello, Professor of International Child Health and Director, UCL Institute for Global Health, **Dr John Kirkland**, Deputy Secretary General, The Association of Commonwealth Universities, **Professor Melissa Leach**, Director, STEPS Centre, and **Professor Andrew Westby**, Director, Natural Resources Institute, University of Greenwich

Ev 10

Wednesday 22 February 2012

Dr Jo Beall, Director, Education and Society, British Council, **Dr Andrée Carter**, Director, UK Collaborative on Development Sciences, **Sir Mark Walport**, Director, Wellcome Trust, and **John Young**, Director of Impact Assessment, Partnerships and Head of the RAPID Programme, Overseas Development Institute

Ev 24

Monday 25 June 2012

Stephen O'Brien MP, Parliamentary Under-Secretary of State for International Development, **Professor Christopher Whitty**, Chief Scientific Adviser, DFID, and **Professor Tim Wheeler**, Deputy Chief Scientific Adviser, DFID

Ev 33

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3	Institute of Physics	Ev 59
4	The Association of Commonwealth Universities	Ev 61, Ev 65, Ev 66
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6	British Academy	Ev 71
7	UCL Institute for Global Health	Ev 74
8	Natural Resources Institute, University of Greenwich	Ev 76

List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/science)

1	Dr Thomas R Shelley	Ev w1
2	Met Office	Ev w2
3	National Physical Laboratory (NPL)	Ev w4
4	Glasgow Centre for International Development (GCID), University of Glasgow	Ev w6
5	David Strangway PhD, FRSC, OC	Ev w8
6	Natural Environment Research Council (NERC) Centre for Ecology and Hydrology	Ev w9
7	London School of Hygiene and Tropical Medicine	Ev w11
8	Natural History Museum	Ev w14
9	Commonwealth Scholarship Commission	Ev w16
10	Royal Society of Chemistry	Ev w21
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12	Wellcome Trust	Ev w25
13	School of Natural Sciences, University of Stirling	Ev w29
14	British Council	Ev w30
15	ESSENCE on Health Research Initiative	Ev w32
16	Health Protection Agency	Ev w33
17	UK Collaborative on Development Sciences	Ev w35
18	International AIDS Vaccine Initiative	Ev w39
19	Research Councils UK	Ev w44
20	Special Programme for Research and Training in Tropical Disease (TDR)	Ev w51
21	Agricultural Biotechnology Council (abc)	Ev w53
22	The Royal Academy of Engineering, The Institution of Civil Engineers, and Engineers Against Poverty	Ev w55
23	The Royal Society	Ev w56
24	Overseas Development Institute	Ev w59
25	International Network for the Availability of Scientific Publications	Ev w66
26	Julie Makani	Ev w69

List of Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2012–13

First Special Report	Science in the Met Office: Government Response to the Committee's Thirteenth Report of Session 2010–12	HC 162
First Report	Devil's bargain? Energy risks and the public	HC 428
Second Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Medical Research Council	HC 510–I
Second Special Report	Engineering in government: follow-up to the 2009 report on Engineering: turning ideas into reality: Government Response to the Committee's Fifteenth Report of Session 2010–12	HC 511
Third Report	The Census and social science	HC 322

Session 2010–12

First Special Report	The Legacy Report: Government Response to the Committee's Ninth Report of Session 2009–10	HC 370
First Report	The Reviews into the University of East Anglia's Climatic Research Unit's E-mails	HC 444 (HC 496)
Second Report	Technology and Innovation Centres	HC 618 (HC 1041)
Third Report	Scientific advice and evidence in emergencies	HC 498 (HC 1042 and HC 1139)
Second Special Report	The Reviews into the University of East Anglia's Climatic Research Unit's E-mails: Government Response to the Committee's First Report of Session 2010–12	HC 496
Fourth Report	Astronomy and Particle Physics	HC 806 (HC 1425)
Fifth Report	Strategically important metals	HC 726 (HC 1479)
Third Special Report	Technology and Innovation Centres: Government Response to the Committee's Second Report of Session 2010–12	HC 1041
Fourth Special Report	Scientific advice and evidence in emergencies: Government Response to the Committee's Third Report of Session 2010–12	HC 1042
Sixth Report	UK Centre for Medical Research and Innovation (UKCMRI)	HC 727 (HC 1475)
Fifth Special Report	Bioengineering: Government Response to the Committee's Seventh Report of 2009–10	HC 1138
Sixth Special Report	Scientific advice and evidence in emergencies: Supplementary Government Response to the Committee's Third Report of Session 2010–12	HC 1139

Seventh Report	The Forensic Science Service	HC 855 (Cm 8215)
Seventh Special Report	Astronomy and Particle Physics: Government and Science and Technology Facilities Council Response to the Committee's Fourth Report of Session 2010–12	HC 1425
Eighth Report	Peer review in scientific publications	HC 856 (HC 1535)
Eighth Special Report	UK Centre for Medical Research and Innovation (UKCMRI): Government Response to the Committee's Sixth Report of session 2010–12	HC 1475
Ninth Report	Practical experiments in school science lessons and science field trips	HC 1060-I (HC 1655)
Ninth Special Report	Strategically important metals: Government Response to the Committee's Fifth Report of Session 2010–12	HC 1479
Tenth Special Report	Peer review in scientific publications: Government and Research Councils UK Responses to the Committee's Eighth Report of Session 2010–12	HC 1535
Tenth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Technology Strategy Board	HC 1539-I
Eleventh Special Report	Practical experiments in school science lessons and science field trips: Government and Ofqual Responses to the Committee's Ninth Report of Session 2010–12	HC 1655
Eleventh Report	Alcohol guidelines	HC 1536 (Cm 8329)
Twelfth Report	Malware and cyber crime	HC 1537 (Cm 8328)
Thirteenth Report	Science in the Met Office	HC 1538
Fourteenth Report	Pre-appointment hearing with the Government's preferred candidate for Chair of the Engineering and Physical Sciences Research Council	HC 1871-I
Fifteenth Report	Engineering in government: follow-up to the 2009 report on Engineering: turning ideas into reality	HC 1667 (HC 511, Session 2012–13)

Oral evidence

Taken before the Science and Technology Committee on Wednesday 1 February 2012

Members present:

Andrew Miller (Chair)

Stephen Metcalfe
Stephen Mosley

Pamela Nash
Roger Williams

Examination of Witnesses

Witnesses: **Professor Graham Furniss**, Chair of the Africa Panel, British Academy, **Professor Peter Guthrie OBE FREng**, Fellow, Royal Academy of Engineering, **Professor Robert Souhami CBE**, Foreign Secretary, Academy of Medical Sciences, and **Dr Beth Taylor**, Director of Communications and External Relations, Institute of Physics, gave evidence.

Q1 Chair: I welcome the four of you to our hearing this morning, with apologies for running a little late from the previous session. As you know, the purpose of this inquiry is to investigate how DFID currently incorporates scientific capacity building into its development activities and to explore the experience and perspectives of the learned societies and national academies within this context. I would invite you first to introduce yourselves and then I will start with a very general question.

Professor Furniss: I am Graham Furniss, the pro-director for research at SOAS representing the British Academy. My special area of interest is northern Nigeria and its language and culture.

Professor Guthrie: I am Peter Guthrie. I am representing the Royal Academy of Engineering, Engineers Against Poverty and the Institution of Civil Engineers.

Professor Souhami: I am Robert Souhami, foreign secretary of the Academy of Medical Sciences.

Dr Taylor: I am Beth Taylor, director of communications and external relations at the Institute of Physics, which means I have responsibility for our international activities, including our Physics for Development programme.

Q2 Chair: Obviously, it would be helpful if we can agree on definitions, starting with the phrase “scientific capacity building”. DFID describes three levels of capacity building: individual, organisational and institutional. Is DFID policy on scientific capacity building spread evenly across those areas, and at which of these levels do national academies and learned societies tend to focus their efforts?

Dr Taylor: I will start by saying that I do not really know enough about DFID’s programmes to make a meaningful comment about its balance. As to what we do, I think that nothing we do is big enough to make a difference at the institutional level in those three areas. What we do is targeted at both the individual and to some extent the organisational level. Broadly speaking, we do three programmes. One, which is really important, is to build partnerships with our equivalent sister societies in the developing world, and that is targeted at the individual level in terms of their members but also at the organisational level—

Q3 Chair: Is that with or without DFID?

Dr Taylor: I should say right at the beginning that this is all without DFID; we do not get anything from DFID, but I would love to. It seems to me that partnering with the learned societies in other countries is a way to help them develop the kind of capabilities we have developed over 100 or 200 years. We then have a couple of programmes, one educational, where we have resource centres in seven different places in Africa. We help teachers with using practical equipment, because science seems to be taught almost like learning Latin. It is a theoretical subject and the kids never get a chance in great big classes to see what science is really about. We also run entrepreneurial workshops with the International Centre for Theoretical Physics in Trieste where we bring scientists and engineers from the developing world and try to introduce them to basic entrepreneurial skills to bring their innovations to market. That is also individual, I think.

Professor Souhami: As far as concerns DFID’s broad spectrum, it is difficult for the academy to comment on the whole thing because we are concerned with biomedical research. DFID’s written response to you makes a distinction among the institutional, organisational and individual bases of capacity building. That is exactly how the Academy of Medical Sciences would see it, too. The Academy of Medical Sciences has its elected fellowship, like other learned academies, and among the fellowship are all the major players at the high level of science that is to do with global health and science. Our contribution is through the fellowship. We are not ourselves a grant-awarding agency.

As evidence proceeds, I imagine that you will hear quite a lot of examples of the kinds of capacity building north-south and south-south developments that are currently taking place and have taken place over many years. The academy is involved in that to the extent it is our fellows who are among the leading protagonists and players as far as the science and relationships are concerned, because the partnerships involved in capacity building require personal as well as institutional relationships.

Q4 Chair: But this is driven by themselves and their employers rather than yourselves.

Professor Souhami: Exactly, because science is driven like that. Therefore, capacity building for science has to be based on science. The starting point is that you want to do good science, and the most enduring capacity building relationships come when there is a common enduring scientific interest. In April last year the academy, the College of Physicians, the Gates Foundation, Universities UK and the Wellcome Trust held a three-day conference in London on this point of capacity building in the relationship with biomedical science. The important point about that conference is that it was not just UK people sounding off. The majority of the participants came from southern institutions, particularly sub-Saharan Africa. The report on that conference contains many examples of successful capacity building issues, which include DFID's contribution, and other examples where things do not quite work and the reasons for that. The report on that conference, which may be of help to you, is to be signed off in the next week or so. If you wish, I could arrange for an advance copy to be sent to you, because it gives you a feeling of what actually works on the ground. Therefore, our academy helps to facilitate that kind of interchange and understanding.

Q5 Chair: I am grateful for that offer, and we will certainly take you up on it; thank you.

Professor Guthrie: To come back to your question of definitions, whenever you talk to policymakers and so on, science is supposed to embrace engineering, but it is very distinct and needs to be thought of in a different way because of its application rather than exploration characteristics. The response of the Royal Academy of Engineering, Engineers Against Poverty and the Institution of Civil Engineers is focused for these purposes on our Africa-UK Partnership, which is an initiative that is institutional in its focus in trying to address the critical shortfall of institutional support for engineers generally throughout sub-Saharan Africa. There is very much a focus in our thinking at that level, in answer to your question. DFID's focus tends to be institutional and organisational, although obviously it has programmes that have high individual focuses particularly through its response to disasters and humanitarian work. So it probably works across all of the levels. Where organisations like the Royal Academy can make a difference is more at the institutional level.

Professor Furniss: In relation to DFID's balance and investments, we very much appreciate the fact that it supports individuals to a considerable extent by investing something in the region of £18 million in Commonwealth scholarships, which it funds. That is a very important part of DFID's work from our point of view, and we want to see it continue. The focus from its point of view, and to some extent ours, in our discussions with African universities and African colleagues in research is that institutional problems and issues to do with buildings, salaries of staff and so on are for African Governments, African Ministries of Education and African universities. It is on the organisational side that we think DFID is devoting a

lot of effort, and, similarly, we are very interested in the right sorts of framework for collaboration in research among academics and universities in the UK and universities in Africa and other parts of the world. That has been our focus, and we share its interest in that.

If you go back to 2005 with the Commission for Africa and NEPAD saying, "African solutions to African problems", what does that mean in practice in African universities generating and supporting research cultures in disciplines and subject areas of work? What is the right sort of relationship for us in the north in supporting their endeavours in the south? It is very much a matter of trying to explore south-south collaboration and how north-south-south works in the future. That is very much what we have been concerned with in developing with African colleagues the Nairobi report, focusing on governance in African universities, networks and partnerships, where we have put in our own efforts, and in early career researchers, because that is a particular problem many African universities face. It is not only Africa; we face the same issues.

Q6 Stephen Mosley: Within the written evidence we have received there was a suggestion that DFID tends to focus on the large-scale projects and the learned societies tend to go for the more flexible, smaller-scale approach. Is that a fair reflection, and do you think that is the right way we should be doing things?

Dr Taylor: It is certainly my perception of DFID, and it is absolutely true that we do small-scale things because that is all we can afford to do. We are also highly dependent on volunteers to do it, so asking them to do more and more becomes really difficult. This comment is not official; it is just from conversations with people from DFID. I feel as though there is a funding gap. We can do things at around the £10,000 level, which, if you include volunteers' time, is significant but is very small beer. My impression is that DFID is interested in funding things at the £1 million level, and somewhere in between at the £100,000 level there are things for which not just the Institute of Physics but the learned society community as a whole could gear up, but that sort of level is missing. It feels as if there is a gap that we cannot access, and there is a possibility—although I would say this, wouldn't I?—that we could add real value for still relatively small sums of money, but it would be a significant upgrade of what we do.

Professor Souhami: I share that view. I preface it by saying that the view of the academy and its fellowship is that things have greatly progressed with DFID. The efforts it is making in thinking about what capacity building is and how to develop support for it have greatly improved. Engagement with our academy, for example, is very good; we have no problem at all. The fellowship as a whole was asked how it felt about the question you pose: what is the balance? Clearly, large-scale programmes are necessary. Capacity building is not something that starts in one year and ends a couple of years later; we are talking about long-term developments, so structures have to be over a longer period. When asked about that balance, there was a

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regret that it had shifted largely to the exclusion of a smaller programme-funding mechanism, whereby people could apply for particular programmes that might contain capacity building with DFID, subject to the usual mechanisms of peer review. Those programmes existed up until about 2000–02 but no longer exist. The question we raised in our written submission was whether or not that should now be looked at again. Of course, it is a question of resource.

Q7 Stephen Mosley: Is that the competitive grants programme you talked about in your evidence?

Professor Souhami: That is exactly right—the reinstatement of that. There is a difficulty for DFID with that. I do not want to speak for DFID, but, in order to do that, you have to have the facilities, wherewithal and expertise to do that kind of stuff, like the MRC, Wellcome and so on have. That requires personnel and expertise. It may be that, if DFID wanted to go down that path to try to reinstate those sorts of programmes, it would need at least to outsource some of the expertise, perhaps with DFID in control but some of the expertise being provided from outside. That is available in biomedical science and, I imagine, other kinds of science too, though I cannot speak for them. The short answer to your question is that, yes, there is a kind of imbalance, which does not mean one should throw away the longer-term funding but simply that one needs to revisit whether there is a place in this for smaller shorter-term funding.

Professor Guthrie: I would echo some of those points. I just make the point that “large-scale” does not equal “long-term”. There are a lot of large-scale projects that are nothing like long-term enough in being able to get the infusion of the learning and development from the physical project into the society in which they are being introduced. We make the point, which has been made a hundred times before, that an awful lot of engineering projects are critically damaged in their lifetime by poor maintenance, because there is a disconnect between what is provided and the ability of the society, institutions and country to which you are introducing them to understand and maintain what is being delivered.

We come from a culture where you do everything to reduce the amount of labour because it is expensive and awkward, and in many developing countries labour is abundant, able and cheap. In many cases it would require a complete redesign of the way in which you deliver engineering infrastructure. This is not new. Thirty years ago I was involved in labour-based works in Africa. The World Bank was very enthusiastic, but the management of those programmes is very management-intensive back at base, and, with DFID facing cuts in HQ, it will be driven more and more towards large amounts of money spent on fewer programmes so that it can disburse the target expenditure efficiently rather than having to micro-manage a whole lot of perhaps more appropriate programmes.

You may have been involved in the report on “DFID’s Role in Building Infrastructure in Developing Countries”, which was conducted as a parliamentary

exercise last year. It made the point that DFID spends nearly £1 billion a year on infrastructure, half of which it spends direct. It is interesting that the measurement is what is spent rather than what is gained from that expenditure. In terms of value for money, you can get very high returns from small-scale projects and small interventions, perhaps reproduced on a viral basis, but these take a lot of management. Certainly, over the last 15 years DFID’s in-house engineering capacity has declined; it no longer has a chief engineer. The role of the most senior engineering adviser has just been taken down a grade. So the ability of DFID regionally and centrally to assess the contribution that engineering would make to the delivery of any number of development projects is being diminished. There have been calls, which we would echo, to find ways to increase that capacity.

Q8 Chair: Can I pursue that point as to where the expertise is? If we asked the embassy in Ethiopia where co-ordination for the African Union is undertaken, are you telling us there is not a senior engineer on the staff there? Is it that bad?

Professor Guthrie: I do not know specifically about Ethiopia, but I can assure you that there is not even a universal presence of engineering expertise in the country offices of DFID. When it is devising its country programmes in partnership with the countries to which it is delivering aid, it certainly does not have in all cases an engineering expert in-house who can advise on how an engineering contribution would enhance the way delivery was made.

Q9 Chair: How does DFID get its information?

Professor Guthrie: It has 600 advisers—I cannot remember what they are called—or an expert advisory panel or external advisers. Of course there are hundreds of those, but you need capability in-house to know what question to ask before you know who to go and ask. There is no shortage of engineers who can give DFID advice, but it may be there is a need to return to a higher level of technical awareness inside DFID, funded through some mechanism. The arrival of Chris Whitty and the way the role of the chief scientific adviser has been crafted around his arrival is very encouraging in this respect. He is rightly devoted to the notion of evidence-based policymaking. To gather evidence in the engineering field he will need access to more engineers. I do not think we have a particular view on whether those engineers should be internal or external to DFID, but they need to be available at the time development programmes are being formulated, not just at the time at which, having been formulated, they are being designed for delivery.

Q10 Stephen Mosley: Professor Furniss, in the British Academy evidence you say that the application process for applying for schemes and grants could be simplified, and it has earned criticism for being vastly over-complex and so on. Can you outline some of the disadvantages that you see in the current system, and how you think it could be improved in future?

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Professor Furniss: We in the academy have been running an international partnership and mobility scheme. One of the issues that we looked at was the degree to which our application system had disincentives: for example, rigidity of time frames; electronic access, even from countries where that was problematic and there was not the required bandwidth for all of the interchanges that have to take place if you are attempting to co-ordinate, say, Uganda, Nigeria, the Philippines and the UK; requirements for endorsement from institutions and other organisations in any application; and the time scale for that. We take for granted the high-speed internet access we have available here—or we have occasionally. What are the problems encountered in Nigeria and Uganda? We are looking at that to see whether we are unnecessarily providing disincentives.

I am sure that within DFID's own monitoring and evaluation systems it will be looking at its application procedures. The suggestion we make, which is not one of major significance, is that it would be useful for DFID to look at its own two-stage mechanisms and electronic access, particularly where it is looking to ensure that there is a multiplicity of partners in a large application, to ensure there are not disincentives within that framework for emerging groups and institutions to participate in the application process. That is the point we would make.

To come back to your earlier point, from our point of view, we are aware that DFID is under pressure in terms of its administrative costs. It would be a shame if that produced a move where very large-scale applications predominated more because, in the light of what my colleagues have been saying, we think that, if you have more £200,000-type framework projects, you have a diversity of opinion available to you in terms of what development means and how it should be conducted. I think that variety of perspectives in the input to the research is important. As a general comment, we also think that, in terms of the capacity of emerging institutions in Africa and elsewhere, it is easier to put together a coherent project at the £200,000 level as against the £1 million, £2 million or £5 million level. That is a general comment that we would make.

Q11 Pamela Nash: Dr Taylor, the submission of the Institute of Physics included a reference to the western model of “big science”. Can you expand a little more on what that means? Do you think this could be easily transferable to developing countries? If not, can you suggest an alternative model? I would then ask your colleagues to comment on that.

Dr Taylor: I have been involved for a few years with a group of other learned societies with an interest in development activities, just comparing notes and trying to learn a bit from one another's experience. About two years ago we had a meeting where this floated to the top, partly because people had been reading various papers. We all felt there was a tendency for big projects, in particular, to try to pick up structures and types of facility that worked in our environment and drop them down in the country where the aid was being delivered. We felt that was

not necessarily the best way of using resources and that there was an alternative approach, which could at least be run in parallel, to support networks of people in the developing country who had their own view of what would work and what was required. I suppose that at that point a little light went on in our heads and we thought that here was a network of scientists trying to work out how best to operate together, which sounded just like the learned society model. It felt to us that this was the kind of model we were all operating and that some of the things we had learned over many years, such as publishing research, organising conferences and events and providing continuous professional development for our members, would be useful to networks in the developing world.

Following that, we invited African physical societies to come to a meeting in Cape Town, which was an amazing experience. People came from countries like Rwanda, Zimbabwe and Cameroon. They were representing very small groups of people but were interested in developing what they could do for their small groups of members. It felt to me that that was a model with which we could do more. That is what we have been trying to do in a small way, but what we can do is limited. For example, we hosted someone from the South African Institute of Physics who wanted to spend a few weeks with us to learn the things we did and decide whether he wanted to import some of those into what they were doing. We would love to do more of that, but it depends on us and the African societies having the resources to do it.

Q12 Pamela Nash: You have identified some structural measures you are currently using here that are transportable to developing countries. In what way can we amend them and help to bring a local and cultural context to those measures and to the learned societies in the countries in which we are working?

Dr Taylor: The only thing we can do is keep talking to our partner societies. It would be silly of me to say that I know what they need; I certainly do not. They do; they have a very clear picture. They gave us a wish list, some of which we have managed to do and some of which we have not. I would love to be able to deliver more of that wish list.

Q13 Pamela Nash: Does anyone else on the panel have experience of working with other societies and trying to build networks in developing countries?

Professor Souhami: Yes. Your original question was about large-scale science and that kind of model. To some extent it depends on what it is you are trying to achieve in biomedicine and biomedical research. If you take the problem of malaria, for example, there is no getting away from the fact that that requires large-scale science. It will not be cracked in any meaningful way unless there is science that is not just via African networks of science but input through northern science as well. It is not possible to imagine certain problems being tackled seriously except across many nations in, say, sub-Saharan Africa, because malaria is not confined to particular boundaries, and similarly for other problems to do with other infectious or

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nutritional diseases. Large-scale science of that kind is essential, but the issue then is what the relative roles are of the local science compared with northern partners. That is where partnerships, infrastructure and capacity building become incredibly important, because you cannot imagine a situation where these problems will go away in five or 10 years. New problems will emerge all the time, so you have to have a strongly developed local infrastructure based on south-south partnerships with northern input, as well as north-south partnerships. Of course, that is what southern partners want; they also want to be part of that process. But it then requires, when DFID joins in, a clear understanding of who will be the partners in funding those schemes, how they will be set up and monitored, run and evaluated, and what the training results will be that come out of it.

There is no getting away from large-scale science in some circumstances. There are other problems that are local individual interests and good scientists thinking of a problem out of their own heads that need to be encouraged and developed. That, of course, is the case. Then what you need is not interference, as it were, from outside but help to establish the climate and culture in which those kinds of scientists can progress and make success.

Q14 Pamela Nash: In that case, do you think that DFID still has a role in encouraging and supporting south-south partnerships?

Professor Souhami: Yes, and there are some very good examples of that. There is a programme which may be alluded to in our evidence; I do not know. Its full title is the “PRogramme for Improving Mental health care”. It is a research programme consortium led by the Centre of Public Mental Health in the University of Cape Town, South Africa, with other African partners. That is funded by DFID, so it is actually doing this. Mental health is a really under-researched area in many developing countries. That is an example where, if you like, DFID can join in in developing programmes that are applicable across more than one national boundary.

Professor Furniss: In relation to the humanities and social sciences, in a sense we do not operate in the mega-frameworks of hard science research, but we have seen very important developments. DFID has been funding a partnership for African social and governance research based in Nairobi, which is linking up social science training in eastern Africa, particularly in Kenyan and Ugandan universities. In a sense, one of the particular takes that we from the academy have is that we are particularly interested in supporting the development of research cultures and training in particular disciplines. In other words, if you take political science and economics, there is already a long-standing economics research consortium in east Africa that has been training people for many years, that is the kind of model that we think is very important. Departments of, say, linguistics, or, from our point of view, political science, history, sociology—whatever it is—in a variety of African countries, as they link up with one another, are able to link up with similar networks in this country.

In the UK, universities are competitive institutions fighting one another in groups and singly; they are not the most natural frameworks for collaboration at the level of the discipline or subject. The academies represent, broadly speaking, the interests of, say, history—or, indeed, the hard sciences or engineering—across the universities in this country. From the Academy’s point of view the focus is upon the development of research cultures, particularly for early career researchers in African universities, because we work from the premise that the future of the study of Africa in this country in the main has to be done in collaboration with work going on in Africa on Africa. It is that linking up that we think is of paramount importance for the next 20, 30 or 50 years.

Professor Guthrie: In the sphere of engineering the Africa-UK Partnership, which is in our evidence, is doing exactly what you are asking for. It is not looking in the scientific research area but the institutional area to support the creation of African institutions of engineers to provide standard-setting qualification of different grades of membership, the protection of society through these standards, some sort of control mechanisms and so on. We had a meeting in March last year in South Africa, and another meeting in October last year in Zimbabwe. It is extremely heartening to see that even individual engineers from some countries had made the effort, at their own expense, to come to these meetings, feeling that there was a desperate need for an institutional framework within which engineers could operate in their countries. The South African Institution of Civil Engineering is well established; SAICE has been around for a long time, and the same goes for Zimbabwe, Kenya and Nigeria. But there are many other countries in Africa where there is no institutional framework for the qualification of engineers and national needs of engineering capability. The Africa-UK Partnership is incredibly important, and it is the sort of thing in which we would see DFID playing an important role.

Q15 Pamela Nash: While we would recognise that it is incredibly useful for developing countries often to send their graduates overseas—my experience is that it is something of which often Governments are extremely proud—we have to recognise that those countries are suffering due to a lack of qualified researchers and professionals in their own countries. What more do you think can be done to prevent a brain drain, not just preventing them leaving in the first place but to make the skills they learn when they visit and work in developed countries transferable to their home countries?

Professor Guthrie: This brain drain is very difficult territory. We have been draining our brains around the world for an awfully long time and benefiting hugely from it. To impose some sort of restrictions on people from developing countries who obtain qualifications and to confine them somehow to their own countries is probably not the way to go. You have to wait for a situation where the environment in which they would be encouraged to operate in their own country is sufficiently attractive.

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Obviously, DFID has a crucial role to play in this because, with the disbursement of such a large budget in these countries, it has the opportunity to put a much higher priority on the development of skills and to make longer-term commitments to projects so that they can have some kind of influence over something other than those projects. In a three-year project you cannot develop skills; you can just do the business and get out. You have to take a 10-year view so that you can allow the training and development of individuals in those programmes to make a significant contribution to development in that country. It is only by doing more development of people in those countries that you will get to a position where there is a sufficiently buoyant and attractive environment for them to be retained. But there would be other opportunities. DFID could, for example, insist that there were certain levels of local representation in the firms delivering engineering projects in country. Therefore, it would insist on foreign firms making sure that they tapped into the maximum level of local talent.

Professor Souhami: I would like to echo those remarks. Of course, if you are a bright scientist and have been trained in a good place outside your own country, you will not want to go back and do mediocre science, or you will be frustrated by what you find when you get back there. That is a real problem. If you want to build science capacity, you have to build the kinds of structures that are attractive to intelligent, dynamic and productive people to go back to. As my colleague pointed out, we have had that problem in the UK for some time, so it is nothing new here, but it is possible to do it.

I will give you two examples. I am not sure whether you will be taking evidence from the Wellcome Foundation, but the Wellcome Trust African Institutions Initiative is exactly that; it is an investment in building the infrastructure necessary to support young researchers—not to fund young researchers—across a network of African institutions in the kind of informatics they need, the ability to apply for research grants, and the financial and administrative help they need. That is all the stuff you would take for granted in a modern scientific environment. That requires money and resource, and of course DFID will want to play a part in that. Capacity building or the brain drain to which you allude is not just a question of giving people some money to go back home; it is a question of what they go back home to.

Having said that, it is useful to give people money to go back home because they need salaries and want to feel that they can have a certain standard of living when they get back, so there is a question there. In biomedical science—I do not know whether it is the same in other areas of science or in the humanities—that is a particular problem at the postdoctoral level. While there are lots of PhD programmes that work well, if you have a bright PhD student who has done a good thesis, what then? How is that postdoctoral scientist going to go from one postdoc to two postdocs and elect to do the kinds of things that a scientist would want to do and a bright scientist would see

applies in other countries? That does require money to be invested in individuals as well as the circumstances in which they find themselves.

Dr Taylor: We talked about this with our African colleagues in the context of whether we should try to facilitate exchanges to bring younger researchers to the UK. They were saying no because of this worry. They would prefer older researchers from the UK to spend a reasonable period of time, such as a year, in an African university and spin out their expertise in that way, but they were concerned about the risk of going in the opposite direction.

Q16 Roger Williams: In 2004 a previous Science and Technology Committee doing a report on DFID noted that there was a lack of scientific culture and in-house expertise in science and research. As a result of that report, hopefully, there was the appointment of a chief scientific officer for the Department. Do you think that has led to an improved scientific culture in DFID? Have you or your organisations had any contact with the chief scientific adviser, and how has that worked out?

Professor Guthrie: I was part of the Government Office for Science “Assurance Review of Science and Engineering” in DFID, so I have had direct contact with Chris Whitty as a result. It is true that the 2004 report led to exactly the outcome you describe, which is very welcome. Chris Whitty’s arrival and the way he has been given a research budget under his control, rather than CSAs in some Departments being budget-free and having very much an advisory role, is very welcome. It will probably take a bit of time for the science culture, which I am sure Chris Whitty is looking to introduce, to be brought into DFID.

Professor Souhami: I think he has done a good job and we have close contact with him. He came to talk at our conference, for example, and gave a very good talk about how it all works. The feeling of the fellowship whom we canvassed on this point before writing the report, was unanimous that this had greatly improved.

Professor Furniss: We have had extensive discussions with Chris Whitty and his colleagues about the direction of our thinking. The exchange of discussion with him has been very useful indeed.

Q17 Roger Williams: It seems that it is a good report. By one of those sublime coincidences, just as we are doing this, the Secretary of State and Ministers in DFID are preparing to answer questions in the House of Commons. I have just had a look at the Order Paper and there is nothing about building scientific capacity in developing countries on it. That leads me to the question whether you think there is sufficient acknowledgment of capacity building in DFID’s strategy.

Professor Guthrie: People like us will probably never be satisfied with the degree to which science is being taken into policy and the development of capacity, but it is pretty clear that there is not sufficient attention being paid to that. DFID is subject to the political process and its priorities change over time. When I was a young engineer, DFID was spending a high

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percentage of its money on physical infrastructure. Not all of those projects were a huge success because they were largely imposed and, in the main, took little account of the degree to which maintenance and operation had to be integral to the design of the project. Therefore, a move away from that kind of delivery of physical stuff to improved outcomes, budget support, aid through cash and all those new trends means that it will be quite a challenge to bring science and capacity building back into the heart of DFID delivery; it is a big task.

Dr Taylor: When we were looking at DFID literature in putting together this evidence, it seemed to us that it was not explicitly stated as an objective, and it would be very helpful, even just as a reminder, if that was the case.

Professor Furniss: As a personal view rather than perhaps the Academy's, one of the things many African colleagues have discussed with us in the whole Nairobi report and the discussion on Foundations for the Future is not related specifically to a problem with DFID, but they want the research capacity and cultures to be integrated into their own research institutes and universities. A consultancy culture—I am not talking here necessarily about DFID—basically has hunted round universities for the last 20 years to pick out good researchers and said, “We won't give this project money to your university. We want you to found a consultancy company with your wife and best friend. You do the research for us and we will strip out research capacity.” It is not simply a matter of brain drain; it is taking it out of the research cultures in institutions and into private consultancy work. That has been detrimental to the very important issue of building long-term capacity within proper educational structures in African countries.

Professor Guthrie: There is an opportunity for UKCDS, which co-ordinates research, to have a higher profile, and also an opportunity for EPSRC—the Engineering and Physical Sciences Research Council—to pay more attention perhaps to the international dimension of engineering and physical sciences research.

Q18 Roger Williams: Professor Guthrie, you said there has been a move away from providing infrastructure as a means of delivering DFID policy. Have you had any discussions with DFID about that and re-establishing infrastructure as a key component of DFID policy?

Professor Guthrie: Yes. My most recent opportunity for that was through the Government Office for Science Review. I would accept the position it often takes, which is that just delivering individual infrastructure projects, like a major road or piece of water or energy infrastructure, is not necessarily delivering against the objectives of what DFID is trying to do. But the consequence is that you need to get into a more intimate relationship with what development means, even if you stick with the Millennium Development Goals.

The provision of simple infrastructure is an essential prerequisite for maternal health, dealing with

communicable diseases and so on. It may be that we have more to do in understanding that water security, for example, does not depend on building large hydro power or hydro retention schemes but may result in very much more widespread small-scale projects, such as drip irrigation, small-scale water retaining structures, or village level interventions, which are much more difficult to measure and police and to demonstrate that you are getting a really good return, whereas if you have a big project you can police it very easily. But I think that the understanding of development and the delivery of DFID's objectives is likely to be pushed increasingly in that direction. The role of science, evidence and engineering at an appropriate scale is critical to being able to deliver against those, rather than just measuring the amount of money that is being spent. We welcome the value for money impact committee—I cannot remember what it is called—that has just been set up.

Q19 Roger Williams: I am sure my colleagues agree that people do not come to our surgeries saying it is a disgrace that the Government are not building up scientific capacity in developing countries. They do come and say it is a disgrace that people are hungry, malnourished and lack clean water. It is a heck of a difficult thing for DFID when it has those kinds of pressures, is it not?

Professor Guthrie: Yes, but the point is that, if they were concerned about the fact people did not have access to clean water, it may be that the projects that have been delivered over the last 15 years, which may now have a rather poor record for enduring delivery of clean water because the wells have broken down, the technology is too sophisticated, or the maintenance was not thought about sufficiently when the project was being designed, would be very much at the top of people's minds. Value for money is not about whether it was delivered as stated at the end of the project but whether it has had an enduring benefit, and it has reproducibility and scalability for the country itself to be able to take it on as a responsibility itself.

Dr Taylor: It is a really interesting comment that there is always pressure to deal with the big urgent issues and somehow, not just in this area but in this area as well as others, you need to carve out that little bit of support for the continuing capacity building element and run the two in parallel. But I can totally see that in political terms it is difficult.

Professor Souhami: But in the case of biomedical sciences—I can speak only for that—there is clear evidence that DFID is actively engaged in capacity building, not just on its own but in partnership with other major funders like Wellcome. The Consortium for National Health Research in Kenya is funded by Wellcome and DFID. That is an example of getting two big funders together to do something highly focused to develop infrastructure, in this case in health research. I am not in a position, I think, like the rest of us, to judge how far that goes right through the whole of DFID's programme, but there is no doubt that Chris Whitty himself is fully aware of this in biomedicine, and programmes have been established

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which are rather good examples of the kinds of things he might achieve not just by DFID alone but in collaboration with others.

Q20 Stephen Mosley: Professor Guthrie, on collaboration you mentioned UKCDS. Could I ask each of you how much involvement you have with UKCDS as an institute? How much of an impact do you feel UKCDS has had, and do you see any way of improving it?

Professor Guthrie: Personally, I have had limited exposure to UKCDS, but the meetings I have attended have been very positive and to that point have been a unique combination of the people in the room talking about capacity building in science in developing countries. UKCDS is very small; it has a very limited budget. I think it is very good value for money. I am sure it could do more and it is possible to think of ways in which it could be more effective, but, as a clearing house for bringing together the different parties with a view to an international focus, it is doing a very good job.

Professor Furniss: Our experience has been that we have worked with it and very much appreciate the need to ensure that funders talk to one another all the time about what other people are thinking of doing and proposing to fund to ensure that these things are complementary rather than duplicating or competing. I think that is a very important function.

Dr Taylor: I echo those positive comments. I have talked to UKCDS in the context of our learned societies group. It has been very helpful and positive and put our stuff on its website, but my feeling is that it is more focused on Government, public sector and national academy efforts. If it was possible for it to expand the range of people it brings under its umbrella to include wider groups like ours, it would be great.

Professor Souhami: The Academy of Medical Sciences is not a member of the Collaborative on Development Science. However, in preparing for this session we asked quite a lot of our fellows who do know people who are on it—it is a small world—and they spoke about it very positively, but the academy as a whole does not have a view about UKCDS.

Q21 Stephen Metcalfe: I want to turn to how you and DFID measure success and the impact it has. Do you believe that the general research community is aware of how in particular DFID measures success and its methodology, and how you as institutions and organisations measure success?

Professor Furniss: This is a difficult question. We are not entirely clear how monitoring and evaluation works within DFID and we would very much like to know more about it. We are very familiar with outcome measuring; in other words, you fund something for two years, if you say it will produce x, you see whether it did and measure the degree of its success. That is short-term outcome measuring. You can look at the process of allocating the money and value for money issues. We are interested in long-term effects.

Let us say that at a certain point in time all the senior professors of a university department in this country

go off to the States and so it goes into a dip. For that department to recover its reputation, research culture and rebuild a new set of directions is approximately a 20-year cycle. If your long-term aims are related to early career researchers and their trajectories into success and driving a new generation of scholars emerging into the international world of research, you cannot do it on a one-year-and-six-months or two-year cycle; you are looking at long-term investments and effects. That is a difficult issue for us to assess.

You can do spot checks along the way, and organisations like the Commonwealth Scholarship Commission do things like that in terms of their alumni; universities do it in terms of their own alumni, obviously. But, where you have put in a particular effort and amount of money over a five to six-year period and you are expecting the results to emerge in 15 to 20 years' time, how do you plan that as an evaluation and monitoring exercise? In a sense, we have a question that we need to consider and think about. It would be very interesting to know a little more about how DFID runs its evaluation and monitoring—not simply in the short term but for these long-term considerations, if it is doing so.

Professor Guthrie: I feel as though I have done nothing but whinge about DFID. I should say that DFID probably leads the international community in its monitoring and evaluation and attitude to international development. An awful lot of international development agencies see DFID as a thought leader in the area and have done so for a decade. Against that background, you can probably say that of course its monitoring and evaluation could be better, as you could say about the World Bank. It has recently undertaken some reviews such as the Relief and Reconstruction Review, and the HERR report was an outstanding piece of work and highlighted where policy could be amended to become more effective. There are some shining examples where DFID has got its Monitoring and Evaluation really well sorted out. Maybe on individual projects it could be more critical and could take a longer-term perspective—I have been doing some research recently—looking at not just the long-term durability and endurance of its development assistance but also its physical diffusion outside a project area. There is more it could look at in that area.

Professor Souhami: I echo much of what has been said. It is not an easy issue. It is easy to say “monitoring and evaluation”, but, as you can hear, it is not an easy issue because of the different time scales for different kinds of outcomes. We know DFID is well aware of the importance of monitoring and evaluation. The problem is that it is quite a specialised area of investigation to do it properly. There is a considerable shortage both in this country and elsewhere of people who really know how to do this stuff and not get a lot of biases, false information and wrong conclusions. It is something that needs to be developed, and DFID could certainly take a major part in helping universities and other funding agencies—MRC, Wellcome and so on—in developing further the criteria for evaluation.

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The more that funding goes into complex networks of science and infrastructure development between multiple nations both in the north and the south—south-south networks with northern input, and north-south networks—the more evaluation and monitoring will mean different things to different people, with different priorities for what kinds of outcomes people want. One of the points to emerge strongly from the conference to which I alluded was that everybody felt that at the start of any major programme like this there ought to be, at least in principle, some agreement among the partners on what outcome measurements would be valuable for them. When you start off, before you spend the money, you try to agree how that will work. It will not be perfect—of course it will not be perfect—but you cannot suddenly bolt on monitoring and evaluation afterwards. The criteria by which things are evaluated have political, social and economic dimensions, which need to be agreed, at least in broad principle, before the money is spent.

Dr Taylor: I cannot add anything on what DFID does. I will just say what we do for small projects, which is very simple. We check numbers and feedback from the participants. Anything we do will be a drop in the ocean many years down the road if you try to measure the impact, say, in national terms. I think it is beyond what we can do.

Q22 Stephen Metcalfe: From the answers you have given, I get the sense that there is not a great deal of interaction with DFID on this. It is not feeding back to you what it has learned from its monitoring and evaluation, and you do not get an opportunity to feed back to DFID what you have learned from projects you have undertaken. Is that right?

Professor Guthrie: I think that is a bit unfair. The Royal Academy per se does not undertake projects that would be relevant directly to DFID, although Engineers Against Poverty does. DFID is busy. If DFID makes that stuff publicly available, it is a duty on us to find it rather than for it to come and find us and tell us how it is doing.

Professor Souhami: You also come back to the question of capacity here within DFID for this stuff

and the question I raised right at the very beginning about the importance of collaborating with people who have expertise and can help you with this. But I am quite sure that Chris Whitty is aware of that, at least in so far as I can speak for biomedicine. It is something that is only just beginning. In the networks as they are beginning, which is a rather recent development, the question of evaluation and monitoring and what form and structure that should have has to be considered. Everyone will be starting to learn how to do this stuff and to make it appropriate. But, if you want to know the academy's position on whether you should do it, the answer is yes, of course you should do it, but to do it properly requires quite a lot of thought, time and effort.

Dr Taylor: We as a group of learned societies organised a training day to look at monitoring and evaluation to help us with what was appropriate for our projects. It would be really nice if maybe DFID or UKCDS—I am not necessarily saying they should pay for it—could organise that kind of training on a wider basis.

Q23 Stephen Metcalfe: Dr Taylor, I think you expressed some views about the Independent Commission for Aid Impact and feeding into it input from the scientific community. How do you imagine that could be best achieved?

Dr Taylor: This is one of those things that I came across only in putting together this evidence, but it is obviously an influential body and looks wider, as I understand it, but primarily at DFID and also across aid from other Government Departments. It is a great idea. There is a chief commissioner and currently a small board of three supporting commissioners. They all come from accounting, legal or economics backgrounds. It seems to me that, if we believe science and engineering is an important part of DFID's development work, which I am sure we all do, it would be nice if one of those commissioners came from a science or engineering background.

Chair: It has been a fascinating start to our inquiry. Thank you very much for your evidence.

Wednesday 8 February 2012

Members present:

Andrew Miller (Chair)

Stephen Metcalfe
Stephen Mosley

Pamela Nash
Graham Stringer

Examination of Witnesses

Witnesses: **Professor Anthony Costello**, Professor of International Child Health and Director, UCL Institute for Global Health, **Dr John Kirkland**, Deputy Secretary General, Association of Commonwealth Universities, **Professor Melissa Leach**, Director, STEPS Centre, and **Professor Andrew Westby**, Director, Natural Resources Institute, University of Greenwich, gave evidence.

Q24 Chair: I welcome you to this session and thank you for attending this morning. It would be helpful for the record if you could all introduce yourselves.

Professor Costello: I am Anthony Costello, director of the UCL Institute for Global Health.

Dr Kirkland: I am John Kirkland, deputy secretary general of the Association of Commonwealth Universities.

Professor Leach: I am Melissa Leach, director of the ESRC STEPS Centre at the Institute of Development Studies in Sussex.

Professor Westby: I am Andrew Westby, director of the Natural Resources Institute at the University of Greenwich and also president of Agrinatura, which is a European association of universities working on agricultural research and development.

Q25 Chair: Thank you very much. If we may start with definitions, DFID's definition of capacity building is "enhancing the abilities of individuals, organisations and systems to undertake and disseminate high quality research efficiently and effectively". Is that a fit-for-purpose definition on which we can work, or would you encourage us to look at something slightly different?

Professor Costello: It is more or less fit for purpose. It goes on later to talk in more detail about social capital, trust, knowledge, skills and attitudes; it puts a little more flesh on the bones, but it is a reasonable definition from my perspective.

Dr Kirkland: I agree with that. The three levels—individual, organisational and what we call system or environmental—are a particularly useful way of hanging on later analysis.

Professor Leach: I would agree. Beyond that broad catch-all we need to ask some harder questions about the capacity of whom to do what precisely, but that debate follows on from that broad definition. I would also emphasise that the systemic aspect, thinking about how individuals relate to organisations and broader networks, is critical. I am sure it is something that will come out of our later discussions.

Professor Westby: I am also broadly in agreement. For me, the key issue is capacity building to do something rather than capacity building in its own right. In my field of agriculture, capacity building to improve the livelihoods of poor people would be important for us. It is also important to distinguish between capacity building in science for doing the research—research capacity building—and capacity

building for the extension of science to have impact on the ground. I would like to flag up that they are two quite different things.

Q26 Chair: Following that, how does building research capacity relate to building scientific capacity? Is the distinction between those terms understood particularly by Government?

Professor Westby: It is understood, but often when we talk about capacity building we mean research capacity building. You definitely need that. For example, in my own field we need researchers in developing countries to be able to deliver new varieties and so on, but we also need a trained cadre of scientifically aware extension workers—for example, in the public-private or NGO sector—who know about science and are able to deliver good scientific advice to farmers to increase productivity and things like that.

Dr Kirkland: I agree with that. I am sure this will be said at several points today and has been said in your previous discussion. It is amazing how many of these issues could equally be cited to some extent in the British higher education or knowledge transfer system. I strongly agree with the importance of extension work and also the quality of science graduates entering the system in those countries.

Q27 Graham Stringer: Following on from what Andrew said about building research capacity and other answers, is it better to invest in individuals or institutions?

Professor Costello: I would say the latter. For example, if you look at the Wellcome Trust or Medical Research Council—I come more from the health angle—traditionally, over the years they have invested huge amounts of money in largely British-run international research stations, and there are lots of other examples of that. About five years ago Sir Mark Walport went round Africa and India and realised something we had pointed out 20 years ago. It has short-term benefits for high-quality research but does not invest in the institutions that you want to strengthen in countries; indeed, it detracts from them because it tends to take people out of the system. He realised that they were training up lots of competent African postgraduates and postdoctoral students who had nowhere to go because the university system had collapsed.

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The model they are now moving towards, which says, “We won’t take people to do PhDs in Oxford, UCL and Sussex; we want to try to develop the system through the local university but give them a similar experience,” is one that we should be moving towards. Although we have been trying to do this for about four years as part of a partnership, we are just starting to see some of the benefits of it. You have to hold your nerve and work with institutions in order to try to develop it. I have just been in Malawi where we are finally getting a PhD programme running. We are linking with the local systems; we have enrolled a number of local PhD students of different levels. The short-term benefits of an NGO approach or internationally-run centres have long-term disadvantages, and I think we should be moving to a more institutional model, personally.

Professor Leach: Building on that, I would absolutely agree that training PhDs and thinking of new kinds of partnership models to make that work is crucial, but we also need to move beyond a simple focus on what our submission terms “centres of excellence”. That is very much the discourse that DFID and others have used in promoting science capacity building, which is about generating capacity, as it were, to compete on an international world stage on the scientific issues and debates of the moment.

That is really important but does not answer the question raised by Andrew about how we build the capacity to deliver innovations and applied technologies that will improve the livelihoods and health of people on the ground. That requires a broader approach both to individuals and institutions that recognises there is knowledge, innovation and capacity among citizens, small businesses, farmers, health practitioners and extension workers. Part of the requirement is to get those networks and people talking to one another so that science and research can respond to the needs of users and, in turn, can get out better to the people who need to make use of it and allow their innovations to flourish.

There, I think there is a role for some new kinds of institutions that might be linked to universities but also move beyond them. For instance, in the climate change field, DFID itself has been pioneering new climate change innovation centres where it is working with a group called infoDev. It has piloted them in India and Kenya. These are hubs that bring together scientists and business entrepreneurs—people who know about funding and local conditions—who can work together to generate new kinds of science.

Another model in the field of agriculture would be the Future Agricultures Consortium, which has been a kind of policy engagement research hub. That is now pioneering some Africa hubs, which again will bring together researchers, field people and policymakers to try to generate the kinds of research that are really needed. These new institutional experiments, as it were, are valuable and need better recognition and support.

Professor Westby: You asked particularly about supporting organisations or individuals. There is a role for both. There are issues of retention of individuals, particularly if they come out of the system to go back

into it. It is important to think through the issues in terms of how donors such as DFID create an environment that will encourage scientists to go back. From our own experience, there are three important things. Any capacity-building initiative should be locally owned, in the sense it is owned within the system so that there is an encouragement to return; secondly, it should be long-term; and thirdly, it should be carefully nuanced to address the real needs of whichever sector it is. In our case it is farmers or other people involved in an agricultural value chain. If you can test those three things, you can look at the balance between individual and institutional. I don’t think it is one or the other; it is a combination of them, but within a framework that encourages people to remain in the system and contribute towards development goals.

Dr Kirkland: The answer is that we need a balanced approach between individuals and institutions, but, following on from what colleagues have said, I agree that too little attention has been paid at the institutional level. The Committee may be aware, in the context of research, of a phenomenon that one of my colleagues at the University of Stellenbosch in South Africa has called the de-institutionalisation of research. The fact is that quite often research commissioned by donors is now undertaken by individuals, and the question is how far that expertise and capacity building penetrate down into the institution.

Another point I would make on institutional links, which follows on from something said by Professor Costello, is that institutional capacity building is not for the faint-hearted. For individuals, one can get them a degree or qualification, and that can count as a success; for institutions, it is much more difficult and long-term, and it requires a lot of understanding that we don’t have.

One example of that is in the field of access to journals, which is commonly cited as critical for scientific capacity building. Some research undertaken by my colleague Jonathan Harle at the ACU shows that most leading African universities now have electronic access to as many journals as the leading northern universities, yet the take-up is much lower and that cannot be explained simply by bandwidth and internet access. These are deeply cultural issues relating to incentives and relationships. I quote that only because institutional support needs a great deal of understanding and needs to be more long-term than individual.¹

Q28 Graham Stringer: Would you care to expand on that? It is easy to say these are cultural things. It

¹ Note by witness: It shouldn’t be implied that universities in Africa have the same access, or access to as many journals as in northern universities, but that they do have access to many thousands of journals, and that they compare much more favourably to northern universities than is typically assumed. A study I did suggested that, on average, two European universities had around 95% of a set of ‘top’ journals, and 4 African universities had around 80% of the same titles. If it would help the reference for this is Harle, J. 2010. Growing Knowledge: access to research in east and southern African universities. London: ACU (www.acu.ac.uk/publication/download?id=291).

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is very odd that a research institute is not looking at the latest research. Can you give a more detailed analysis about that?

Dr Kirkland: I could certainly let the Committee have the entire report, but two particular points come to mind. First, we tend to assume in the UK that good academics want to do research and it is a priority for them. Frankly, in some developing countries the incentive structure runs quite against that: first, because of the balance of time and an overwhelming amount of teaching; secondly, there is no clear structure for buying out time; and thirdly, as described earlier, the de-institutionalisation of research, whereby personal consultancy drives an awful lot of people's salaries and international exposure. Added to that are probably issues about the relationship between academics and librarians in this case; the administrators and managers may not be well enough respected, and so on. It is quite a complex mishmash of things. I don't want to digress too much into that, but I think the understanding of how institutions work in some parts of the world is something we should not take too lightly.

Q29 Graham Stringer: That leads neatly into my next question. Who is responsible for achieving a balance between policy-driven, practical research and more rigorous pure basic research? Who and how is that determined in developing countries?

Professor Costello: First, I challenge the assumption that basic is more rigorous than policy.

Graham Stringer: Okay. We won't go down that road.

Professor Costello: You can do very rigorous population-based research, which is often more rigorous than laboratory stuff—but it is a very good question. Remember, there is not a single African or south Asian university in the top 200, if you take out Cape Town. Most universities just teach; there is very little research culture there because they don't have the time and resources. A lot of the time, people in senior positions feel that they lack the skills or are disempowered about it. As to policy-relevant stuff, obviously the donors who fund most of the research or the major funding institutions set those agendas. There are always lively debates between those who want to do more blue-sky or more directed research. In the last five years there has been a definite trend towards the major funders, including people like the Gates Foundation, DFID and others, to be very directive, to a degree that is probably not healthy. They are asking specific questions and almost subcontracting universities to do precise bits of work. That, I think, is not necessarily a good thing. You may need a diverse range where you want to look at, say, gender empowerment or outreach agriculture and come up with some ideas. That would be a better way of doing it. The Gates Foundation almost always ask you to do something specific, whereas more mature funders like the Wellcome Trust or the National Institutes of Health in the States don't do that; they still want it to be largely research-led.

Professor Leach: To build on that, the dichotomy between basic and applied can be challenged, and a

lot of the best problem-driven research is a hybrid; it is a mixture of both. It is crucial that the broader power relations of the setting and funding of research leave developing country institutions a little freer to define those problems in ways that make sense to them on the ground in their particular settings. As Professor Costello has emphasised, some of the funding modes we have seen through the Gates Foundation and others have been rather too directive, or at least they have framed the issues in ways that respond to international concerns—grand challenges in health as seen from a global point of view—and that is quite off-putting to researchers who don't feel empowered to look at where they are in their countries, to respond to the issues that are emerging on the ground. Some of those more open funding mechanisms could really help.

Professor Westby: As I said in answer to the previous question, it is all about balance. We need strong policymakers, who are well informed and have a good background in the scientific issues. That then feeds through to funding, basic research and so on. When we talk about capacity building, it is most important to think about it across the spectrum. I hate to say it, but MPs need capacity building. Tony Worthington, who sat next to me, did a lot of work for AWEPA, but in developing countries MPs need to understand the issues in their constituencies so that they are better able to frame the right policies and laws. I think it is wrong to say we need more of this and that; if we are truthful, we need a lot more of everything.

Dr Kirkland: To make one point about policy uptake, I am not in this company trying to get involved in basic versus applied research, but it ought to be recognised that DFID has for some years perhaps been seen as a leader in this area. DFID was one of the pioneers of the idea that you build into a research grant a small element of the budget for transfer or dissemination activities. You can use all kinds of different words. It is now time to build on that. It was a great step forward, but it is increasingly recognised now that, however much you recognise it in the funding, many researchers and academics have neither the time nor inclination, or in many cases the ability, to be great communicators of their research. That is true in the UK as well as in many developing countries. At the moment the ACU is involved in a project whereby we are trying to move on from that to try to get institutional support on a more regular basis for those projects as they complete and come to fruition. It comes back to your earlier point about the individual or institution. There is a much greater prize if we can get institutions offering support for these kinds of activities, but it is not for the faint-hearted; it is a much longer-term strategy.

Q30 Graham Stringer: Professor Leach, are there any specific examples of projects where groups outside mainstream science are participating in capacity building?

Professor Leach: The climate innovation centres that DFID is piloting at the moment are an emerging example of this. We are talking here about an approach to capacity building that is about mutual

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learning more than the delivery of teaching or a PhD programme. It is about the kinds of capacities that emerge from perhaps quite diverse groups—citizens, farmer innovators, small businesses—who have been trying to do things at the innovation cutting edge and responding to day-to-day challenges in their lives, coming together and learning from one another about ways they might scale up what they are doing to other settings, and get funding to make an innovation fly and become something that can really operate. It is a rather different model of capacity building altogether; it is about an approach to mutual learning and mutual capacity to do things with knowledge, which moves somewhat beyond the conventional, slightly more top-down approach to teaching and training we have seen in the university sector. A group report called “The Capacity Collective” which I referred to in my submission brought together a number of international agencies and thinkers in this area a couple of years ago, and that gives a number of examples of this broader approach to capacity.

The other element that might be worth highlighting at this point is that, increasingly, the challenges faced by people in developing countries require approaches that go beyond the boundaries of specific disciplines. Many universities are still organised on the basis of departments dealing with agronomy, medical science and so on, or indeed have a division between the more technical disciplines and those coming from the social side. Yet, increasingly, many of the most important development challenges require knowledge from those different angles to be brought together, not in a way that creates a lowest common denominator squad. If you are tackling a health problem, say, you need some really sharp social science to understand the aspects of behavioural change with the sharpest minds from medical science. Often universities are not quite set up to do that. We have seen important initiatives in some of the UK’s funding, including DFID’s, of cross-disciplinary research programmes. There have been some very good recent examples in the environment and development field, including the Ecosystems Services for Poverty Alleviation consortium approaches, which try to think of science as including the social aspects. In turn, that opens up room for people who are sometimes mobilising around the more social and political aspects of these issues to come on board in these networks and learn from one another.

Q31 Pamela Nash: I am interested in the evidence you gave earlier. A lot of that feeds into questions that I am going to ask. I would like to think about how we can make the capacity-building initiatives that are taking place more long-term and ensure their success. Are there any key parts of that that you think we should incorporate that are not already included, or are there any examples of best practice you could share with us today?

Professor Westby: I go back to the three things I mentioned before. You mentioned the long term. The first point is the locally-owned nature of it. You may have some questions about SCARDA, a project for capacity building in agricultural research in Africa

that DFID is funding. The long-term nature of that starts with trying to fit capacity building within the agreed mechanisms that exist in Africa. Rather than parachuting something in, you start from where the Africans are starting themselves. They have a co-ordination mechanism, which is the Forum for Agricultural Research in Africa—FARA—against a generally agreed plan called CADAP. In our case that particular capacity-building programme was based very much on the needs identified in those countries and then working with sub-regional organisations and national organisations within that. The important thing about the long-term nature of it is to work within existing systems and try to build them up and make them more effective. Maybe I will leave that as a first point.

Professor Costello: I have two major concerns about the way a lot of stuff is done now through contracting agencies. A lot of DFID money goes through NGO contracting agencies at this end, which often work through NGOs at the other end. I run partnerships in India, Bangladesh, Nepal and Malawi, and I work through a mixture of institutions and NGOs locally, and both have advantages and disadvantages. If you invest through a university like UCL, Sussex or whatever, we are in it for the long term; we are not there just for the contract. All my relationships have continued. The longest is 22 years; the shortest is 10 years. Even when we go through a fallow period, we will still hunt for funding from other sources because we are interested in the long-term relationship and investment, whereas the NGO is not; it is interested only in the contract and its renewal, by and large.

But the second huge issue, which comes back to definitions, is what we mean by research and what we mean by the rules of evidence. One of our biggest concerns—both UCL and Imperial took DFID to task over this with the recent awards of research programme consortia—was the way it interpreted what research was. It awarded some of its consortia to international NGOs, which basically publish on websites and working papers. The World Bank does this; it does not subject it to the rules of evidence, which are peer-reviewed publications. We were extremely annoyed. I have run six major population-based trials. My interest is women’s groups and the impact on maternal and newborn mortality. We spend a decade investing in really high-quality stuff, and people who come along and write a case study for the Minister’s speech get the major research programmes. That is wrong and very dangerous, for reasons that can be seen if you look at climate change.

Every five years the Intergovernmental Panel on Climate Change reviews the entire world literature. Usually, more than 5,000 scientific papers are reviewed and put into their report. You will recall 18 months ago the stuff about Himalayan glaciers melting, which came from one NGO report that was not peer-reviewed. The whole edifice almost came down. Rajendra Pachauri almost had to resign as chairman of IPCC. Climate sceptics had a field day, saying this was not proper scientific evidence. Yet, if you look at an awful lot of the publications coming out of DFID—I looked at a whole review article last

year on cash transfers, which is a big issue right now—its rules of evidence would fail an MSc at UCL. It did not have any methodology about searching. Of the 170 publications it reviewed, 160 were websites, and it came to the wrong conclusion because it did not look at some of the published literature. To be fair, the chief scientific adviser in DFID, for whom I have a lot of time, and the head of research are trying to bring about a culture change here, but it takes a long time because most people don't abide by the rules of evidence by which universities have to abide.

Q32 Pamela Nash: That could be the subject of a whole other inquiry.

Professor Leach: It picks up a very direct capacity-building issue. Going back to African universities, researchers often don't have the confidence or feel they have the networks or nous to publish in peer review journals that will give the evidence the credibility it needs for both scientific and policy issues. It is one of the key roles in long-term UK research relationships. Anthony has established many; I have relationships with people in west Africa going back 25 years. It is partly about working, often in quite personalised ways as well as through departmental links, to enable researchers to get excellent ideas out into fora where they can be subjected to that kind of peer review and become credible on a world stage. That is also a long process.

Q33 Pamela Nash: One thing I want to go into is the promotion of better career structures for researchers in developing countries. Do you think Government have the responsibility in promoting that, or is it just universities and NGOs that have these partnerships? How can we help to make sure there is a career structure and there is also confidence and capacity building to allow those researchers to have their work published?

Dr Kirkland: It is a very important issue and one that historically has not been thought through very well. Historically, the support given for developing the career of researchers and academics at the start is by way of scholarships—the UK and DFID have a good record on scholarships—followed perhaps by mid-career training or what we call typically fellowships. One of the problems is that the fellowship world tends to concentrate on people in their mid-40s, if I may say so. When somebody returns home with a PhD, they are assumed to have had their share of training for the last few years and therefore should now get on with building a career. In 10 years' time they may need some updating and so on. One tends to find from the point of view of the career of an academic that in their mid-40s, if they are doing well, suddenly they are inundated by fellowship providers who will give overseas fellowships. When they get to their late 40s or 50s they are too old to have support from outside, so it is a very disjointed attitude.

Q34 Pamela Nash: Is the structure you have outlined a UK one only?

Dr Kirkland: I think it is international.

Q35 Pamela Nash: In the developed world?

Dr Kirkland: No. I think it is the way in which the developed world tends to see the developing world, if I may say so. If I may declare an association with the Commonwealth Scholarship programme, which DFID supports in the UK, we have high numbers of students returning home. The brain drain in that sense has not been a problem, but some of the problems they face when they return home are quite unexpected. One can say there is a lack of equipment and facilities, but in some cases one problem they face is receiving promotion too early. To be made head of a department in an African university is a double-edged sword, because it means that critical years of research can be spent working out timetable rotas and things like that. Our students are very well-regarded—in fact, in some ways too well-regarded because they are promoted too quickly.

In answer to your question, there is a lot of scope for free thinking about how we support those people within the critical five years when they go back. Traditional postdoctorals of one year here and one year there are not the answer. One way is to keep a contact, say, with their home university in the UK in an innovative way while they are still working in Africa or wherever. I am sorry that is a rather long answer, but it is a very important issue.

Professor Westby: One interesting scheme with which I had a very long association was run by the International Foundation for Science in Sweden. That provided relatively small amounts of money—\$10,000 to \$12,000—to encourage scientists, once they got their qualification, be it an MSc or more usually a PhD, to go back, have a bit of money to enable them to get going and get a bit of a reputation, and take forward the publishing that they did before. It is also important to think about the type of research that researchers are doing if they come to the UK. Almost all of the scientists in my institute are involved in split-type programmes where they work on real problems related to their own countries. They get UK experience and the benefit of better facilities and things like that to advance their research, but they are able to spend time back in their own countries tackling real problems. That helps in the transition to become better researchers. Someone who has come here and worked on strawberries and goes back to a country that does not grow strawberries has the right research skills but they won't become involved in the system. The fact they are involved in the system is just so important to doing it.

The other point is the extent to which those early career scientists can become involved in larger programmes and projects. From my own experience of the University of Agriculture in Nigeria, somebody came on a Commonwealth-funded split fellowship. He spent nine months with me. We built on that relationship over many years. He is now head of department. We have awards from the Gates Foundation to do ongoing work and things like that. His old university, largely through him, has come up the rankings. They were so pleased that they got into the top 30-something of African universities, which ain't bad for an agricultural university in Nigeria.

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They are the third best in Nigeria. That is just one example. The danger of all these things is choosing the one example, but in many ways it can indicate the common things about the importance of this early career stuff. What John said about not getting too involved in administration and things like that too early is an issue, but it has to be for the universities themselves to work out.

Professor Costello: It is a kind of public-private partnership but keeping them within the system. The dilemma most people face is having a run-down, demoralised big teaching department on a low salary but some security versus going off to the attraction of very well paid freelance consultancy work. I was just in Malawi. There is a fantastic guy who should be head of education in Malawi, but he is a freelancer doing consultancies for every donor that comes along. That is a negative thing. The Wellcome Trust is trying to take its excellent research centres and embed them more within the national system so that there is private money coming into it, some of which is run autonomously and accounted for so that you do not have all the bureaucracy and red tape of a university, but you keep it within the system.

Q36 Stephen Mosley: Professor Westby, you just talked about a gentleman who was doing a split fellowship.

Professor Westby: I am sorry; he did a split fellowship 15 years ago.

Q37 Stephen Mosley: In the 2004 report done by our predecessor Committee we highlighted the advantages of studying for PhDs by doing a split site or distance learning. We have figures showing that only 4% of Commonwealth Scholarship Commission students did some sort of split scheme over the past four or five years. Should we do more to encourage distance learning or split schemes? If so, what should we be doing?

Professor Westby: I think there are two separate issues. One is the split site and the other is distance learning. I don't mind addressing both. I am sure John would have something to add to both of those. As to split sites, from my perspective, the ability to work on real problems, learn new stuff here and build up linkages with the UK community, or whichever community they are in, and still maintain the linkages in their own community is very important. It is all about the relevance of research and things like that, which is really important.

As to distance learning, you have to look at it not purely at the PhD level. There is a gap in the market at present in terms of what distance learning could offer, particularly in the agricultural sector. For example, the Open university has very good programmes at present in primary school education and in the health sector, but currently it does not do anything in the agricultural sector, not PhD-level training but extension worker training and things like that. There is a gap in the market in terms of what distance learning could offer. Technology is taking huge steps in Africa. The missing bit that we went through has gone. We don't bother with land lines any

more; we go straight to mobiles. More and more information will be available to people through information centres and things like that. We need to be forward-thinking in terms of science and how those new technologies can be used.

I appreciate what John said about libraries and things like that, but in general, researchers in Africa are becoming much more connected with themselves in regions and also with outside partners such as us. Partnerships are also important. If distance learning is to work, it will be a partnership arrangement working with local institutions that are able to support it, not just throwing information out there and hoping someone uses it, but providing a local point of contact to use that information and move forward.

Dr Kirkland: Perhaps I may answer that question with particular reference to Commonwealth scholarships, which you raise. You are quite right that the 2004 report highlighted very favourably the innovation that was taking place. Since that time I think three things have happened. On distance learning, the numbers have risen considerably, typically at masters level rather than at PhD level, very much, as Professor Westby said, in collaboration with local partners. We don't offer distance learning degrees on a one-off basis; we do it in groups through individual universities. Although it takes time to evaluate that—we have been doing it for eight years now—the pass rates are very encouraging.

Formal split site degrees have expanded less quickly for a number of reasons. First, because our bases tended to be just with the UK university, we have been very concerned about what is happening at the other end. Typically, our model of split sites, for legal reasons connected with the Commonwealth Scholarship programme, has been allowed to support only the UK end of the degree. That could be broadened. We are a little wary about having an island of a year in the UK, or whatever, and people not being able to complete quickly when they go back. But, again, the success rates of those degrees are now encouraging.

The big growth area, which is not too far from split site PhDs, is the proportion of students who are now undertaking very substantial amounts of field work in Africa or other developing countries as part of their degrees. Our regulations are changing on that almost on an annual basis. It is now not unusual for a student on a three-year PhD programme in the UK to spend six or nine months in a block, still under UK supervision, in-country doing work that is relevant in the home country. While the formal PhD structures have expanded relatively slowly, the distance learning model and the proportion of time spent back in developing countries is expanding much more quickly. I would say it is almost the norm.

Professor Costello: If that is true, I am staggered by your statistic. I would not take anyone unless they do a split site and have a very substantial component where they do field research overseas with us in partnership and our supervisors go out there. I am absolutely horrified to learn that only 4% are doing that. If that is the case, I think there should be a massive move towards that. You should have our

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researchers going out. That is what happens in our institution, so I am rather staggered to learn that so few do it.

Professor Leach: What we have here is a distinction between the formal definition of “split site”, which needs to be looked at, and the real practice, as Dr Kirkland and Professor Costello have said, which is exactly the same in our institution and is standard in development studies. A student perhaps comes to the UK, spends nine months at Sussex doing literature work and then goes out to do, often, a year of field work for which they would be affiliated to a local institution—usually a university. Then they come back and write that up, but in the process longer-term relationships are established with that university department. Perhaps more could be done to formalise the capacity-building aspects and institutional links that are created so that it is not just the individual but supervisors more often go out. That might be a question of funding and some additional funds for supervisory visits in capacity building. I am sure that Commonwealth scholarships in that sense have been doing much more of this split site stuff informally than is actually registered. It has certainly been the case for the Commonwealth scholarship students I have supervised.

But I am also wondering whether DFID might be encouraged to talk further with the UK research councils, which are the major funding bodies for studentships for UK and European doctoral students. I have a research centre that has linked studentships, but we are constantly frustrated because they have to be British or from the EU. DFID, in partnership with the ESRC, NERC and so on, is involved in a whole range of other areas, including the excellent DFID/ESRC poverty research scheme and a whole range of other cross-council interdisciplinary programmes. I wonder whether it might be time for DFID and the research councils to talk a little further about potential joint funding of PhDs under the same kind of model that would enable international students to access the kind of arrangement of which Commonwealth scholarship students have had the privilege for a significant time.

Dr Kirkland: Perhaps I may clarify the 4% statistic that you quoted. I make two points. First, I suspect that that figure is 4% of the total number of scholars we have at any one time, and we would count a split site only as one year rather than a three-year programme. Therefore, in terms of new awards I would be right in saying that we would offer about 30 split sites out of about 400 or 500, so the figure would be higher in terms of new awards each year.

Secondly, in terms of definition, as Professor Leach said, “split site” in that very precise sense would not be a degree awarded by a UK institution. Those split site awards would be students who were undertaking their PhDs at developing country universities and came to the UK for one year as part of that. It certainly would not include the number of students who come to the UK under the supervision of Sussex, UCL or whoever, and returned to their home country to undertake substantial field work of the kind Professor Costello described. I would be very happy

to give any further figures independently that might be required on that.

Q38 Stephen Mosley: The figures we have are that between 2007 and 2010 there were 97 awards for split sites.

Dr Kirkland: That would be about right; there are 20 or 30 a year.

Professor Westby: When you talk about split sites, distance learning and things like that, which make the most of the UK science base in that way, what is important is building the capacity of the universities of African or developing countries such that the quality of their supervision and awards also improves. UK universities can play a major role in those partnership arrangements to try to do that. In the longer term it should not be about people coming here but people being able to get good education where they are. The Natural Resources Institute is committed to these longer-term partnership arrangements, which are so valued by the organisations with which we work. Very often the problem is funding them on a sensible basis and not cross-subsidising them from other things.

Q39 Stephen Mosley: I want to follow up Professor Leach’s reference to research councils. I will start not with Professor Leach but with Professor Costello, for obvious reasons. The UCL Institute for Global Health has stated that DFID’s research programme consortia model has not worked successfully. Professor Costello, would you agree with that statement? What are the problems with the model, and how could it be improved?

Professor Costello: I did not write that. It has its limitations. I have run three research programmes over 15 years, so I would not say it is a complete failure at all. There were aspects of the last call that worried us, such as the attention given to peer-reviewed research, the importance of rules of evidence and that kind of thing. Within DFID there appear to be two different views. There is an evidence element, which is very keen to bring an evidence-informed culture to the organisation, but also there are people who historically have seen short-term consultancies and working papers as what they call research. There are definitional issues there.

Another issue we have been concerned about is that it is too directive of what it should do. Also, there should be in-house capacity at DFID to look at the value of evidence, to be interested in it and to cope with it. There was a period in the past—it is now changing, certainly in the last 18 months—when the technical advice to DFID was very limited and it was very overstretched. By the way, there are some fantastic people in DFID. These things are changing. Michael Anderson, Chris Whitty and others are trying to bring about an evidence-informed culture to DFID in trying to change the system, but it is a slowly-moving juggernaut.

Dr Kirkland: I don’t have anything to say about whether the RPCs are working as such. One point I throw in is that there might be more interaction between the research commissioning side of DFID

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and capacity building through scholarships and other activities. As someone involved on the scholarship side, we would very much welcome that interaction. We have started in a very small way, as Professor Costello knows. RPCs are invited to nominate students for PhD studies through the Commonwealth Scholarship scheme. That kind of interaction could be expanded, because it would enable us on the scholarship side to ensure we got high quality relevant scholars and also, on programmes like split sites, to ensure that they have an environment in which to work when they are doing the developing country element of their work that is conducive to good research. That area could be considered further, but I would not want to make any comment on the effectiveness of the research programmes.

Professor Leach: I speak as a fan of the RPC model. My institute has been involved in five or six over the last decade or so. It is a really important way to build precisely that kind of long-term partnership and mutual capacity. If RPCs work well, the UK researchers learn just as much from working with Latin America and African partners as they do; so it is in itself a capacity-building process through the RPCs. I emphasise that they need to be about research and quality of evidence, and that kind of emphasis is critical. To my mind, the recent round of RPCs has moved rather too far in terms of the requirement that 20% of funding goes to communications and towards the kind of directive, logframe, impact orientation that stifles the creativity and intellectual curiosity of researchers. Therefore, a little more freedom to enable researchers to pursue ideas that really matter and then to publish them in proper peer review places is critical.

There are also questions of power. There are good and bad RPCs, and the ones that have worked less well have been where a UK institution has ended up running the show too much and the power imbalance with respect to the capacity of the southern partners to help set agendas is incorrect. I know that DFID has been desperate to have some that are genuinely southern-led. That has proved quite elusive, partly because the administrative and managerial requirements of running an RPC are much greater than most African or even Asian universities can manage.

That creates just one more capacity-building angle to this, which is that capacity building in research management is quite an important area and will become more so if we want to see developing country institutions and universities taking the lead in some of these international consortium arrangements, as they absolutely should. It is a neglected area where the UK has built up a lot of capacity and new jobs and roles—RPC programme co-ordinators and so on—yet there is very little funding, incentive or arrangement through which they can transfer those increasingly important skills that African universities need.

Professor Westby: From my perspective working mainly in agriculture, there have not really been RPCs in agriculture; it is more in other areas. We have had some involvement and positive experiences in being involved in them. In theory, it sounds a good idea.

Q40 Stephen Mosley: Perhaps I may press you specifically on something else. I know that you were involved in SCARDA—Strengthening Capacity for Agricultural Research and Development in Africa—which ended in December last year. What were the main outcomes of that project, and how do you think DFID should support agricultural research in future?

Professor Westby: Those are two very different questions. SCARDA itself is very much a capacity-building initiative. It was supposed to be a pilot programme that could then be scaled up and scaled out beyond that. From that perspective it fits my criteria as being a long-term programme. It is just at the point of finishing. We are doing a systematic review for DFID on capacity building, which hopefully will inform its next investment along this line.

As a process and project it has been successful. There have been benefits at three levels: individual, organisational and institutional. Initially, the project worked on the basis of a report produced by FARA—Forum for Agricultural Research in Africa—saying there was a great capacity gap that needed to be filled. DFID was responding to a need. When the programme started, it worked with FARA and a number of sub-regional organisations, which then selected some focal countries. Within those focal countries a number of institutions were chosen on which the capacity building was focused.

There was then a needs assessment for those particular organisations. What did they need to improve the quality and amount of research they were then doing? On the basis of that, there were a number of different training workshops or experiential learning activities. MScs were supported; there were a number of short courses; innovation platforms were developed to scale out research on a small-scale basis to build organisations' experience. It was very much demanded and the training was linked in to what those organisations needed. For example, in The Gambia it was decided that they needed MScs in this, that and the other, but in Lesotho they said they did not need any more MScs but more experience of working with other partners in the so-called innovation-type platforms. There were different things in different countries.

You asked me about the benefits. There were a large number of researchers and actors in the agricultural research for development area who were trained. About 80 MScs were trained and the vast majority—over 70—were trained within Africa. There was a building of African capacity to deliver MScs, which is really important. Many of those award holders from overseas have gone back to their organisations. As a result of the training they have had and training in proposal writing, they have gained additional money from within their own systems to do research.

At organisational level, the external evaluator of the programme said that, from what he could see, there was greater efficiency in the focal institutions in how they were carrying out their research and their research management processes; there was an increase in the number of projects that they won externally and also an increase in the publications generated by those

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organisations. An example of that is the Crops Research Institute in Ghana.

At the institutional level, in southern Africa, in the SADC region—Botswana, Lesotho and Zambia—they have adopted new ways of working. Rather than doing the traditional research in an ivory tower, they are developing partnerships with known research actors, and that has been a facilitated, supported process. In Lesotho, a new agricultural research development forum has been developed, which decided to focus on smallholder poultry as a case study that they will work through together. Benefits have been very much at different levels. It is embedded within what those individual institutions need but supported at the regional level to get the regional learning as well, all within the context of what Africa is trying to achieve in terms of agricultural development within the country.

Chair: Before we move on, I go back to Mr Mosley's questions about split sites. So that there is no confusion in definitions, it would be helpful if each of you could submit any additional evidence about the proper interpretation of the data as you see it so that there is clarity in our thinking on that.

Q41 Graham Stringer: To go back to DFID, how good are they at co-ordinating with partners in capacity building, particularly at the large end? Are they any good at reaching out to smaller entrepreneurs and businesses that might not be part of any formal structure?

Professor Costello: They are very stretched. One issue that has come up earlier is that there is a research group to DFID that is largely centrally based, and then there is the in-country group, and often there have been problems in trying to get the two to connect. That is an organisational problem, and it has been very difficult to crack. They are very well aware of it, and it has been around for 10 years or more. Sometimes it works very well. I was in Malawi last week. The country representative there is very sensitive to this, and we have a very good working relationship. By and large, I have had quite good experiences, but in other cases it has not worked very well.

As to your specific question about DFID reaching out to entrepreneurs, oddballs and people out of the loop coming up with good ideas, I doubt that they are very good at it, but I am not sure it is their role. I would have thought that is where the contractor, the university, college, NGO or international institute should be incentivised to do that kind of work. It is interesting, but I don't think it happens much. I might be wrong.

Professor Leach: It is patchy. There is recognition within some bits of DFID that this is an important role. There are some areas where it is trying to do that and supporting it. The Future Agricultures Consortium, which DFID supports, is actively doing this through its consortium partners, but it is through an indirect route. There are some DFID country offices that actively do this kind of reaching out in particular areas, but often it depends on the personality of the individual and their particular interests.

The other mechanism within DFID that has done this to some extent is the senior fellow programme that it started three or four years ago. I believe that was a direct response to being very overstretched and the gap that often existed between the central research department and policy division. This initiative was taken basically to recruit, sometimes on a full or half-time basis, seconded UK academics to base themselves within DFID in particular areas of work over a period. Some of those individuals have done a great deal of work because of their particular interests in reaching out to small businesses and entrepreneurs in different areas. I know that David Grimshaw, who came in from Practical Action, was sitting in the research division on science and technology. He has done some fantastic pioneering work on small businesses and innovation in various countries. The answer is that there are little pockets of best practice in this area, but it depends on personalities and particular whims; it is not something that is institutionalised.

Professor Westby: Can I add another example to the cause? In the kind of research in which we as an institute have been involved that has been DFID-funded, our capacity building has run alongside our research activities, and it is sometimes very hard to separate them and say something is this or that. An example of that is the work done under the Research Into Use programme, which is trying to have impact. If you are trying to have impact on the ground, you need to work with multi-stakeholders, be they the civil society, the private sector and so on. It is those types of things that have worked very well. For example, not funded by DFID, currently I run a very large Bill and Melinda Gates Foundation project, which is doing exactly those things within a cassava value chain, building the capacity of the private sector and others to engage within a research-type process.

Looking at capacity building separately is difficult; you need to look at research and capacity building together to answer that problem more fully. It is something with which the EU is also struggling. On Monday I chaired a multi-stakeholder support project that the EU is running. It is a challenging process, which takes time, to bring research and non-research actors to work together and then win money on top of it. So it is a challenging process that does take some time.

Q42 Graham Stringer: Dr Kirkland, how can the Research Capacity Strengthening Group of the UK Collaborative on Development Sciences be used for greater collaboration in programme design and implementation?

Dr Kirkland: That group has been a great success in a fairly modest way. It has been an attempt to bring together various academic and organisational groups like ours. I am not sure it has the formal inroads into DFID that are needed. From my fairly limited experience of the group, it has led to some very good discussions and informal contact-making, which certainly affects, speaking for the ACU, some of the programmes we do. The libraries and journals programme I mentioned earlier, which has brought us

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far closer to bodies like INASP and others, is an example of that.

To answer your question about how it could be used more effectively, it might be helpful if it had more senior level representation among some of the organisations that come to it. I hesitate to say it, but maybe there could be a better formal channel to DFID, although, to be fair, DFID does send representatives to the groups. There is always a risk in losing informality, particularly when one has groups that are essentially bidding for funds together. A fine balance needs to be struck between the need to preserve informal useful interaction and the need to be able to feed in, as you say, to the design of policy.

Q43 Pamela Nash: Dr Westby, in the Natural Resources Institute's evidence to the Committee it was suggested that DFID's in-house expertise in agriculture science and technology was less than that of its predecessor in the ODA. Do you agree with that assessment? Do you think there has been any restoration of that quality of expertise since the chief scientific adviser's post was created in 2004?

Professor Westby: Our feeling a few years ago was that that was the problem, in that you would go to an office in Africa and would be searching for someone who knew something about agriculture, and it would be called something else—the private sector or whatever. But there was certainly concern about whether DFID had that expertise. In the last year, which is probably a result of the chief scientist's actions, I have seen much more emphasis on recruitment into those types of positions. We now see titles like food security adviser, and the whole link with climate change is coming through as being important. From my perspective, we went on a bit of a lull, but agriculture in general, in the whole donor community, went on a real lull. It was only the World Development Report of 2008 and the food price crisis, which everybody else remembers and has carried through to now, that has brought agriculture back up the agenda and made it far more important. To us, it has been a bit of a turnaround from how it was. I think this Committee in its last report played quite a big role in supporting that.

Q44 Chair: Is there a strong message there to the Foreign Office about making sure that the network of science counsellors is up to the job in all countries? It is usually very strong in countries where we have bilateral relations and a high level of science endeavour, but in developing countries historically they have not been the strongest.

Professor Westby: Is it the difference between the Foreign Office and DFID?

Q45 Chair: Yes. They are based at our diplomatic missions, aren't they?

Professor Westby: They are, but more and more I am seeing separation between the two. You go to a DFID office or the high commission, and they are not necessarily the same organisations. I don't know whether others have had the same experience.

Q46 Chair: But you would want to see emphasis on strengthening it.

Professor Westby: That would be important and sends the right message to the countries themselves. From where do countries take their lead? If someone is there saying, "Yes, science and agriculture are really important. We have someone based here who will support your national system in doing that," to me that sends a clear message.

Professor Costello: You don't want to turn DFID into a university; you want its people at the highest level to understand about evidence. They can come from a different technical background but still understand the application of evidence to other areas. One thing DFID has done well in the past, and could do more of, is organising conferences where multi-disciplinary groups from policy and the research sector are brought together to talk. I have been to some great meetings it has run on that subject. You can also use its video conference facilities to link up with DFID offices overseas. At relatively low cost you can get some incredibly creative exchanges of ideas. I think it should be doing more of that.

With the appointment of the chief scientific adviser, currently there are lots of moves in DFID to try to sensitise all the different people from an administrative or economic background to evidence approaches. I think that will pay dividends over time.

Professor Westby: It is very important that DFID uses the UK science base. I do not think it uses it, certainly in agriculture, as much as it could. If it is not careful, it is not going to be there if it is not used and properly supported. There are still some issues on that side of things.

Professor Leach: I agree with that. DFID won't be able to recruit enough people in-house in London to be able to cover all the areas of expertise it needs to cover, so maintaining these linkages with the UK academic community is crucial. The senior fellow programme has helped with that. Some of the cross-council research programmes—the DFID/ESRC poverty scheme, some of the ESPA schemes, and the new one about to be launched on zoonotic disease and so on—are important in creating those connections.

It is not just about technical science expertise. I would like to see much stronger links between the social development advice area—the people who work on governance, human development, women's empowerment and so on within DFID, whether it is in country offices or centrally in London—and those taking on the more technical areas, be it agriculture or health, because it is at the interfaces of these things where science, technology and development can work with one another. We have sometimes seen a disconnect between the social and technical within DFID that needs to be overcome.

Dr Kirkland: Can I make two general points? I am not qualified to answer in the particular context of agriculture or other disciplines. First, as Professor Leach said, it is very important that DFID uses the expertise within UK universities. I strongly endorse that. I am not sure that the structures exist to tap expertise in developing country universities outside

particular projects. That might be something that could be looked at.

Secondly, a general issue about knowledge capture within DFID has come out of a number of comments by colleagues. Although, as Professor Costello said earlier, groups such as UCL, Sussex and so on have developed a lot of knowledge over a long period themselves, I am not sure that is happening within DFID itself. You may want to come back to that if you were going to ask about evaluation and so on in the long term. There is a danger that, perhaps because of artificial distinctions between what is project funding and what is administrative funding, DFID might disengage with a number of the projects it is funding, as a result of which long-term knowledge might not be captured within the organisation itself.

Q47 Pamela Nash: That is helpful. You have all touched on this, and I am sorry to pick apart the evidence that was already provided, but it is of some concern to me. Also, in NRI's evidence, it is stated that there is "an absence of a clear strategy or view within DFID on capacity building for scientific and technology in developing countries". Obviously, this is quite a serious accusation. Do you agree that is a problem with DFID?

Dr Kirkland: I suspect DFID would cite a lot of examples. I don't know whether it is joined together in a coherent approach. That is something I would say about universities. It is very welcome that DFID has now come back. There was a period, as you will know, a decade ago when universities and higher education were seen as virtually outside the development debate and not as a priority. Happily, that has now changed, and in many individual cases DFID has shown its recognition of that. Whether DFID has a policy for universities—I am not talking about a funding stream—is a different matter. Others will be better placed than I to know whether a similar comment could be made about science development more generally.

Professor Costello: I do not think we should over-criticise DFID. Equally, we take short cuts. I have worked through NGOs rather than universities because it was going to be much more feasible and pragmatic to get a particular project done. There is a growing awareness among all of us that these short-term benefits have a long-term opportunity cost and you have to restore the balance by trying to strengthen universities. Everyone in this room probably went to a university. Universities are absolutely key institutions for development. I know of no developed country that does not have a functioning university system to improve its governance, structures, regulation, education—everything—and that is what we have to try to invest in. It is difficult, and I am sure we have all cut corners in the past. I would not beat DFID over the head about this. A lot of people in DFID are well aware of that but also the problems and pitfalls.

Professor Westby: It sounds much more critical than we intended it to be, because we are very positive about a lot of what DFID does. The key point we were trying to make was about the degree of joined-up

thinking. DFID has managed to mainstream capacity building across a lot of its initiatives, which is to be welcomed, but it is the joined-upness of that. You need additional capacity strengthening initiatives like SCARDA, for example, that bring together all these different things to an extent. DFID also needs to be a good member of the donor community in getting the joined-upness working between ourselves and what the EC, the World Bank and other bilateral donors are doing. There is some work to be done in the joined-upness of capacity building across the donor community of which DFID is a very important part.

Q48 Pamela Nash: Do you see this as improving, or is it a continuing problem?

Professor Westby: I made the presentation on capacity building at the recent G20 conference on agricultural research and development in Montpellier. Of the three things that the French presidency pulled out, to me the important one was capacity building. One of the main things to come out of the discussions among the G20 nations was the need to be more co-ordinated in what they were doing, because they were all doing slightly different things in different ways. How could you become much more effective in doing it? In addition, one point that DFID makes is to understand what works and what does not, and to have the evidence base there. The systematic review that we are due to finish during March will, hopefully, contribute quite a lot towards that.

Q49 Pamela Nash: I am sorry, because I feel I am picking apart everything that was sent in. Just looking at the memorandum submitted by the STEPS Centre, there was a call for greater integration and working together of development advisers within DFID, and perhaps a role for the CSA in doing that. Is the fact that that co-ordination does not exist something you would identify as a major problem at the moment?

Professor Leach: As I mentioned a few minutes ago, there has been a persistent divide between the more technical advisory areas in DFID to do with health, agriculture and so on and its very strong social development capacity, which looks at socio-economic issues, the governance aspects of poverty, questions about gender and so on. That is partly because, often, staff capacity is short; people have their own interests. The social development areas are ones where DFID very much leads the world and is recognised as doing so by other agencies. The technical areas have been deeply neglected and are now coming up, partly through the influence of the chief scientific adviser, but there is still a knitting together and dialogue that does not always happen. There are some examples where it is beginning to do so. For instance, in the area of climate and energy there are really good discussions that bring together the social and technical dimensions. I think more of that needs to happen, and it requires institutional mechanisms when new programmes are being designed and new policy areas—and, indeed, research programmes—are being designed to make sure the different disciplines are part and parcel of those discussions. It is coming; there is

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a recognition; but I think a further push as to why this is important is needed.

Q50 Pamela Nash: Dr Kirkland, in your submission you described the current arrangement where DFID's chief scientific adviser is also head of the research and evidence division as being problematic. Will you clarify that and explain to us why you feel it is a problem?

Dr Kirkland: It certainly was not a comment on the post holder, who I think commands very wide respect, but it seemed to us that, given the huge and to a large extent welcome evidence on monitoring and evaluation within DFID, there was an issue about having the individual most concerned with commissioning research being involved in drawing the conclusions from that exercise. I do not think we meant anything more damning or critical than that. It seemed to us to be a curious conflation of roles, but it was not in any respect a comment about the current post holder.

Q51 Pamela Nash: You also mentioned that you felt there was a greater need for co-ordination between the DFID scholarship mechanism and the research and evidence division. Is that lacking at the moment?

Dr Kirkland: It was a point that came up earlier. The research programmes of DFID have as one of their key themes capacity building. The scholarship programmes are very successful in that respect, but there must be more that can be done together. That has started. The major long-term research centres that DFID funds now are invited to identify and nominate PhD students who can work with them. I think that is a step forward, but in the longer term, if the research programme is about capacity building, clearly more communication with the scholarship programme would be welcome.

Q52 Stephen Mosley: Following on from that, how do you monitor and evaluate whether the capacity building has worked?

Dr Kirkland: I can answer that in regard to scholarships. We have a programme that has been going for several years. I don't think we claim to have discovered everything in the methodology. It is amazing how little international methodology there is in areas like this, but, for example, we now know where a very large proportion of our students—our alumni—are; we know what sectors they are in and, by and large, the levels of seniority they rise to; and we know what countries they are in. All of that evidence is encouraging.

We now need to address the very tricky questions of attribution, for example, to be sure your students are working on relevant projects in relevant countries, and to what extent that could have happened without Britain having a scholarship scheme. We need to drill down further into all those things, but our evidence in those areas, in particular the very large percentage of students who are working in their home countries, is a very good first step towards that. DFID has encouraged the scholarship programme in particular to develop that further over the next few years.

Professor Leach: This is a difficult area. Despite the challenges, it is rather easier when you are talking about individuals and tracking where they have got to. The big challenge is monitoring and evaluation first of institutional capacity development, where it will often be less tangible and measurable how a university or another institution has emerged over the years. There will also be multiple influences on that. It will be less easy to track that it was the UK's inputs that enabled this university now to achieve its research ratings. It might have had other donors and so on. I think qualitative impact stories about tracking backwards from where an institution is now to the influences on it will be important.

The other area is new institutional arrangements that ought to be part of the way we monitor and evaluate. What new networks, initiatives or institutional fora happened as a result of UK capacity building that would not otherwise have happened? Some of that will be qualitative; it will be about a forum that did not exist before, but also a qualitative narrative—a story, as it were—about what things are happening for whose problems that did not happen before. This is a bigger challenge about measuring impact, which the UK research community more broadly is facing in the context of the research excellence framework and so on. Everybody is now expected to produce impact, and it is recognised that those impacts cannot always be monitored and evaluated with clear, easy numerical indicators. Impact and capacity-building stories will be part of the metric we have to deal with.

Professor Westby: I very much agree with what has been said previously. It is problematic. DFID has used and does currently use logframes as a method, which has milestone indicators. Some of those are more difficult to quantify. If I revert to the answer I gave you on SCARDA and what SCARDA has achieved, I ended up telling you a story about the different things it had achieved at different levels. You referred to the fact that it was a combination of metrics in terms of the number of publications, PhDs, MScs and so on, but the other thing is what that has gone on to achieve. What impact has been achieved at the end of that? That is rather more difficult to get to, but we need to get there to justify the investments that need to be made in capacity building.

Professor Costello: The national institutions' metrics are a bit like our own: grants in; papers out; first authorship; last authorship; being a principal investigator or co-investigator; whether south-south collaborations have started up; the number of PhDs within host institutions or masters programmes and the like; what their university ranking is; whether people stay in post or migrate. There are a lot of quantitative measures, but I agree with Melissa that there is also qualitative stuff, but you want to see an institution grow over time. That has been seriously neglected by everybody—all the funders—over the years and they now realise they have to address it, and it is not easy.

Dr Kirkland: In general, the emphasis on monitoring and evaluation is welcome, but there is a great danger that it will be monitoring and evaluating projects that are of two, three or five years' duration, and we need

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to find much more sophisticated models to find out, for example, what is happening to DFID's investments of 10 years ago or indeed what in 10 years' time will be happening. At the moment the logframe and so on is designed very much on the project, which is a danger.

Professor Costello: Another thing is the impact on policy. Does a lot of this evidence influence policy? On that point, we have done work in Nepal, but evidence from Nepal will not influence the Indian Government. When we did it in India it had a powerful effect on Indian policy. You have to recognise the need for host champions and academics doing the work to influence their own policy. You can do fantastic research in an international institution, but if the nationals do not want to believe in it or have a sense of ownership it will not influence policy. There is a key element in getting that evidence into policy and practice stuff around building the host institution.

Q53 Stephen Mosley: All four of you when answering have responded in a very positive way. You have been talking about how you measure achievements. Surely, there are some projects that don't succeed—some projects fail. We have heard evidence that sometimes it can be difficult to get a candid evaluation, because if you are going out there and doing research, and you turn round and say, "This didn't work," it might be difficult to get a grant next time. How can we encourage researchers and funders to tell negative stories and to be honest about what didn't work, as well as what did?

Professor Costello: Do you mean results of studies, because negative findings from good studies are really important, or do you mean studies that were done badly?

Q54 Stephen Mosley: A combination of both. There can be studies that have been done well but don't have a positive effect.

Professor Costello: But they are really important. I have done some very important negative studies because they told funders and donors not to roll out programmes. In our portfolio of cluster randomised control trials of women's groups we have had four, soon to be five, with very positive effects and one negative one, which taught us about the dose relationship. We realised that our coverage of groups was inadequate. We fixed that. We have run it for another two and a half years and we are now getting positive results, so you learn an awful lot. There should not be publication bias towards only positive results. On the other hand, your question might touch upon where you try to set up a study and the whole thing fails, and that is a different question. I think you are right; we should be very honest about that.

Dr Kirkland: There is some truth in what you say. If you hire a group of individuals to do a project, they will invariably want to say that the project has succeeded. There are two answers. First, evaluation has to be much wider than individual projects—that is too narrow a definition. Secondly, in the current environment I sense a danger in evaluation to be seen by DFID officials as being at the expense of

engagement. Sometimes with the great constraints it has, particularly on administrative time and whatever, there is a danger that people say, "Our way of finding out whether or not this has been successful is to devolve everything to an evaluation mechanism", and so on. If we lose the notion that DFID officials, particularly on large projects, are engaged with the project as it develops, the danger you identify is a real one. DFID needs to be seen to engage as the project develops rather than simply relying on a mechanism five years afterwards to say whether or not it succeeded.

Professor Leach: I very much agree with that. We were talking earlier about the RPC model. Those are programmes of enormous challenges. There are failures and learning processes along the way, not just about evidence and results and their effects, but also about how you manage a partnership and deal with contracts and power and relationship questions concerning people from very different backgrounds who are now expected to work together. The best of the RPCs have been very self-critical and reflexive as they have gone along. They have encouraged among the participants, indeed sometimes with DFID minders involved in those programmes, some very self-critical reflection from which they can learn in a long-term process.

It is absolutely crucial, because in an area like capacity building there are all sorts of areas where there is no right and wrong; it is about trying it out and learning from it. We need to encourage a more reflective and adaptive approach and not castigate or penalise research groups or institutions for making those mistakes. What should be rewarded is recognising them, discussing them openly and learning from them. That should be a positive thing, not something that counts against you and is a bad score against you in receiving a future award. That is about mindset. I am glad you have brought it up because it is very important.

Professor Westby: I totally agree with those comments. I was in Brussels on Monday at a project meeting and a lot of the meeting was a discussion about what was not working. It was a steering group meeting, so it was being done at that level. It was the governance within the project with a bit of externality that was saying, "We are trying to build these multi-partner consortia and there is a problem because Europeans are reluctant to participate unless they can see a clear financial advantage at the end of their doing it." The project was going really slowly and that was the reason why. The question is how you disseminate that information in a positive way that is not seen to be critical of how you designed the project in the first place.

Q55 Stephen Mosley: What is the role of DFID? How effective is it at doing that? Does it produce guidelines to help you do what you need to do?

Professor Leach: It has been helpful to some extent, and could be more so, not so much in producing directive guidelines but encouraging across programmes to generate best practice and share dilemmas. This has happened across the RPCs. There

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were a number of fora where three or four got together with some DFID co-ordination to talk about common challenges they faced, whether it was about Evidence Into Use, managing partnerships and so on. Those were valuable fora, which generated best practice principles and exemplars. I think that is the role of DFID in a co-ordinating manner to encourage that learning to happen. It is not DFID's role to produce a

top-down, point-by-point guide, because I do not think anybody has the ability to do that; nobody has the all-powerful knowledge, but there is certainly an important co-ordinating role in generating knowledge from those engaged in trying to do this in a day-to-day way.

Chair: It has been a fascinating session. Thank you very much for your time this morning.

Wednesday 22 February 2012

Members present:

Andrew Miller (Chair)

Stephen Metcalfe
Stephen Mosley

Pamela Nash
Graham Stringer

Examination of Witnesses

Witnesses: **Dr Jo Beall**, Director of Education and Society, British Council, **Dr Andrée Carter**, Director, UK Collaborative on Development Sciences, **Sir Mark Walport**, Director, Wellcome Trust, and **John Young**, Director of Impact Assessment, Partnerships and Head of the RAPID Programme, Overseas Development Institute, gave evidence.

Q56 Chair: Good morning. I welcome the panel of witnesses this morning. In a moment I will ask you formally to introduce yourselves. There are a number of visitors in the gallery who are here as part of a civil service course. They will be walking out shortly, so when they all have to get up to go do not feel it is anything any one of you has said. Perhaps the four of you would introduce yourselves.

Dr Carter: I am Dr Andrée Carter, Director of the UK Collaborative on Development Sciences, which comprises seven Government Departments, five UK research councils and the Wellcome Trust.

John Young: My name is John Young. I am Director of Impact Assessment, Partnerships and the Research and Policy and Development programme in ODI.

Sir Mark Walport: I am Mark Walport, Director of the Wellcome Trust.

Dr Beall: I am Jo Beall, Director of Education and Society for the British Council.

Q57 Chair: Thank you very much. Sir Mark, I understand that you have a flight to catch. If you get twitchy, I will understand.

Sir Mark Walport: Thank you. It is a bit of capacity development in India.

Q58 Chair: We have certain powers here, but stopping flights for your convenience we cannot do. In the evidence of the British Council to us they said DFID work with the UK Collaborative on Development Sciences. Has the co-ordination of UK research funding for international development improved since the formation of that body? You would say yes, Dr Carter.

Dr Carter: I can say yes but in a very qualified way. I am in the lucky position that we have just carried out an evaluation that was required five years after establishment. It has not been published yet, but it is reporting to our board in March. In a web survey, which looked at the opinion of 71 people, 90% said there had been increased communication on science for development, and 75% to 80%, depending on the stakeholder base, thought that co-ordination and the number of collaborative activities had increased. Overall, more than 90% wished the activity to continue. I can make this report available to the Committee.

Chair: That would be very helpful.

John Young: I cannot comment on this.

Sir Mark Walport: I can comment. I was involved in the formation of the UKCDS. I think it has improved both co-ordination and collaboration. It provides a forum for people to meet. From the perspective of the Wellcome Trust, we were already able to make collaborations with the Medical Research Council and DFID, but it has been good in bringing together interdisciplinary information.

Dr Beall: The British Council thinks that the co-ordination effort is important, and the Research Capacity Strengthening Group on which we sit has played an important role in information sharing both within Britain and internationally.

Q59 Chair: How effective is the Research Capacity Strengthening Group? Is there perhaps a need for a better and more formal channel between it and DFID?

Dr Beall: We find the network basis quite useful. I am not sure that greater formality would help. More could be done in relation to raising awareness in UK universities about work in low and middle income countries and to connect to those institutions. To that extent, if DFID can play a more formalised role there, it would be useful.

Sir Mark Walport: I would make a general comment about capacity development because it is one of the most important activities to which DFID can contribute. Ultimately, everyone talks about sustainability, and sustainability comes through capacity. The question then is what the definition of "capacity" is. It is everything from people to the infrastructure that enables people to operate, so it is an immensely important activity. DFID is on a very positive trajectory, though there is no limit to what can and indeed should be done.

John Young: If I may make another general comment, strengthening research capacity is just part of what needs to be done if you are looking for more evidence-based policy making in developing countries. You also need to strengthen the capacity of developing country policy makers and programme managers to make use of research-based evidence. You also need to strengthen the capacity of all the intermediary groups responsible for getting the research-based evidence into the policy process. To focus on just one dimension will not achieve very much.

Dr Carter: To comment on the group itself, my colleague Kate O'Shea runs this group very successfully. Its strength is that it is informal, in that people have built up trust and can say things to one

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another in that group almost in a Chatham House environment. There is a big focus on success, and, if failure is apparent and people are able to discuss and learn from it, that is an important environment for them to work in.

Q60 Chair: There are other cross-Whitehall groups, such as the Global Science and Innovation Forum, in science capacity building. How does that body and UKCDS work together?

Dr Carter: The Research Capacity Strengthening Group originated because a GSIF Africa group came out of Gleneagles. That had largely stopped meeting, and UKCDS with its new remit decided that it would pick up the agenda. The group has been meeting since 2008, but there has not been a formal process for reporting into GSIF. UKCDS is not a member of GSIF, but in the last three to four months we have had greater engagement, initially through John Beddington's interest, and we are to present a paper at the next GSIF meeting. A number of the UKCDS members sit on the GSIF group and are able to report in. I do not think they have looked at development and science for development as a priority in the past.

Dr Beall: Our experience is that having a strong DFID involvement in GSIF is important, because DFID's focus on development brings to the table an understanding of the institutional and environmental conditions that condition the development of science in developing countries.

Q61 Stephen Metcalfe: Obviously, capacity building is vital to this, but should that focus on any particular area—perhaps innovation in developing countries? Do you think that should be a priority?

Sir Mark Walport: I agree with John Young that, if you are to have effective capacity building, you have to look at the whole ecosystem. From the perspective of the Wellcome Trust, capacity building is one of the major activities we undertake, and we support scientists through fellowships. But you achieve the full value of that only if there are institutions that can support well-trained investigators and, equally in the policy environment if, say, in the case of health you have a Ministry of Health that is capable of taking up and using evidence.

Perhaps this is an opportunity to highlight that we have some important partnerships with DFID. We have something that goes under the acronym HRCS—the Health Research Capacity Strengthening Initiative. That is a £20 million partnership, with £10 million from us and £10 million from DFID. In a sense, it is an experiment; it is an attempt to set up local funding agencies in Kenya and Malawi. If you look at capacity development there, part of it is training and developing the capacity in those countries for grant-awarding to be done by their own institutions. One has to be very careful to look broadly at capacity building. We have another institutional capacity building initiative on our own in Africa, because we recognise that the training of scientists from, say, Malawi, who end up working in the United States, Europe, India or China is clearly a success for those individuals. There is nothing wrong with that, but, equally, if the home country is to benefit, they need institutions in which

they can work. That is a £30 million initiative that supports seven networks of approximately 50 institutions in Africa with northern partners. It is very much led from the south where we are trying to build the university capacity, which is still a major issue in many African countries. You must not look at it at too fine-grained a level; it is about building capacity very broadly.

John Young: Perhaps I can tell you about a fantastic AusAID programme that is just about to go forward in Indonesia. It is called the Indonesia Knowledge Strengthening programme, which is designed to strengthen the whole knowledge sector in Indonesia around the aid programmes and themes that AusAID is funding. It is 600 million Australian dollars over 15 years, so it has scale and duration. It plans to work with all the different dimensions. It will support research producers, which it calls the supply side, and work with policy makers and others using the research, which it calls the demand side, and then all the intermediary groups. It is an integrated programme working within the whole context in an integrated way. It is also working on what it calls the enabling environment, which are the policy issues that make it quite difficult for policy makers in Indonesia to make good use of science. For example, it is currently illegal in Indonesia for Government Departments to commission non-Government Departments to do research for them. Until that is solved, the supply side cannot do more of the necessary supply. That is a very good example of a holistic approach; it is the best example I have seen.

Dr Carter: There is an opportunity within the UK to apply our own structures more effectively in this area, particularly in innovation. We have very strong advocates through TSB, the Research into Use programme, KTNs and Knowledge Exchange programmes, but their focus is very much on UK benefit. We are beginning to see a move towards looking at opportunities overseas, particularly in low and middle income countries, but we could do more.

Dr Beall: With respect to innovation, the important thing is that all good things do not go together. Sometimes the research focus is one that promotes innovation; at other times innovation will not be an outcome of capacity building. For example, in the Delphi programme, which we administer on behalf of DFID, the focus is on research that will contribute to meeting the MDGs. A lot of capacity building, both individual and institution to institution, is part of that programme, but I am not sure that innovation will come out of it, whereas other areas of activity, such as our Knowledge Economy Partnerships, very much have linking innovative researchers across international boundaries.

Q62 Stephen Metcalfe: I gather that generally a broad approach is better than a sharp focus and getting involved at too detailed a level, but what should drive the research programmes? Should the research be based on a supply or demand model?

Sir Mark Walport: The answer to that is both. The classic debate in science and research funding is: who asks the question? Is it asked from the top down or the bottom up? It is a slightly false dichotomy. It is a

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matter of identifying the important questions. There is rarely substantial conflict. If you look at the questions—obviously, the Wellcome Trust is involved in medical research—the issues on the ground in a country like Kenya, Malawi or South Africa are fairly obvious; the problems pose themselves. In South Africa there is a major HIV epidemic; in much of sub-Saharan Africa malaria remains a major problem. These questions pose themselves fairly obviously and one can get into an unnecessary state of anxiety about it.

It is inevitable that the source of the funding will have an influence on the type of questions asked. If it is the Wellcome Trust, we fund medical research. This is a really important issue about partnership. We have been pleased by our partnerships with DFID. Another example of a partnership with DFID is one that brings together the Wellcome Trust, the MRC and DFID for clinical research trials. Who poses the question? Ultimately, it is the investigators who pose the question, but they are asking about diseases where clinical trials need to be done in that part of the world. Another more general comment is that it is also useful for there to be some skin in the game locally, as it were. There are two examples of partnerships in India where the Wellcome Trust is an equal funder with the Department of Biotechnology. We have a research fellowship scheme in India where we and the Indian Government, through the Department of Biotechnology, each put in £8 million a year. That is very good because it has set up a joint venture in Hyderabad. Fellowships are awarded, and it is absolutely clear that the Indian Government also have a stake in the process. Some countries are better able to afford it than others, but, if you want real ownership, having some local financial involvement is important in partnerships.

John Young: There is another very good example of a programme that is trying to work on both the supply and demand side questions. It is a DFID and NERC-funded programme called Increasing Resilience to Natural Hazards. It has two parts—one on volcanoes and one on earthquakes. The one I know about is the latter. In that programme the principle is to try to do innovative scientific research but also work very closely with local organisations and understand the local context so that the questions being researched come up with answers that are immediately and practically useful. There is a lot of engagement with national level policy research and intermediary organisations, and there is a kind of iterative process of identifying the questions in collaboration with those organisations. It will be working in three different countries and the questions will be different in each. The real problem with programmes like that is, first, the duration. It is a five-year programme. If you are trying to see a direct linkage between any research that that programme does and any outcomes in terms of policy or real changes in that time scale, five years is a very short period. The second matter is value. It is not very much money to do all of those things in all those countries. There is also lack of clarity about the ultimate indicator of success of the programme. Is it in terms of contribution to science and peer review publication, increased resilience on the ground or

policy change on the ground? With that kind of uncertainty it is quite difficult to manage a programme like that effectively. A challenge for all programmes that try to bring together supply and demand side drivers is which is the most important, and how that programme is going to be assessed against which outcomes.

Dr Carter: If I may comment on the funders themselves, our experience has been that all of the funders with whom we work are very good at consultation and working with people from the south in terms of opinions, and also across the spectrum in involving NGOs and academics. One particularly useful response of DFID is in terms of research outreach. Their placement of someone in Delhi with the research council's office has been extremely helpful in feeding local opinion back to London. We have also found the views of the Foreign Office, UKTI and the British Council in country extremely helpful in informing agendas.

Q63 Stephen Metcalfe: You talked about collaboration between Government and research and between the Wellcome Trust and other such organisations. Do you believe that local business and entrepreneurs also have a role in this? If so, who should co-ordinate their involvement? Should it be DFID or external organisations that are perhaps a little closer on the ground?

Sir Mark Walport: I do not think there is a single right answer to who should co-ordinate. The issue is that it needs to be well managed. I will give you an example of another partnership in India that involves business. We have an affordable health care initiative that is another partnership worth £45 million: £22.5 million from the Wellcome Trust and £22.5 million, again, from the Department of Biotechnology. That is aimed at supporting technology transfer and development. It is conducting in India an activity similar to that which TSB or the Wellcome Trust technology transfer division would fund in the UK. Therefore, it is taking research and translating it into products for health devices. As to drugs, for example, we are funding a trial of a polypill that is intended for the prevention of cardiovascular disease. It is clear that the full range of grant-making activities is important.

You commented earlier on it being unfocused. Each programme needs to have a laser focus, if I may put it that way, but it is just as important that one looks at capacity development across this extremely broad canvas if one is to achieve sustainability. There is no question but that building economic capacity is absolutely vital to development. Ultimately, it is economic activity that will keep a country in a developed state.

Dr Carter: You asked whether it was DFID's role. Through their Research into Use programme that is the direction in which they are now looking. We have been talking to them specifically about some particularly bright ideas for which business plans might be developed, and that is harvesting from across a spectrum of UK activities. As a pilot, they are now looking at where those profitable enterprises might be developed and provide capacity building, but it is with

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the local people because we must have sustainability following on.

Q64 Stephen Metcalfe: My final question is about the role of the Technology Strategy Board in developing the Knowledge Transfer Partnership. Dr Beall, were they involved in developing that particular programme?

Dr Beall: Not to my knowledge.

Q65 Stephen Mosley: One of the challenges Mr Young referred to involved the use of science and research in policy making. What more do you think can be done both from the donor side—DFID, Wellcome Trust and so on—and in these countries to increase the use of scientific evidence in policy making?

Sir Mark Walport: One of the challenges is that the UK could be more effectively joined up in its international activities. There are a large number of different bodies. It is clear that, ultimately, if research is to have impact, it needs to be incorporated into industry, health and policy. That does require joined-up working by the British Government as well—for example, the roles of the FCO in terms of the functions of ambassadors and high commissioners, UKTI overseas, DFID and the British Council. There are lots of bodies that operate internationally. Our perspective from operating in India is that that could be more effectively joined up.

Q66 Chair: Is that joining up better in countries where there is an effective science counsellor in post?

Sir Mark Walport: I am not sure that I know the answer to that question, but joining up is all about people working together effectively, and there will be some places where that works better than others. I do not know whether there is any magic formula. Clearly the science network is important. I would highlight the role of the chief scientific advisers. Chris Whitty is doing a splendid job at DFID, and it is very good news that David Clary has been appointed as the first chief scientific adviser in the FCO. Having scientific advisers is good news; it is even better news if the scientific advisers have a high profile within the Departments and are taken seriously. The danger of Government, always, is fragmentation, and we would have more impact if we were less fragmented.

John Young: Even just within DFID, it would be helpful if the often UK-funded research was better joined up with the country programmes. We were involved in a review a few years ago of DFID-funded research in India that was funding a lot of research groups around the country on a whole range of different issues. They were very frustrated because they were coming up with very good ideas and needed help to engage with a policy debate in India with the results of the research. They were frustrated because DFID India were not interested or able to provide the resources to help them do that. They felt they would be able to do that. There is a lack of connectedness within DFID itself, which means that good research-based evidence does not achieve the impact it could achieve.

Dr Carter: It is important to increase demand from policy makers, but it is probably more important to have the information in a form they are able to digest. That is probably where we lack capacity both in the UK and internationally. It is the translation of that highly complex knowledge into instructive advice that is quite difficult.

There is an interesting approach by the Climate Development Knowledge Network, which again is funded by DFID. Funding can be made available to low and middle income countries, but the need has to be articulated by that country's Government, so it has been led by the policy makers themselves. Inevitably, they are directly involved in the request for both funding and some of the research that goes with that.

Dr Beall: To take India as an example, the British Council has been involved in some of the work there and has experienced and heard similar frustrations from users and researchers. The development of UKIERI—the UK-India Educational Research Initiative—has been an example of gradually building up joined-up working. It involves British Council, UKTI, DFID and, importantly, the Government of India. It is a system-to-system approach that includes scholarships and individual opportunities, but also opportunities for universities and research systems to collaborate and so on. It is joined up from teaching through to research. That has been a matter of hard work, and as much hard work on the UK side in getting a joined-up approach as working across with Indian institutions.

Q67 Stephen Mosley: India has been mentioned several times. It seems to be a good example of where it is working. Is there anywhere where you do not think it is working?

Dr Beall: It is more difficult to reach that same level of joined-up working in China, although I think we are getting there. In part, the focus purely on research, which is the main focus of Chinese institutions and Government, has meant that not all British universities are equally equipped to engage. There have been different challenges in China. Similarly, much more recently in Brazil there has been the development of a science without borders programme in which we are involved with UUK. Currently, we are involved in breaking down the barriers faced initially in India as well, but we feel quite confident that they will be broken down.

Sir Mark Walport: To pick two more Indian examples that I think are extremely important, one is a capacity-building grant that we have with the Public Health Foundation of India. That is a partnership between the PHFI and a series of British universities co-ordinated by the London School of Hygiene and Tropical Medicine. That brings people across from the Public Health Foundation of India and trains them in the methods of epidemiology and public health. That is hugely important for two reasons: first, it is needed for India; and, secondly, it creates friends from India with the UK public health system, which I think will last us for life. An aspect of capacity building that is often forgotten is that the activity of the UK in training internationally creates very long-term

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relationships. To some extent we have lost those over the past few years, and I think we lose that at our peril. Another smaller example of capacity building is a partnership we have with the British Council in India. That is for a competition called Debating Matters, started by the Institute of Ideas in the UK and led by Claire Fox. That is a debating competition in Indian schools. It teaches young people in India to argue—they are quite good at it—which is also immensely important. It is modelled on a competition that is run in the UK. The winning team in the Indian competition competes with the winner of the UK competition, and it is a pretty even fight.

Dr Carter: India and China work well because there are very strongly established scientific communities. There are also multiple interests from the UK, whether it is in terms of trade or diplomacy but also poverty alleviation. In other countries that are perhaps least developed clearly we do not see those kinds of relationships develop. India has worked particularly well because of the RCUK and Science Innovation Network presence, but in many of the countries we are talking about we do not have that type of support and structure. To develop collaborations in a bilateral way is quite difficult without people on the ground.

Q68 Stephen Mosley: Moving off that subject slightly, I will quote some of the evidence we have seen, which is quite interesting: “In the last five years there has been a definite trend towards the major funders ... to be very directive, to a degree that is probably not healthy”. Sir Mark might be pleased that it goes on to say: “... whereas more mature funders like the Wellcome Trust ... don’t do that; they still want it to be largely research-led.” Do you think that is a fair criticism not of Wellcome but of DFID and the other organisations that are mentioned?

Sir Mark Walport: As I said before, there is no single right answer. Clearly, an organisation that is totally directive is unlikely to be very successful in capacity building, so I do not think I will rise to the bait of criticising others, but I am delighted that others think the Wellcome Trust does it well.

Dr Beall: Perhaps I may say something in my personal capacity rather than as a representative of the British Council. I was on the development studies panel in a research assessment exercise in 2008. It goes back to the question of innovation. If you want innovative research, very often it comes from the smaller-funded, less-directed research; if you want a big-bang idea or to get a new research agenda going, then the large kinds of DFID consortia work. It depends on what you are after. That might sound like a cop-out, but in making an assessment on the development studies research panel it was obvious where the innovative research and research impact was. There was not always a direct correlation between large-funded programmes and impact and innovation.

Sir Mark Walport: I would make one critical comment. Sometimes there is a debate between vertical programmes, which are intended to channel funds into malaria, HIV or tuberculosis, and more horizontal broader activities. There is a danger of channelling too much money into vertical

programmes because, although tuberculosis and HIV are immensely important, there are also a lot of other important activities. You need a good balance between programmes that are highly directed to a particular disease. To give a specific example, there is no point in setting up across Africa a set of vaccine sites dedicated solely to the development of HIV vaccines when there is a need for tuberculosis and malaria vaccines as well, and these sites are capable of being generic in their operation. That is an area one has to watch quite carefully. Where donors or funders have very large directed programmes in one area there is a danger of distortion.

John Young: In addition to whether it is directed or non-directed, there is a question about how it is directed. I think many donors change their minds too frequently and so programmes and the emphasis changes. That has certainly been the case in DFID over the last 10 years. The emphasis on research communications in the second generation of the research programme consortia was very good. We did an evaluation of its impact, which found that it had a major impact on how people went about doing their research. There was much more dialogue with policy makers and practitioners at the beginning of the research process to ensure that the research questions were appropriate, as we were saying earlier on. That seems to be changing within DFID. The more recent research programme consortia are finding it more difficult to get support for those sorts of activities within the RPCs. I think that is linked to the Government-wide moratorium on communications and the very narrow definition of what they mean by communications. That has been interpreted too broadly by DFID to include all that kind of engagement stuff that needs to be done to ensure that the research questions are right. Changing approaches within donors over relatively short time scales is probably more damaging than the focus of the programme in the long term.

Q69 Stephen Mosley: Last month Oxfam and Save the Children produced a report on the humanitarian crisis in the Horn of Africa, arguing that sophisticated early warning systems had indicated that there would be a drought and famine and those warnings were not responded to in time. What more could be done to encourage national Governments to respond more effectively to scientific evidence? Are there any lessons that can be learned from that specific example?

Dr Carter: UKCDS also runs a disaster research group, and some of the key stakeholders including NGOs come along to that. The Haiti review by Lord Ashdown led to a science and humanitarian and environmental disasters report being produced by GO Science, which will be available next month. That will look at exactly the questions you are asking here about what the UK national Government can do to be better prepared in working with DFID. There is also a foresight activity, which will report by November, to look at science needs and how better to respond in the future. I think that will be a reaction to exactly those questions raised by the Oxfam report. Perhaps we could send through details of those reports for you.

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Chair: That would be very helpful to have.

Sir Mark Walport: This is a very difficult issue for Governments in general. It is always easy to predict the future by looking backwards. I think the challenge is that we are living in a world of remote sensing systems. For example, weather forecasting is much improved compared with the situation in our youth. In a sense the answer is obvious. People have to take forecasting very seriously and understand its limitations. You can make preparations for a flu pandemic as an example. The sort of question we are asking is how much money you spend on an insurance policy. Having said that, the danger is neglecting it when it is not even the future but the present, and that is what we do all too often. You can see that with the famines in Africa at the moment; we wait far too long. In predicting the future, there is no question but that remote sensing is becoming a more and more powerful way of predicting what is going to happen, and people have to get used to the fact that these predictions are more accurate and act on them, but the retrospectoscope is an infinitely powerful instrument.

Q70 Stephen Mosley: This is a problem we have. We received e-mails about it this time last year, but then we receive e-mails about all sorts of impending disasters that people claim might happen. How do you sort the wheat from the chaff?

Sir Mark Walport: That is where good scientific advice is essential and why you need good chief scientific advisers. You need people to listen to them and to be sure that, if possible, they are on departmental boards. It is about taking your scientific advice seriously and using those scientific advisers to assemble the real experts. It goes back to the discussion we had here about peer review not that long ago; it is all about using the best experts you can to make judgments and rise above the cacophony of voices that are saying opposite things.

John Young: It is also important to recognise that policy making is essentially a political process and, in all of the studies we have done about policy change, research-based evidence very often plays quite a small role. Policy makers and politicians have a whole range of other factors that they are balancing when making decisions. We are not necessarily very good at it, even in this country. There are interesting stories about the last foot and mouth epidemic, for example, which illustrate that the Government here were very slow to respond to scientific evidence. That was because of political attitudes at the time, which are very difficult to change. This is a problem of governance and politics rather than research.

Q71 Pamela Nash: I would add to that, Mr Young, that we did learn from the last foot and mouth epidemic. When it happened again in 2007 we reacted very quickly and prevented an epidemic occurring. It is my hope that we also learn from the report that is coming on this situation. Before I come to my question, perhaps I may pick up something you said, Sir Mark. You talked about big donors and their capability in directing funding and what happens in research. Can you see any way round that? We have these big organisations. People might have left money

in a trust with very specific wishes about how they want their cash spent. How can we get round that and encourage more collaboration?

Sir Mark Walport: I would say two things. First, I used the word “donor” myself, but I rather dislike it. The Wellcome Trust, for example, is a funder and not a donor. We have a vision, which is to achieve extraordinary improvements in human and animal health. When we make a grant it is ultimately to achieve that. Because it is a very broad vision, we can make it in a way that develops capacity in its very broad sense, but it is perfectly reasonable that a funder, for example, says, “My fund is intended for malaria.” I think we have to take comfort from the fact that we live in a plural environment where there are an awful lot of different funders. Ultimately all of this will come out in the wash, but if what is ultimately a private source of funds says, “I would like in my will to leave my money to be used for malaria or sleeping sickness research”, that is a perfectly reasonable thing to do. One has to be very careful about being critical of funders who have their own particular mission. Clearly, it becomes a problem if someone gives many billions of pounds to research something of no importance, or indeed not even science, but I do not think we are in that situation. Even very large foundations like the Gates Foundation and the Wellcome Trust are a drop in the ocean.

Q72 Pamela Nash: I also chair the HIV all-party group, and that was why my ears pricked up when you mentioned it. You say there are many organisations in these fields that have very specific wants, not just in HIV but in different areas. I know that is the same for other illnesses. I want to move on to communication of research on which you touched, Mr Young. We have received several submissions in this inquiry that have highlighted the success of DFID’s role in promoting the dissemination of research results. I want to ask each of you what you think is the current evidence base that illustrates the link between the effective communication of scientific research and its use and policy making in the developing world.

John Young: There is not a convincing evidence base, which is one of the problems. As far as I am aware, nobody has yet funded a study of sufficient breadth and depth to look at that, because the kind of approaches that are used are often so project-specific that it is very difficult to look systematically at the added value that research communication gives to the basic research.

There have been a number of quite narrow studies. One that we did, which I mentioned earlier, was a review of the impact of the rules that DFID put in place in the second generation of its research programme consortia. It showed quite convincingly that it had had a very positive impact in terms of the way the research programmes had gone about defining the research questions and engaging with all the other actors that needed to be involved if there was to be a chance of the research-based evidence having an impact. But it was too early in the process to find out subsequently whether or not it did have an impact. I think the evidence base is patchy.

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There is an informal group that is fostered although not financially supported by DFID—the last meeting was in the Department—called the Research Monitoring and Evaluation Group. That is looking specifically at the question of whether it is possible to measure the impact of the communications dimensions on top of the research. I have been involved in that group for about eight years. We have been saying that it needs to be looked at more systematically for that time.

Sir Mark Walport: I slightly disagree with you. Look at the uptake of childhood vaccination across Africa, in particular the uptake of Haemophilus B vaccination, which has reduced the incidence of meningitis in young children. That chain started with very good clinical trials demonstrating that Haemophilus B vaccination was effective and then worked with Ministries of Health across African Governments to demonstrate the evidence. You can see the effect in the reduction of the disease. Another example is insecticide-treated bed nets. Research that was done by people like Brian Greenwood in The Gambia, which showed that they were effective, led to experiments funded by the Wellcome Trust and DFID, among others, in Kenya on how they were best distributed. The idea was that in order for people to use something they had to pay for it. If you have no money at all, you cannot pay for it. There was a series of studies in Kenya looking at different economic models in terms of the use of bed nets. It turned out that if you distribute them free, you get the best uptake, perhaps not surprisingly. Through effective partnerships and communications with Ministries of Health we have much better uptake of bed nets than we did. I think that communication happens.

The reductio ad absurdum in the other direction is that, if you do not communicate the results of research, you can guarantee that there will be no impact. You can debate how much evidence there is, but it is absolutely clear that there is an improvement in health, though there is a long way to go, and that happens because of the communication of the results of scientific research.

John Young: I entirely agree with that. I am firmly committed to research funders investing much more on the communications side of what they do. One of the rather quick and dirty comparisons we made several years ago was of the proportion of funds that at that time the DFID central research department invested in broadly called communications activities of the research that they funded and the International Development Research Centre of Canada invested. IDRC invested about 40% of its funds in communication activities, and at that time DFID's central research department invested about 5%. There was a very strong view that the IDRC research was some of the most effective in international development, and I think it is largely because of that. The problem with the lack of convincing empirical evidence of the added value of investing in research communications activities is that it is relatively easy for donors to regard that as a sort of optional add-on rather than to invest very substantially in it. If we had more convincing evidence of the added value of communications, there would be a stronger argument

for donors investing more in it. DFID are slightly in that position at the moment. In the absence of very convincing empirical evidence of the value of that investment, they tend not to invest as much as I think they would have done had the trajectory at the time of the second generation of RPCs continued.

Sir Mark Walport: We also specifically fund public engagement in the developing world as a programme in its own right. I think that the word “funder” rather than “donor” is important, because we are concerned with how our money is used. We are not giving it away to be used for any purpose, so we do fund it. There is also a global organisation of science journalists, which has international meetings. We have funded journalists to go to that, because science journalism is pretty well developed in the UK but not in many parts of the world. That is an important part of the communication. If we are going to do this well, good science journalism, though it may be under attack from a variety of sources, is an essential part of science communication.

Dr Carter: Many of these issues were covered in a workshop held last year by DFID, AusAID and ourselves. That report, which we will send to you, covers exactly the issues that have been talked about. That should be quite helpful to you.

Dr Beall: I would like to pick up the point about science communication and the need to institutionalise it and work with young scientists in order that they develop the skills to communicate their research. The British Council runs something called FameLab, which does precisely this. It works in partnership with the Cheltenham Festival, and it has been rolled out across many countries in the world. Young scientists engage in a competition to articulate their research, and those who win get media training and so on. That is very important.

Q73 Pamela Nash: Sir Mark, you said that, when the Wellcome Trust funded a project, communications were included as a priority. Does that include researchers and academics in developing countries being given the skills and empowerment to communicate their research themselves?

Sir Mark Walport: Absolutely. It is not compulsory, because one has to be realistic. Not every researcher is necessarily going to be a fabulous public communicator, but it is very much integral to our programmes and we do provide training. There is no doubt that scientific research is not finished until it is communicated, in the first sense published in a scientific journal. We think that open access is very important to that. Again, in the context of international development, the whole issue of providing open access to scientific literature is of overwhelming importance. It is no use funding a piece of research if it cannot be read by the people who can benefit from it. It is an integral part of the activity but is not something that, as it were, we force down people's throats.

Q74 Pamela Nash: In that case, how severe an impact do you think DFID's cuts in this area will have?

Sir Mark Walport: I cannot comment on that.

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John Young: To some extent we are a victim of that, because we have been talking to DFID for a long time about funding more research in this area. Until they have resolved their interpretation of the moratorium it is very difficult for them to go ahead with it. I hope it is a blip rather than a permanent problem.

Dr Carter: One thing that will help is the HEFCE requirement in the REF—the research evaluation framework—for 20% of the mark to be allocated to impact. We have worked with DFID and others to persuade HEFCE specifically to mention international development in the panel advice so that it is in panels A and B and mentioned as international in C. That will be a key driver for academics in future.

Q75 Pamela Nash: It has been suggested that RPCs come with a requirement for funding communication of research in the region of 15% to 20%. Would you agree that this is a good idea, or could this approach be seen as too directive?

John Young: Based on the review that we did, it is an extremely good idea, ensuring that in the very early stages of setting up a research programme a consortium gives serious thought to the uptake pathways and the communication strategy necessary to maximise the likelihood of positive impact of their research, and making sure that sufficient resources are invested in communications more broadly than just communication products or events. Therefore, it would include the dialogue with all the stakeholders that is necessary to define the research questions. That is absolutely essential for effective research, particularly policy-focused research.

Sir Mark Walport: Given the underlying costs of medical research, 15% to 20% would be quite a high percentage. I would have thought it ought to be an integral part of the activity, but it should be costed appropriately.

Dr Beall: Sometimes there is a tendency for research communication to be seen as a very immediate thing, and, in the spirit of it being more integral, enabling researchers from developing countries working in these partnerships to do peer review work should be part of the communication strategy. In other words, the impact of communication strategies is judged not only immediately after the research is completed but down the road a while.

Chair: I am conscious of the pressures on your time, Sir Mark. We have a few more quick questions.

Q76 Stephen Mosley: One of the issues raised in the evidence is that frequently a lot of funding is via NGOs. You have an NGO in the UK and an NGO in the other country working together. Sometimes those NGOs are more concerned about what happens during the term of their contract and trying to get it extended than they are in longer-term thinking. We have had evidence that suggests you might be better off funding through universities, which are there for the long term and are not looking just to get the next contract. Is there any truth or foundation in that at all?

Sir Mark Walport: I make the general comment that good stewardship of our funds is very important. It is another area of capacity development. In a British university, academics take for granted the fact that

there will be a good grants office and there will be good finance for all those functions. Those are not necessarily present in universities in the developing world. From our perspective, we do very careful due diligence on whatever organisation it is we are funding, and often it takes quite a lot of work. I do not think there is a single right answer. You need to be sure that you are funding in a body that is capable of managing those funds in an effective way. Equally, there is a responsibility on the funding organisation to monitor its funding carefully to make sure it is used for the purposes to which it is directed. It goes to the whole evaluation question. Part of the evaluation is making sure that your money is spent for the purposes intended.

John Young: I come from an organisation that is more or less entirely contract-funded, and we suffer very much from that problem. We would like to be able to do much more follow-up work of our research to find out what impact it has had, but you need to do that some time after the project has finished. Within a contract-funded environment it is very difficult to find the resources to do that. I am not sure that the answer to that problem is to shift the funding elsewhere. There are other answers to that problem. If donors were to set up a separate evaluation fund that could be accessed x years after the research had finished, that might be another way round it.

Sir Mark Walport: I do not think I like that answer.

Q77 Stephen Mosley: There were two nods and one shake of the head.

Sir Mark Walport: As a funder we are funding the results, as it were; so we are interested in knowing what is discovered and what the evaluation is. To say that is something that should be conducted separately from the funding of the programme seems to me to be wrong. There is a tendency to put an enormous amount of work into writing a proposal to gain the money and much less work in the evaluation at the end. We are paying for the products of the research, so I think the evaluation has to be an intrinsic part of it. I take the point that it may happen at the end, but it is terribly important and is clearly something that DFID take seriously.

John Young: We are not disagreeing here. I agree with you entirely, and it is fine if the evaluation is at the end of the funding period, but, if you are looking for impact on policy and practice, you are often looking five years or longer beyond the end. That would be more difficult to manage. I do not for a second suggest that it is not a responsibility of the researchers to do that.

Q78 Chair: But it would also require whoever is establishing the contract to realise the relevance of that kind of evaluation.

John Young: Exactly.

Sir Mark Walport: That is right. It is part of the responsibility of the funder to evaluate whether the funds are spent effectively, and that is what my board of governors at the Wellcome Trust is about. It holds us to account for making sure the money is spent wisely. We have a policy and evaluation unit that would do some of that longer-term work.

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Q79 Stephen Mosley: That leads on nicely to the next question. You want to make sure that this capacity building is self-sustaining and continues after the end of the project. What practical steps can you take to make sure that happens?

Sir Mark Walport: It is very project-specific, is it not? If it is a scientific discovery that has an impact on health, it may need to be translated through a technology transfer-type grant; it may be that it is a communication with Ministries of Health. You have to look at each project sui generis and work out the appropriate way to take it forward. It may well be something that needs to be picked up by others. Funders tend to fund in their own area, and that is one of the strengths of partnerships. One of the reasons we have been pleased about our partnerships with DFID is that having slightly different missions means we can pick up different aspects of a project.

Q80 Stephen Mosley: One project in which you are involved is the African Institutions Initiative. Is that working towards a long-term self-sustainable model?

Sir Mark Walport: It is working towards developing African universities so that they can compete with universities in the rest of the world. That is the goal. It is pretty difficult, and £30 million will not do it. We funded an independent evaluation as part of that programme, so throughout it has been evaluated. There is developmental work with the programmes. Will they all succeed? No, I do not think they will; some will and some will not. Within the individual consortia some universities will do better than others. I think it is a start, but there is a very long way to go.

Q81 Stephen Metcalfe: UKCDS said that “some funders have not made the evaluations of their programme publicly available in the past. We would urge all funders to make their evaluations available so that everyone can learn from them.” First, do you agree with that statement? Secondly, what can be done to ensure that all funders share that information so that people can learn from it?

Dr Carter: We said it. We very much welcome within the Research Capacity Strengthening Group a commitment for people to share their evaluations, particularly in the case of the African Institutions Initiative. The whole point of it was to share those lessons learned at the end of it, and that is an extremely valuable one. Talking with other funders, this is beginning to develop now. This is about trust and talking to people and goes back to what was said originally about successes and failures and having an environment in which this kind of information can be shared. I think it is beginning to happen, but how we force people to do that I really do not know.

Sir Mark Walport: The short answer is that you cannot force people to do it. If they are private funders, they cannot be forced.

Q82 Stephen Metcalfe: Encouraged.

Sir Mark Walport: They can be encouraged. The Wellcome Trust is signed up to the principles of openness in all aspects of science, but I think “forced” is not the right word; “encouraged” is. I think most funders would be signed up to that.

Q83 Stephen Metcalfe: There must be a role for local people in evaluation programmes. What can DFID do to support and encourage local monitoring on the ground? What can we do to empower them?

Dr Carter: From my knowledge, many of the projects that DFID fund to encourage local people to be involved are pretty much part of the success.

Q84 Stephen Metcalfe: In the evaluation.

Dr Carter: Probably not necessarily in the evaluation. I think the next step is to involve them directly in the evaluation as well.

Sir Mark Walport: It all depends on what you mean by “evaluation”. If the evaluation is of a new and somewhat esoteric scientific discovery, that is what peer review is about and the evaluation has to be done by experts. There is no magic bullet for evaluation. The point Andrée made about participation is immensely important. For example, at Kilifi in Kenya, where we fund a major programme, there is a very large local community engagement programme. An anthropologist works specifically with the community. One of the things I learned very early when I visited the programme is that apparently there is no word for “research” in Swahili. The serious issue is that you have to explain in great detail to the community what you are trying to do and understand some of their concerns, which may come completely out of the blue. There was an issue about the logo, which they did not like and understand, for a reason which really does not matter. The real issue is that you have to engage with the community in which you work because they are partners with you, but in terms of evaluation it depends on the project.

Dr Beall: I would support that. In the monitoring process in a lot of the programmes in which we are involved there is local involvement in monitoring and all aspects of the programme, but, when it comes to an external evaluation, that has to be external. Whether or not it is local is not the issue but whether it is independent.

Chair: Ladies and gentlemen, thank you very much for your contribution this morning. It has been extremely helpful.

Monday 25 June 2012

Members present:

Andrew Miller (Chair)

Caroline Dinenage
 Jim Dowd
 Stephen Metcalfe
 Stephen Mosley

Pamela Nash
 Sarah Newton
 Graham Stringer
 Roger Williams

Examination of Witnesses

Witnesses: **Stephen O'Brien MP**, Parliamentary Under-Secretary of State for International Development, **Professor Chris Whitty**, Chief Scientific Adviser, DFID, and **Professor Tim Wheeler**, Deputy Chief Scientific Adviser, DFID, gave evidence.

Q85 Chair: Minister, we welcome you here this afternoon. For the record, I would be grateful if your two colleagues would introduce themselves.

Mr O'Brien: Certainly. I will start with Professor Whitty, on my right.

Professor Whitty: I am Christopher Whitty. I am Chief Scientific Adviser at the Department for International Development.

Professor Wheeler: I am Tim Wheeler, Deputy Chief Scientific Adviser at the Department for International Development.

Q86 Chair: Welcome, gentlemen. Thank you for coming this afternoon. You have seen the terms of reference of this inquiry. Those who have been involved from the outset have found it a very interesting area of work. Minister, we appreciate that you have a very good track record in opposition of working on some of the issues that are of interest to us—some of the issues that we saw at first hand when we visited Uganda, and Tanzania, which is a country in which you have some interest. When taking on this role, it must have been very useful for you to have the kind of background and interests in the subject that you have. I want to start by asking you about the new direction for UK aid that was announced in 2011. When that was set out, we did not spot any mention of science or capacity building in the positions document. Does DFID take the role of science in development work seriously, from the ground level up to your desk?

Mr O'Brien: Thank you very much, Chairman. Let me say how much I and, indeed, my Department and ministerial colleagues welcome your inquiry into what is obviously a very serious and important area of work. When the new ministerial team came into office, one of the things that was on my desk to consider was what progress, if any, had been made following this Committee's 2004 report. That was very instructive, when I looked into it, because there had been some progress, but it seemed to me that there were still gaps and weaknesses that we could address. You have kindly referred to some of my antecedent activity. Perhaps even more useful to me in this job as a Minister than my experience in relation to global disease prevention and control has been my experience before I was a politician of being a manufacturing industrialist on an international basis

and looking at the application of science to achieve things with greatest impact.

The ultimate products of the bilateral aid, the multilateral aid and, indeed, the humanitarian and emergency response reviews, which were a thorough suite of reviews, were very public-facing documents. It was, therefore, perhaps no surprise that there was no specific mention of scientific capacity building or, I notice from an earlier Committee session, engineering among the supportive mechanisms and detailed processes that will help us to deliver the overall strategic objective of doing our very best to make our maximum contribution to bearing down on and achieving the Millennium Development Goals—which, by definition, get us only, broadly, halfway, if I may put it like that, in any event. Mr Williams made a very interesting observation in an earlier meeting when he said, "I am sure my colleagues agree that people do not come to our surgeries saying it is a disgrace that the Government are not building up scientific capacity in developing countries. They do come and say it is a disgrace that people are hungry, malnourished and lack clean water. It is a heck of a difficult thing for DFID when it has those kinds of pressures, is it not?" I rather agree with Mr Williams that these documents that we produced and to which you refer, Mr Chairman, were public-facing. For that reason, they retain the strategic, high-level wording that was geared to the MDGs. That is why this inquiry is very important, because it helps us unpick what will lead to achieving those.

Q87 Chair: One of the things that we want to drill down to is whether the focus on the Millennium Development Goals is resulting in a lack of emphasis on capacity building.

Mr O'Brien: That question has been presented on a number of occasions. I have to say that I have come across no evidence of that in the time in which I have been a Minister. On the contrary, what has been enormously important to all of us has been how much we can really get to the evidence of what produces the impact that will bear down most effectively, with greatest value for money, using UK taxpayers' money, on our contribution to the Millennium Development Goals, within the overall promise that we have undertaken of getting aid to 0.7% of our gross national income by 2013—two years ahead of when other European Union member states have promised to get

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to that level. So it has been very much a question of what serves to deliver that overall objective and our maximum contribution to it, rather than necessarily what the explicit tools are by which we will get there, for which, of course, you need to go one level down. That is exactly where we are in discussing this.

The other thing to bear in mind is that, by its very nature, research and evidence—we run the two very strictly together—are long term. I know that is something that has been observed on an equally long-term basis by this Committee. It is long term. I think I ought to lay stress on the fact that, while with the Millennium Development Goals it feels as if we are all trying to get to 2015 over a 15-year period, having started in 2000, by definition they will get us only halfway there. What lies behind the MDG achievement will also be very long term, so we need to be prepared to look at the sustainability that attaches to that. That is why the MDGs are not excluding or crowding out science; on the contrary, they are encouraging the science and evidence to support the long-term sustainable attainment.

Q88 Chair: Can I push you a little further on the lack of visibility of science in the published documents? We have had meetings with a network of very bright people working in a number of disciplines. The meeting, which was hosted by the London School of Hygiene and Tropical Medicine, attracted students and research fellows from a very wide range of disciplines. We also met a very impressive network of people on the trip to Africa that we made. Would it not be useful, at the very least, in terms of incentivising the kind of people whom we saw doing, in some cases, absolutely world-class science, to have on the face of documents from DFID that that work is important and really matters? I know you believe that, but it is a shame that it is not said.

Mr O'Brien: I have a lot of sympathy for what you are saying. If I may just indulge myself and, I hope, the Committee, by going back to my industrial past, I was always extraordinarily struck by one difference in the billion-Deutschmark turnover company in Germany that was our subsidiary—an unusual position for a British FTSE 100 company. One of the biggest lessons we learned was how the engineers and scientists—the research capacity of that building materials company—operated on the same premises, almost physically next door to the board room, and were on the various codetermination boards, as we discussed the German business and its future. In the UK, by contrast, the company's research facility was housed 40 miles south of the head office, and I used to receive a monthly report. There was that lack of inner connection in the British set-up, even though we were the holding company.

Coming into the Department for International Development, I feared that I would find something rather similar; on the contrary, I did not. I think you are right to say that we ought perhaps to make a bit more visible what has been done, not least in the last two years, although I certainly do not claim that it has all happened in the last two years; there has obviously been progress since this Committee's previous report in 2004. That is not least because, as you heard earlier,

Professor Chris Whitty has been appointed on a three-year term—now extended to 2015—as Director of the Research and Evidence Division, and, with Professor Tim Wheeler, is the only the Deputy Chief Scientific Adviser in Whitehall who is a leading independent scientist and academic. They are being integrated right into the heart of what we are doing in the senior team at DFID. I expect in every submission to see that they have had some thinking or influence, or have flagged up where we will need to take a decision but there could be more evidence.

This is particularly important when we couple the independent commissioned evidence and research with what we are very focused on—I have to say that I am obsessed by it—which is our operational research base. It could be claimed that DFID, as a Department, is the world's largest operational research laboratory, without really grasping and gripping that. I think that we have turned that around. I pay tribute to these two gentlemen for pointing it up and getting a mechanism that enables us, through our country offices, to really grip and capture it. I think you make a fair point about how much we could, as it were, proclaim what appears to me—I will have to leave it to the Committee to make an assessment—to be quite a turnaround from the 2004 position. If I recall correctly, the Committee had the chance to go to the Ifakara Health Institute in Tanzania—sadly, one that I have not yet visited myself, although I have spoken often to the people who are operating there. However, I have been to something similar on the east African coast called KEMRI—the Kenya Medical Research Institute—at Kilifi. One is just overwhelmed by the excellence of the world-class, academic, independent, verified, peer-reviewed and practicable research that is really capable of changing lives and making sure that we do the right things in development.

Chair: Before I pass on to Roger Williams, I would like to say for the record that someone from Ifakara is sitting behind you. He will bend your ear with all the good reasons why you should visit. I think the Committee members who went on that visit would certainly encourage you to go and see what appears, to us, to be the world-class work that is going on there.

Mr O'Brien: He has heard my unsolicited compliment before I go there.

Q89 Roger Williams: Minister, you mentioned the report that was done by our predecessors in 2004, which indicated that there were some gaps in internal expertise. More recently, in 2011, the Government Office for Science made some mention of the gaps that were still there. Can you tell us why you think there has been a lack of progress over the last eight years and how DFID can best deal with that in the future?

Mr O'Brien: I hope that my first answers have indicated somewhat that I would not quite go with the phrase “lack of progress over eight years”. I think there has been an outstanding and massive commitment to the recognition of how important science, research and evidence are to our ability to deliver outstanding development outcomes, results and impact. That applies not just to development, which includes nowadays a more complicated range

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of diverse applications; I am thinking of private sector development and wealth creation, governance and some of the more difficult things. Of course, in that period climate change has absolutely soared up the agenda. How do we make that relevant and understood? Having the Deputy Chief Scientific Adviser is crucial in that field, too. On agriculture, do we obsess with smallholders or find a range and balance between larger farming and smallholders? What does land tenure do, particularly through the empowerment of women? I regard all those things as enormous progress. Had I been sitting here answering questions from you in 2004, I think those factors would not naturally have tripped off the tongue, as they would not have been as evident.

Unless you particularly want me to pursue the issue, we would welcome all advice on the gaps that have been identified. The internal reviews that we have carried out show that there is a clear programme to plug all the gaps and to make sure that we are well covered. As a Minister, I think that is where it becomes operational, in a sense. We have a clear commitment, which includes the resourcing; we can come to the actual financial support, should the Committee wish, in a moment. If it is all right with you, Mr Williams, I will ask Professor Whitty whether he wants to add anything on the actual spread of operational attainment and application, because I would not want to claim that all gaps are covered if that is not entirely true. As a Minister, of course, I am in receipt of the advice that shows me that gaps are covered. If they are not, I would like to know, as well.

Q90 Roger Williams: It has been suggested that, because of a lack of people working in Britain on these particular issues, it is difficult to recruit in some of the disciplines that you might need. Are there any other ways in which you could fill some of the gaps by temporary appointments or consultancies?

Mr O'Brien: I will ask Professor Whitty to give us the detail on that. Certainly, in terms of the numbers employed, we are a very long way ahead. I did ask this question this morning, not particularly anticipating that you would ask it. One of the issues I was concerned about was the amount of expenditure back in 2003–04—in other words, when the Committee was looking at this previously. I received a number. What was most staggering was that, at that point, there were seven people, rather than 150 people, working in this area. That is obviously a measure of the progress that has been made. We need to be careful to compare apples with apples, but would it be all right for me to ask Professor Whitty to give you a bit more detail on that?

Professor Whitty: I think that the situation in DFID has been transformed since your last report. As a result of the report, many things happened. Now, the number of people who are full professors in the Research and Evidence Division is greater than the total number of people who were in the division when the previous report was produced, so I think it would not be factually correct to say that nothing has moved on since 2004 in this area. Clearly, within DFID, there are multiple different specialist groups that need to provide advice to Ministers on policy and on the

programmes. You can always look at a subgroup and say, “This one has gone down,” but overall, as a result of a decision by Ministers and the management board of DFID, the number of specialists has gone up over the last two years, at a time when the number of generalists in DFID has gone down because of administrative budget squeezes. DFID has actually been recruiting in all the specialist areas—the scientific areas—in which you are interested. I think that was a very brave decision to take. It has meant that in the last two years we have had an increase in numbers in virtually every one of the scientific discipline areas, including ones that have been mentioned explicitly, such as engineering.

You can always say, “There could be more.” Clearly, it is not just internal capacity that we need—we need to be able to draw on very wide external capacity. To go back to the Chair’s first comment, a third of the Secretary of State’s speech on where DFID are, two years in, was on the importance of science and the British scientific base to international development more widely—not just what DFID does, but the great universities, the Wellcome Trust and a whole variety of other things come together. The UK is one of the strongest countries in the world when it comes to this expertise, across almost every discipline—not absolutely every discipline; there are some in which other countries lead. However, I do not want us collectively to sound negative on this. I think the UK has a lot to be proud of in this area, and DFID has taken a strong decision to professionalise and to boost these numbers.

Mr O'Brien: I think that is very helpful. Just to give you a flavour—we have the detail here—I have had 19 meetings with Professor Whitty and 10 with Professor Wheeler. In terms of formal ministerial update and reporting, we are moving to a monthly research update meeting. It goes to the heart of the very first question the Chairman asked: how are we really inculcating and infusing into the whole Department a real sense that this is a primacy issue and that science, evidence and research have to dominate—not control—all our thinking, so that we are operating on an evidence base, in the best possible way? We are trying to give a lot of time to that, to make that sure we understand the issues and where the gaps are.

Q91 Roger Williams: I must say that, whenever we have taken evidence, people have spoken very highly of Professor Whitty and the contribution he has made to the Department. It has also been suggested to us that the quality of some of the in-house expertise is not as good as it could be or has been. I am talking particularly about the country offices, rather than about DFID’s Whitehall presence.

Mr O'Brien: I am pleased to say that we have recently had a review; someone will no doubt remind me of the technical name.

Professor Whitty: The science and engineering assurance review.

Mr O'Brien: Thank you very much; I think the Government Chief Scientific Adviser oversaw that. It gave us a good practice commendation, which is encouraging. In terms of quality assurance, from what I see as a Minister—Professor Whitty or Professor

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Wheeler may be able to fill you in on the operational and management side—because of the completely challenging environment in which all these scientists sit, so that they are not just peer reviewed but are permanently having to address where they have skill gaps and what they are going to do about that, their continuing professional development is an absolutely central core of their job, let alone their career. There are also demands, which emanate from the ministerial corridor, if I can put it that way, that everything has to have attached to it a business case, the rigour of which, it has been noted over the last couple of years, has increased a great deal. As a result, a lot more technical and economic scrutiny is needed.

We are also adding quite a lot of research capacity in the social sciences; I have been very focused on that. Perhaps that is one of the gaps you were thinking of, Mr Williams. In the end, much of what we do—the good development that earns a good practice commendation—from the hardest area of the world, the Sahel, where I was last week and where there is a lot of challenge, right up to countries that are just about to graduate from aid to much more of a trade partnership, is to do with behaviour change in human beings and the way that that flows. Making sure that you have the instruments by which you can effect the change and the impact requires having a good evidence base—at governmental level, in relation to governance, or at an individual level, in getting behaviours to change in relation, for example, to water, sanitation and hygiene.

Professor Whitty: I have gone through the written and verbal evidence as carefully as I can, and I did not spot anyone saying that the quality was low, because my blood pressure would certainly have risen if that had happened. We do a lot to try to recruit the right people to, and then continually professionally develop and maintain the skills of those people in, the organisation. Several people talked about the quantity, but we are not in a situation in Government where increasing numbers are at the top of everyone's priority list for Government Departments—for very good reasons that everyone here is aware of. However, I think the quality of the people who are there is very high. Some comments were made that were historically true, but I am confident that they are not accurate now. Several witnesses referred to the difficulties of linking up with country offices—they were not talking about the quality—and we can come back to that, if you want, because it is an important issue. It is difficult in a country office, unless it is a very large one, to have someone who is a sub-specialist in every single possible area. That is just not realistically possible. You have to have generalists in a broad field, who can then call on specialist skills from the UK or externally.

Chair: We will come back to that point in more detail later.

Q92 Roger Williams: The Minister raised the issue of social development work and the social sciences. It has been suggested that work is going on in that area but that it is not very well connected to the pure scientific areas, and they would be much more

powerful if there were better contacts between the two different branches, so to speak.

Mr O'Brien: Again, I am very happy to defer to those who know what they are talking about. For Ministers, when taking decisions and making recommendations on what we need to do in relation to country programmes, multilaterals or even humanitarian responses, the interrogation of the business case as it comes up has to be on the lines of: we know we have the technical capacity, for instance, to get nutrition out to severely and acutely malnourished children in some very remote areas, but do we know that that is what they like or whether it is going to be effective? Where is the resilience—how are we building in something for the future? That is where the evidence base comes in. Because I have just got back from the Sahel, it has become very clear to me that, although we do not have bilateral programmes in the countries affected, DFID carries with it a phenomenal global reputation. As a travelling Minister, one can enjoy and feed off that, but it comes because it is deserved. It is earned because people can see that we have thought things through and commissioned research. Often, it is work in progress—that is where the operational research locks on. It is very interesting to note how the UN and, particularly in relation to that appeal, the European Union, through ECHO, has looked to liaise with and have very consistent contact with people at DFID, partly on human behaviour patterns and how we can help, through mass treatments, to make sure that we get to the individuals concerned.

Q93 Roger Williams: The evidence that we have seen shows that the most senior engineering person now operates on a lower grade than they used to. Is that the way to encourage engineering and get good engineering advice?

Mr O'Brien: I have a lovely brief here, but I think Professor Whitty can do extremely well for you.

Professor Whitty: If I may, Mr Williams, I will address both your last and this question together, because they deserve to go together. One of the things that we realised was that there is always a risk of the individual professions, first, being weak on their own, and secondly, not talking to one another. In the last year, we have brought all the heads of profession, all the chief professional officers and the chief statistician—everybody—into the division that I lead. They are all answerable either to me or to the chief economist, who works with me. The aim of that is to make sure that there is clear accountability professionally to one of us for every single profession—social science, hard science or economics. As part of that, we expanded additionally the number of people in the organisation who were specialists. In fact, I would say that the hard sciences and social sciences talk to one another in DFID more than in almost any other institution I have worked in, and I have worked in many where they work alongside one another. Certainly, in the evidence that you received, the engineers said there were not enough engineers and the social scientists said, "Please don't forget the social sciences." In a sense, all of them had a fair point, but I do not think that there is a feeling that at the moment there is an

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imbalance overall in the organisation, although you can always argue about particular issues or subject areas.

One of the decisions that we took was on the engineering issue. Previously, all the heads of profession were at the most junior of the Senior Civil Service grades. The disadvantage of that is that a senior civil servant has to be a generalist as well as a specialist and has to be deployable to a country office, to be head of personnel or to a whole variety of other areas. The trouble is that many of the best technical people have no interest in that; what they want to be is a technical person, so, actually, we were closing off a large number of people who were clearly not wanting to be senior civil servants. If we instead put the position at the next grade—the top of the advisory grade that is not for generalist SCS people—we could call on the whole pool of the brightest minds in DFID. I think we are extremely fortunate in the heads of profession we now have, all of whom are absolutely committed to their own speciality. It is interesting that the level of morale—as assessed by the anonymous People survey, which goes across Government—in the team that is now the heads of profession was one of the highest in DFID, which is itself one of the highest in Government. This is a team who feel very motivated in what they do. There is often a misunderstanding, including in the Civil Service, that grade equals competence. In my experience, that is in no sense the case. Many of the most competent people are quite junior, and very influential because of their competence. More senior people can often lose touch with their technical roots.

Q94 Graham Stringer: That is a pretty good case for a salary review all round, isn't it?

Mr O'Brien: As you will no doubt recall, that is the one thing Ministers do not get involved with.

Q95 Graham Stringer: Maybe you should. If I understood your answers to Roger's questions, you said that the number of staff involved with science had gone up twenty-onefold. That is my quick arithmetic.

Professor Whitty: In the Research and Evidence Division—not overall.

Q96 Graham Stringer: What are the equivalent figures for the budget—not just for staff, but for science capacity building and science development?

Mr O'Brien: The best way I can describe it is to say that, in the current year, our total programme budget for the Research and Evidence Division is £235.38 million. Of course, we can split that right down into about a dozen programme teams. It includes some budget that goes towards humanitarian and emergency relief research. The trend is also quite helpful. In the year 2007–08, the figure was £130 million. By 2014–15, we are intending to get to £320 million, so you can see where the £235 million lies on that rapidly increasing trajectory. Professor Whitty's stock take in 2011 of our central spend on scientific capacity building, which is one of the central issues on which this Committee has been focused, shows that we now have 36 centrally funded programmes in scientific capacity building, which is a core component of 16 of

those programmes and the central objective of 10 of them. We have allocated £56.4 million up to 2020 to scientific and research capacity strengthening. That is the budget both overall and for capacity.

Q97 Graham Stringer: It is increasing in absolute and percentage terms?

Mr O'Brien: Correct. I offer a slight caution on these numbers, which are obviously historic—I do not have access to all the documents—but, as I understand it, the equivalent number in 2003–04 was £78 million. On a broad inflator, that would still be just under £100 million. Compared with that period, you can see that the increase is in absolute terms as well as relative.

Q98 Graham Stringer: You have given us a number of projects. When you are questioning one of these projects, how do you distinguish between middle-income countries that get support and aid, and the very poorest countries? I would guess—I may be wrong—that it is easier to build up capacity in middle-income countries than in the poorest parts of Africa. How do you make those distinctions? What is your policy position?

Mr O'Brien: I will try to answer the overall policy question and draw some examples from my colleagues. The overall policy is that, once a scientific evidence need is identified, clearly that will be applicable to wherever the broad policy context exists. Almost invariably, that will be a span of the poorest countries in the world, as well as those that may be emerging into lower middle-income status and be on the verge of graduation from a development programme into a more normal, trade-based relationship. Of course, many of these programmes are long term—most of them are commissioned out—so having a hard-and-fast rule that distinguishes between poor and middle-income countries would be very difficult to sustain on an evidential basis. What is interesting is that some of them are genuinely a gathering of evidence to a central point, whereas others are more like satellite operations. You have seen Ifakara. I used to have a connection with the Liverpool School of Tropical Medicine, which has a strong connection with the malaria research centre in Blantyre, in Malawi. There are a number of places. Malawi is a very poor country, so supporting a centre of global excellence does not depend on being a middle-income country. I hope I am giving you the answer that this is about horses for courses. The main thing is to get, without compromise, to the best scientific research base that we can and to draw in the best. Professor Wheeler may want to give you some colour and examples of that.

Professor Wheeler: This is a really important question. We need to distinguish between capacity building of individuals and capacity-building efforts that are targeted at organisations or systems. In terms of individuals, I do not think that we make a distinction based on where an individual comes from. Fellowship and scholarship holders for some big programmes like the Commonwealth Scholarship Commission, which supports up to 3,000 awards over a five-year period, come from a broad range of countries. Fellows for one of the climate change

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capacity-building programmes—Climate Change Adaptation in Africa—come from 33 countries. On an individual level, we do not often make a distinction in programmes based on which country someone comes from.

It becomes more relevant when we think about organisational support. Do we support institutes that are the foremost for research regionally, or do we look at the emerging, more nationally important institutes and provide support at that level? For some of the main programmes to date, we tend to go for boosting the existing research expertise. Makerere University, which the Committee visited, is an example of such support. For other organisational supports, we focus on the region. Within Africa, we support some of the regional organisations to build capacity in east Africa or west Africa. So there is a mix. We very rarely think about it along the lines of the question that you have asked—picking out on an individual basis which country needs the most capacity-building support—because it is a broader issue.

Q99 Graham Stringer: Professor Whitty said that he had read the evidence to this Committee and that there were compliments and some comments that were less complimentary. Can I read you a quote from Professor Anthony Costello? He said, “if you look at an awful lot of the publications coming out of DFID—I looked at a whole review article last year on cash transfers, which is a big issue right now—its rules of evidence would fail an MSc at UCL. It did not have any methodology about searching. Of the 170 publications it reviewed, 160 were websites, and it came to the wrong conclusion because it did not look at some of the published literature.” That is pretty severe criticism. What is your policy on peer-reviewed evidence as against websites? Are they given equal weight? Are you changing your policy? What is the situation?

Professor Whitty: This is one of the areas where I would say there has been a dramatic turnaround; I would use that term, which I do not often use. We recognised that there was a weakness in our use of evidence in DFID. The reasons for that are obvious, the main one being time: it is very difficult to pull stuff together in short periods of time. Clearly, when a Minister wants something in a couple of weeks, you cannot put together a PhD thesis. We have tried to be much more systematic about thinking ahead about what the questions will be, so that there is enough time. It is now signed off as DFID policy that everything will be under four different types of evidence product. One of them is systematic reviews, which are contracted out to universities and are done very rigorously, with published methodology, using a particular kind of approach; that is seen almost as a form of research in its own right. The second type of product is what we term evidence papers, which present DFID’s own view of the evidence. I have brought one along as an example. It is on malaria, has almost 300 pages and over 1,000 references, has been peer reviewed by Fellows of the Royal Society and was done largely in-house by DFID staff. These are serious pieces of analytical work. Then there are some

more classical literature reviews, and at the end you have rapid reviews.

Professor Costello took one paper done a while ago, not to any of these standards, and extrapolated DFID’s overall approach to evidence from that; I have to say that he noticed this paper because it did not cite one of his own studies, but that does not invalidate his point. I have described how the Policy Division and our own Research and Evidence Division now do this, while the Minister mentioned the big expansion in numbers. The job of a lot of those people is now systematically to look at evidence—peer-reviewed evidence and, where there are those in addition to peer-reviewed studies, systematic reviews—in a neutral way and, in some sense, qualitatively to grade it. You can always improve on this, and there are many areas of international development where the evidence base is so thin that, whatever you do, you still have to say to a Minister, “Actually, I am afraid the evidence doesn’t give you an answer,” either because the studies are not there or because they have not been done to a high enough quality. We have really tried to say to people that it is far better to use no evidence than to use bad evidence. We would rather they write that the evidence is mixed, so that the Minister has to make a decision on that basis, than that they write something and shove in a few references to websites, just because they are there. That is not evidence—it is simply support, with footnotes, for your own prejudices. I take the general point that this is an important area. I certainly think that we have a long way to go, but the trajectory has really changed.

Mr O’Brien: I can certainly confirm—with feeling—that, where the evidence is not available or is weak, we are left to make a decision without the benefit of such strong evidence and are reminded that we are doing so.

Q100 Stephen Metcalfe: I want to pick up on that point. You say that, if you do not have the evidence to give you an answer, it is better to use no evidence than to use weak evidence. Presumably, therefore, we need to capacity-build. I hope everyone agrees on that. Can you expand on how you think that the Government can help to build that capacity, so that there can be a more evidence-based, scientific approach to decision making in the developing countries? For example, should we be encouraging developing countries to appoint Chief Scientific Advisers?

Mr O’Brien: As a broad policy statement—again, the duo of professors may want to highlight some examples for you—it is clearly right that, in the course of international development, we should make it explicit that we are relying on, and seeking to develop the science, at every possible opportunity. It is absolutely critical for those whom we contract to carry out a lot of the work that, as part of the normal expectation in the contract, they should have to feed back information—however annoying that can be, at times—because it is part of the capturing of operational research that is fundamental. Often one will refer to that in-country in the dialogue one has in a budget support context or even in a programme

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support context, as part of capacity strengthening of the Government machine in the country, let alone scientific capacity building. The two go hand in hand. The commitment and our strong policy support for the role of science in international development are expressed in that way.

You have heard how providing high-quality evidence is part of our decision making. Members of the Committee who have had ministerial experience will know the way the box is filled. You start with an action paper that has this great big scientific support behind it. That is always put at the top of the box; by the time you get to the bottom, you are too tired to bother with the tough detail. It is very important to make sure that you read that first paper, because very often you really have to cross-examine yourself as you read and think about whether the evidence supports your decision, and whether evidence has been found sufficiently well. That is clearly a quality assurance. Part of the answer to your question—whether it concerns country offices, the interlocutors that we have in various countries or even the multilaterals—is that, at the end of the day, both those gentlemen and the culture they are generating within the science-based divisions of DFID feel very independent and objective. That expertise is not, therefore, a tied expertise, if you like. It is tied to the ultimate goal and our interests—what we have a mission to achieve—but it is not tied to us, to try to serve us with what we would like to think. It challenges us, so that often we have to readdress what we first thought.

Professor Whitty: I will add a few points, if I may. Again, there is a contrast with 2004, when your predecessor Committee said that DFID could not cite a single piece of evidence of its doing scientific capacity strengthening. We gave those of you who went to Uganda and Tanzania the shortened version—90 pages' worth—of examples just for those two countries; we could have gone on more widely. I think there is a lot going on.

Our strategy is really threefold. First, we want to make sure that any research we do has a capacity-strengthening element in it, because that builds out from centres of excellence. It is not a total answer, but it is a necessary answer in what we do. Secondly, we want to strengthen the evidence base on this. One thing that has come out repeatedly from your witnesses, in both written and verbal evidence, is that this is a complicated, difficult and long-term business. The evidence of what works and what does not is quite weak at the moment, in terms of capacity strengthening in science. We must strengthen that. We have commissioned systematic reviews and want to have some more primary research and evaluations, to see what works, so that we can do more of it, in a sense. Where we see gaps—for example, in social science—we set up programmes specifically to build research capacity. That is the third way.

Some of that is just to improve scientific capacity in general. For developing country Governments, we have also done things that we hope will help. They range from helping the Committee on Agriculture, Livestock Development and Environment of the Rwandan Parliament with technical support scientifically, through to supporting science

journalism, so that the science that Ministers and others in Departments are hearing from the popular press is accurately reported, through to supporting the Commission for Science and Technology—COSTECH—members of which several of you met in Tanzania, and its opposite number in Uganda. There are other examples of that. We are trying to support the overall scientific base and the machinery of Government, both ministerial and Civil Service-wide, in as many ways as possible.

The final point that I will make is that it is important to remember that many African Ministers are themselves very educated scientists. It is a false assumption, in both Asia and Africa, that the Ministers will know nothing about science. The Minister of Health in Ethiopia, whom I am meeting on Thursday, is actually a world-class malaria researcher and physician, as well as a Minister. We should not feel that they are always the poor relation in this setting.

Mr O'Brien: That is very true. I often feel noticeably un-PhDed.

Professor Wheeler: I think two additional points are relevant. We use the expertise that we have in the Research Councils in the UK to fund joint programmes between southern research partners and expertise in the UK. The Research Councils' programmes are an example of excellence in research, but we can also bring southern participation into those programmes—under strict quality assurance, it is important to say. That contact enables them to build capacity in their own systems.

Just to illustrate the scale of the output here, in the last 12 months we are talking about 3,200 research outputs. To answer Mr Stringer's question, 1,600 of those were peer-reviewed outputs. There have been 1.2 million downloads of DFID-funded research in the last 12 months, so we are talking about huge capacity building capability of the research programme in total.

Q101 Stephen Metcalfe: That is very useful. With such a large volume of research going on, how do you ensure that it is used in a timely fashion, where necessary? In their January 2012 report, Oxfam and Save the Children said that there was evidence of a humanitarian crisis coming down the road, yet no one acted on that. Presumably, somewhere in those 3,200 bits of research there was the evidence for that, both in-country and here, but no one put the two bits together or made the connections. How can we ensure that those connections are made and that there is enough capacity to do that?

Mr O'Brien: It is a very important area to understand, because those reports were important. Clearly, they captured a lot of people's attention. We looked into them extremely carefully, because it matters enormously to us whether there really was dilatoriness in response or a lack of connection, and it is enormously important that we make sure that any lessons are learned. I think it is fair to say that we were not as convinced as those two reports that there had been a massive delay; there was a pretty rapid response. Those who know the Horn of Africa know that there is a very varied set of circumstances across the area in which some of the difficult challenges for

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very vulnerable people arose. In Somaliland, for instance, it was possible to gain access and there was a pretty rapid reaction, as there was a lot of connection. It was possible even to get very close to some of the south-central areas and to start protecting the last of the livestock, so that one was not just building resilience but making sure that capacity was sufficient to continue and get to the rains—just to get beyond the great pressure point. Of course, the access issues mean that there are problems of getting in, even if you have a clear humanitarian disaster. We could see that from the numbers coming across the border to the refugee camp at Dadaab, which I visited. Only a third of a million people—I say “only”—have been there for 21 years, but now there are half a million people there, with people in grave circumstances, in many of the peripheral areas. That is a result of the fact that even “unbadged” humanitarian workers—forget the donor agencies—can gain no access to some areas.

Clearly, we took the issue seriously and examined it. We did not find that there were quite the shortcomings that those reports would indicate. I have a full understanding of—indeed, some sympathy for—the charities’ position. When they see an emerging crisis, as we clearly now have in the Sahel, it is quite important to say, “Let’s remember that we didn’t react fast enough in Somalia,” in order to advocate a speedy response in the Sahel. In fairness, I think that there was quite a reasonable response in the Horn and that the United Kingdom can hold its head up high. We took a leadership position, had good connections in the area and, while never alone, were able to use some comparative advantage to be effective on the ground and to start building and leveraging international support sufficient to make a difference. In the Sahel, we did not have the same levels of comparative advantage. It just so happens geographically to be an area I know well, from a student expedition 33 years ago; I was able to go back for the first time last week. It was therefore important that the EU, France and the US were all able to step up quickly, and we were able to play a full part, according to our strengths.

I think this is a really live case and answers your question to some degree. What has been interesting is that I can see with my own eyes—that is why I think ministerial and Select Committee visits are very important—that, but for what we have already done collectively in the Sahel, you would be seeing many very severely ill, if not dying, children on your television screens, and the cry would be, “Why haven’t you got in there?” Because you are not seeing that, there is a degree to which people are wondering whether it is being exaggerated, so it becomes a more difficult advocacy and political case to make. This early intervention has probably taken away the inevitable, very sharp and severe level of famine or disadvantage that would occur. Be in no doubt—this has the capacity to get a lot worse before it gets better. Again, we have a major access difficulty in Mali, where there is grave destabilisation and insecurity. All of that said, I cannot point to definitive evidence of what I would call the “but for what we have already done” test. That is why, in live time, objectively commissioned research and evidence are vital to my

capacity politically to keep appealing to the British public and other nations for a fair share and balance of responsibility. We should be able to demonstrate that, and it should be objective. Equally important is our operational research and working with others. As the Chief Scientific Adviser said, this is incredibly complex and very long term, but it is vital that we have it for the future credibility of our ability to maintain and sustain this level of help and support.

Professor Wheeler: I think this is a particularly difficult area: how do we get the best science knowledge to inform actions in what can be a very rapid-onset disaster or, in the case of the Oxfam/Save the Children report, a slow-onset disaster? In response to Lord Ashdown’s Humanitarian Emergency Response Review, the Secretary of State asked Sir John Beddington to look into two things. The first was to examine how science can best be used in such disasters. That report, which was launched last week by the Parliamentary Under-Secretary of State, recommended setting up a risk group formed of science advisers and other experts who can provide a three-month look ahead. So looking ahead, from what we know now, three to six months into the future, can we anticipate any potential disasters from a natural or biological source coming down the line? Secondly, if we get a rapid-onset disaster, how can we mobilise quickly the science expertise that we need to inform action? So things may slowly improve looking forward. If we look forward to the 20 to 30-year time horizon, John Beddington has just commissioned a foresight programme to look at the use of science over that period and how we can use science best to predict some of these quite difficult natural or biological disasters. I think things are moving forward slowly, and there is evidence of that in those reports.

Mr O’Brien: Chris may want to add something, but I noticed that the report that I launched at the Wellcome Trust on 11 June shortens to the title SHED, which I find rather unglamorous, I have to say.

Professor Whitty: I will add two points. First, on natural disasters specifically, it is important to realise that there is a range of things that are predictable. On the whole, famines are predictable, because there are a number of things, both social and biological, that tell you that—failed rains, people selling off cows, and so on. Things like earthquakes are not predictable. You may be able to predict where they are going to happen—for example, there are likely to be earthquakes around Kathmandu at some stage, as we know it is sitting in the wrong kind of place—but the science is a long way off being able to predict when it will happen. However many scientists you have in the room, you will still not be able to predict that, so our ability to make policy decisions on that basis is limited.

The other thing to say is that we must be careful not to conflate two separate things. One is making sure that DFID’s own research gets out into the public domain. We have a programme that is probably stronger than that of almost any other research funder in the UK for insisting that everyone who does research for DFID has to have a communication strategy, to make sure that it gets out. It is not enough just to wait until the peer-reviewed publication or the

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book comes out some years later. That kind of communication is rather different from making sure that there is a group of people who can assimilate all the information that you need at a particular point in time, and help advise Ministers and others when they are making their decision. They are different things, but they are equally important.

Q102 Stephen Metcalfe: I have what I hope will be two quick questions and I will ask them together, if I may. Minister, the first relates to your SHED report. Are you intending to implement that fully? The other point, and then I won't need to come back, was about the role of the Carnegie Group. I know they are separate issues, but I wonder whether you could say a thing or two about that.

Mr O'Brien: I am glad that you have asked the questions that way. I will answer the one about the SHED report. Once I have it, I can give you an honest answer on whether we are going to implement it in full, but it is designed—set up through the Government Chief Scientific Adviser—to be likely to give us the evidence base and a series of recommendations. Can I track back a little to the initial foresight report, which dealt with the expected level of population and whether we have a planet that will be able to sustain that? The report was able to range widely and go into depth, and it tried to marshal all the factors that led to that. Putting a series of ifs in place gave you an answer as to whether we were capable of sustaining the level of expected population growth on our planet. Those ifs are now the things that we are all working on to find out whether they can be met and, if not, what the alternatives are.

As far as the Carnegie Group is concerned, I had a good look at this question and decided that it was definitely one that I wanted the professor to answer.

Professor Wheeler: As you probably know, our initial contact with the Carnegie Group is through the Government Chief Scientific Adviser. We are very fortunate, in a sense, in the way that Sir John Beddington supports research and evidence for international development; he has been a strong supporter of a lot of the work that DFID has done throughout his term of office. In terms of our representation on that group—international development evidence—that has worked very well for us.

Going to the next level down, through the Chief Scientific Adviser, we feed into the Global Science and Innovation Forum. That informs John Beddington when he goes to the Carnegie Group meetings. That is, probably necessarily, quite a procedural step. It is probably equally important to say that every Wednesday morning there is the informal to and fro between John Beddington, Chris and the other Chief Scientific Advisers, which gives a more rapid turnaround of influence up to that level. I think that dialogue is important, but I struggle with the overall question of whether we could use that connection more effectively. As I said, I think we are in quite a good position at the moment, but how we could use that more effectively to support developing country capacity at that level is something perhaps that we need to think more about.

Q103 Pamela Nash: The Wellcome Trust's Sir Mark Walport said in his evidence "that the UK could be more effectively joined up in its international activities". When conducting this inquiry, we have met beneficiaries of all sorts of UK organisations, including DFID but also the Scottish Government, our universities and, of course, the Research Councils. Do you agree with Sir Mark's statement? If so, how can we remedy this situation? Does DFID have a role in that?

Mr O'Brien: Let me say how much I would hesitate to disagree with Sir Mark Walport. I think it is true in today's world of science that all science, from whatever quarter, and all users or commissioners of science do not want to have to relearn what is already going on. In a sense, everyone wants to come up to a base from which they then go further forward. That has worked fantastically, as I understand it, in the area of research relating to the genome. In this area, it is more difficult, because—as you no doubt realise—it is very complicated and extraordinarily cross-cutting. It is very difficult even to decide what the critical path is—whether it is of behaviours or scientific application. In a sense, I could answer simplistically that of course it would be brilliant if everybody could be very joined up, but inevitably there is a degree to which any organisation is seeking to align its resource. As you have heard, there is a real commitment not only to recognising principle and policy here, but to putting the resource behind it and making sure that we have a challenging environment—not just a benign environment—for science, which may well produce answers that are inconvenient to Ministers and to preconceived notions.

The straight answer is that it would, of course, be very nice to do it, but to some degree there is a commissioning responsibility that has to come back to those who have decided where this sits within their panoply of effort and where they are trying to make sure—particularly going back to some of the earlier questions—that we are not leaving gaps and retain confidence in the science and evidence as it emerges, in order to help us make decisions, which, ultimately, are to do with the delivery of policy and the utilisation of our taxpayers' money to best impact and effect, according to the mission we have outlined. It is a yes, but with the qualification that we must not do it to the point that we lose responsibility for the money we have identified and wish to expend.

Professor Wheeler: Can I add a little to that?

Mr O'Brien: The danger of being surrounded by such clever people is that they always have something to add.

Professor Wheeler: Briefly, I think there are three sides to this. I think it works best at the top and less well at the bottom. In the UK, we have the UK Collaborative on Development Sciences. As a body, that plays a very valuable role in pulling together the UK interests in this area and the expertise that we have in the UK.

If we step to the second point, on an international basis, I think this works well on a programme-by-programme basis. In the programmes where we work with the Bill & Melinda Gates Foundation, for example, I think we are joined up well right the way

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across the piece, in both agriculture and health. With IDRC, which is the Canadian unit, we again work well.

Coming to the least last, it is incredibly difficult to try to join up all the related areas, throughout the international donor community, into one collaborative programme. In fact to do so would probably exhaust the entire division.

Q104 Pamela Nash: I was referring specifically to UK-based organisations.

Professor Wheeler: I think that is where we are strongest—in joining up within the UK.

Q105 Pamela Nash: Is there anything you would like to add?

Professor Whitty: I think the donors and funders are joined up very well, as Tim said, through formal mechanisms like UKCDS, which is another creation of this Committee. The links with the universities are more problematic. The real problem is that, frankly, if I saw a representative of every university that writes in to say it would like to have a bilateral meeting, I would spend almost all my time meeting universities on a one-to-one basis. We are trying to put together a mechanism by which we can meet groups of universities, where the discussion can be open and no university is privileged. That is the level in the UK where I think there is a problem. I do not think there is a problem when it comes to funders. For example, I meet the heads of the Research Councils regularly, both through UKCDS and through other mechanisms. That kind of stuff works fine.

Mr O'Brien: At ministerial level, it tends to be with foundations more than with the universities, because it is about getting the commissioning to be complementary, if not reinforcing.

Q106 Pamela Nash: I also mentioned the Scottish Government in my question. I am not sure what the Welsh Assembly and the Northern Ireland Assembly have in terms of international development, but the Scottish Government have quite a considerable programme. Is there any co-ordination between the UK and Scottish Governments?

Mr O'Brien: There is indeed. I will put to one side the development budget issues, but on the science side, which is what you are focusing on, it is well recognised, not least because development is a UK-wide responsibility, that we have to gather the whole UK input into supporting this.

Professor Whitty: It reached its best point when Anne Glover was Chief Scientific Adviser for Scotland. She is now Chief Scientific Adviser for Europe, but she actually chaired the UKCDS, so at that point there was phenomenally good linkage. As a Chief Scientific Adviser, I meet regularly her successor, Professor Muffy Calder—less on the development side, but there is good linkage. Of course, a large proportion of our academic staff is based in Glasgow—more accurately, in East Kilbride. It is not the case that we have no Scottish links; in fact we are probably more joined up in Scotland than many other Government Departments.

Mr O'Brien: That is one of the many reasons I enjoy going up to East Kilbride quite regularly, mainly in order to talk to the two professors' teams.

Q107 Pamela Nash: That is interesting; I am glad to hear that. I would like to move on to the relationship that the Department has with other UK Government Departments' international initiatives, such as the Science and Innovation Network and the Global Science and Innovation Forum. Is that a relationship that is working well at the moment?

Mr O'Brien: I am going to ask others to answer that, as I am not personally involved in those. In many ways, that is the answer. At a ministerial level, that is not where I would spend my time.

Professor Whitty: Again—I am just echoing Tim's point—at the top this is easy. I meet my counterparts in other Government Departments every week, and we discuss these issues regularly. In terms of the Science and Innovation Network, which is a joint FCO-BIS area, there are two countries where we co-locate; they are India and China, and India is the most important. One of the reasons we chose to put DFID's first experimental, in a sense, research hub in India was that we have there the Science and Innovation Network person, the Research Councils UK person and our person all sitting in the same room so that we make sure we are properly joined up in the Indian area. Most of the SIN is focused on the developed north, so most of the people are in Europe, the States and so on. They are very useful if the Minister or I go to Washington, for example, on a scientific issue, as they will give us briefings, but there is not an awful lot of overlap in terms of geography. Wherever there has been overlap, we have worked really well with them and it has been a very encouraging process.

Q108 Pamela Nash: I know you are not responsible for the Science and Innovation Network, but do you foresee any opportunities for the situation in India to be replicated in other countries?

Professor Whitty: From a DFID perspective, we are looking seriously at whether we should put a research hub in Africa. There are a number of reasons why just replicating across may not be the right thing to do, but we want to see whether we can do that. The SIN is looking seriously at putting people into Africa. In the medium term, that is absolutely the right thing to do as countries' development increases. The rate of change and development in Africa is astonishing to those of us who have worked there for 10 or 15 years. There are many countries in Africa, like Ghana, that are really very sophisticated in their use of science and it would be a real shame for us not to tap into that emerging market of scientific information. I would love to see more experience of this. I do not want to speak for the SIN, because it is not my Department, but I know that it is genuinely looking at whether it should put more (from here) people in Africa and, if so, where, outside South Africa, where it is a relatively straightforward yes. It is probably something to ask the SIN rather than me.

Pamela Nash: We will keep an eye on that.

Mr O'Brien: Some places have done outstanding work in the past. Maybe they have lost their track

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record, but clearly they are now being built again. One of the biggest questions is not just the place where you do the work but having access to the volume of people it will have an impact on. A big question would be whether to go to Ghana or to Nigeria, where the population is forecast to reach a billion in fairly short order. That would make some sense in terms of the potential application and the pool from which you could draw. I make no presumption; I am just saying that those are the considerations that we would have to look at.

Q109 Pamela Nash: We received some limited evidence criticising the relationship that DFID's offices here in the UK have with the country offices. Obviously, that relationship is not uniform in every country, but can you comment generally on how it works at the moment and how it could be improved?

Mr O'Brien: In terms of collaboration and working with our country offices, as you heard a little earlier, it is very unusual for the country offices to be staffed by those who are particular specialists in the area. It is very much about drawing on a pool of specialists, either in the London office or, particularly, from Abercrombie House in East Kilbride, where we have a number of these specialists. You have also just heard about the offices in certain countries such as India.

The issue with collaboration is that, whilst we have a complete commitment to support our country offices—quite rightly, as you would expect—they are increasingly engaged with the Research and Evidence Division, because all of them are required per programme and in everything they do to think not just about the operational research. I will give an example. Increasingly, if you are trying to distribute long-lasting insecticide-treated bed nets in areas of mass population in, say, Kano, in Nigeria, however much we get programmes in place, 98% of people are still going to access a bed net, if they do so at all, through their local shop—the private sector. Whether it is through the AMFM or not, how can we be sure, if we give money to the shopkeeper—the stock controller—in order to bring down the price, which will increase the access of those who have a lot less money to spend on this item, that that will increase access rather than his or her margin? We need evidence for that.

Q110 Chair: We saw a very good project in Dar es Salaam that we would commend you to look at.

Mr O'Brien: I imagine that Jane E. Miller may have been involved—maybe not—but a number of projects have really been working hard to understand this. I would like to hear the details of that.

Q111 Chair: They have used an SMS system to ensure that the right information is transmitted back.

Mr O'Brien: That is excellent. SMS is one of the technologies that is really capable of transforming the empowerment of poor people, in particular, or those just above the level of poverty—just at the start of having a business—so they are not subjected to commodity flow prices and can actually start commanding more power in the marketplace. Whilst that certainly affects the agricultural sector, it does affect these commodity supplies, such as bed nets and

family planning commodities, which are crucial to the future of these communities, families and populations.

Professor Whitty: Whereas I felt that quite a number of the criticisms that were raised were based on a lack of information, I think this one has some basis in fact. Before I joined DFID, one of the things I was told by colleagues from the Gates Foundation was that they would give their eye teeth to have the network that DFID has in the country offices, yet the research and the country offices really had very little relationship with one another. I think it has improved by a number of mechanisms, one of which is having more advisers on the front line, and secondly by demanding now that every single project has to put evidence of impact and need in the project document. That has meant that people have really been forced to engage on the evidence side.

On the research side, I think there is a way to go. Clearly, it was very difficult in 2004, when your predecessor Committee published the last report. If you had such a small research team, they could not possibly cover things. Now we have a much larger group of people who can do it. We have actually dedicated a team whose job it is to interact with the country offices, particularly in Africa, to try to overcome these barriers, because we accept that they exist. We have put a research hub in Asia, physically based in Delhi. That has worked very well for covering India, Bangladesh and Nepal. It is less easy, for reasons that are obvious to everyone who reads the newspapers, to cover Pakistan and Afghanistan; that is still something that we have often to do from here.

We acknowledge that there is still a way to go. We think we have moved quite a long way, but we need to do more, which is why we are looking at things like hubs in Africa. However, there is a limit to how much you can replicate that; the value for money does decrease after a while. I hope that, if we were asked the same question in two or three years' time, we would be able to give a much more universally positive answer. I think we are on the upward slope, but we are on the earlier part of that slope in many of the country offices.

Pamela Nash: I think you have just signed yourself up to another witness session as today is tight.

Chair: Minister, before we move on, I am conscious of time. Are you okay until about a quarter to 6?

Mr O'Brien: Yes, that is fine.

Q112 Stephen Mosley: Dr Beth Taylor from the Institute of Physics told us that the learned societies had in place a lot of schemes of around £10,000, with voluntary time; they have quite a bit of capacity to do things at that level. They also say that you have a number of projects that are at the £1 million-plus level but there seems to be a gap around £100,000 to £200,000. Do you agree with that? If so, do you think that some emphasis should be put on that sort of level?

Mr O'Brien: You are right to identify that the majority of our schemes are probably in the large category, but it would be wrong to say that the small or medium-sized projects and programmes are either deliberately—which I do not think you were suggesting—or de facto excluded or over-minimised.

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It is a question I have asked myself, given how important it is to make sure that the smaller programmes are capable of being integrated into our broad research effort. In the year that has just finished—2011–12—we provided £27 million to the Research Councils for various collaborative programmes, which comprised small to medium-sized projects. It is primarily through the Research Councils that we could address what that evidence suggested to you would otherwise be a gap, and £27 million is a reasonable figure to be spread across a number of small and medium-sized projects. That is the answer from a ministerial level, looking at it from that point of view.

Professor Whitty: I agree with the underlying principle behind the question: that small things often give you at least as much information as big things, and that a large number of smaller things, rather than big things, can often be the right approach. What was interesting when I read a lot of the witness statements was that people would say, “Why isn’t DFID doing something like EDCTP?”, but DFID funds EDCTP. They would also say, “Why isn’t it more like MRC?” Actually, we provide much of the money, through the concordat, that the MRC uses.

We ourselves can handle bilaterally only quite large grants, because, although we have a much larger research division, it is nowhere near the ratio that a Research Council or, let’s say, the Wellcome Trust can throw at peer review and doing this properly. We can do only a relatively small number; we have to make them big. We then try to make use of the skills of the Research Councils, the Gates Foundation and the Wellcome Trust. Basically, we buddy up with them. We provide some or, in many cases, the majority of the money; they provide the expertise in running panels and the peer review system, which we jointly agree. That mechanism allows us indirectly to fund a lot of these smaller things. It is interesting that many of the examples that people quoted when asking, “Why doesn’t DFID do this?” involved DFID money—it was just DFID money channelled by another route. I do not want in any sense to dismiss the question; it is absolutely right. Tim, do you want to add anything?

Professor Wheeler: It is a portfolio question. There are also a small number of directly funded projects in the £100k to £200k ballpark. Two of those reported recently. We had the Africa groundwater map, which was a DFID project. We had the smart water pumps in Kenya project, which got a lot of media attention in the last couple of weeks. People do not often realise—and this is Chris’s point—that they are DFID projects, because they are small projects but, nevertheless, in a big portfolio, there are a reasonable number of these.

Q113 Stephen Mosley: Moving on to something slightly different, we have met a large number of students and people on Commonwealth Scholarship Commission schemes. One thing they said was that there seems to be a lack of opportunities for early career researchers. Quite frequently, people at the beginning of their careers have to go abroad to build

their careers. Are you doing anything to support researchers at the beginning of their careers?

Mr O’Brien: Again, this is an HR point. I am thoroughly committed to really expanding this and letting it happen. Within DFID, we have a parallel scheme that has been announced, which is to get many of those who have qualified and are, therefore, in the early steps of their career in the NHS—whether they are doctors, nurses, therapists, technologists, engineers or radiographers—to have three or six months out in a developing country, partly because of the enormous benefit when they return, as they will have been exposed to public health, mass drug administration, and dealing with dehydration and malnutrition. Some of those elements have been lost from the ethos of the NHS, so there is enormous benefit to us. It is not exclusively for early careers; it can be more convenient for young people to decide to be abroad for a period, but it is also for those who wish to do it mid-career and, indeed, for those who have recently retired. It is trying to get that capacity. You need people who are qualified and have sufficient capacity and capability—it is the same in academic and research circles—because there is not the supervisory capacity in the receiving partner country. Thinking of the electives that doctors go on to South Africa, it tends to be South Africa because many other countries in Africa do not have the supervisory capacity that is required. As a matter of principle, these are important.

In DFID’s case—or, if you like, the NHS case—what matters is what is stopping people doing it. In my view, the question in five years’ time for any NHS job should be, “Why weren’t you in a developing country for six months at some point in your career?” The fear has been, first, what is my re-entry; secondly, does my pension suffer; and thirdly, from the institution, have we got the capacity to backfill? To some degree, those all apply equally to the academic side, but you raise a very important question that is broader than purely this particular field. As a personal and ministerial decision, we have made a very clear commitment that we see this as absolutely vital to growing the capacity back here in the UK, apart from anything else, but it will be a fantastic knowledge and technology transfer to many developing countries at the same time. Would you now like to make it relevant to our Department?

Professor Whitty: The first thing to say is that I totally recognise the point that the students have made to you. One of the problems is that, in the career path of academia, the big bottleneck is different in different countries and different disciplines. For example, in health—my own field—by and large, many able people in Africa can get a PhD, but they get a fall-off when it gets to the postdoctoral stuff that they can go on to; if you were in the London School of Hygiene & Tropical Medicine, that is the question that you will have. In the social sciences, people cannot even get on to masters; the blockage occurs at an earlier stage of the pathway. You have to think about every discipline. The reasons for this are weak institutions that are not able to support people, or not being able to get research grants. There are multiple reasons for this; there is not a single fix.

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First, we acknowledge that there is a big problem. Secondly, where possible, we try to support people like the Royal Society, who are taking these things seriously. Thirdly, this is not an area where DFID feels it has a particular competence; it is very much an area where we would have to work through others. This is incredibly technical. You really need to know your field in quite micro detail to be able to work out where the blockages are and which are the right things to do. We recognise the problem and will try to work with others to address it but accepting that it is complicated and that DFID has only a certain level of competence in this area.

Q114 Stephen Mosley: I move to something slightly different that we have heard. John Young from the Overseas Development Institute told us about some research work that went on in India a few years ago. They did the research work, which was absolutely fantastic, but there was a difficulty in translating that into actual policy decisions at the end of that research. We have heard that the moratorium on communications within the UK Government is stopping us from progressing these things. You fund the research, but, when it comes to implementing it, no one knows about it so it is difficult then to implement it. Is that something you have come across? Is it still happening?

Mr O'Brien: It is a fair point, because these constraints on expenditure do bite. Communications is one of those areas that is clearly a discretionary expenditure, which, whether you are in Government or a business, you would choose to attack first, because it is doable, with immediate impact and effect on what you are trying to achieve in terms of bottom-line expenditure. I accept that if you do not communicate and broadcast some of your gains—your findings—they will be of less application going forward. I am sorry—that is a phrase that my ministerial colleagues have just banned us from using. “Being able to progress”—mind you, that might be banned as well; I don't know.

While I accept the point of principle, I think it has not been that huge as far as DFID is concerned. We are really working on trying to increase awareness, and we work really hard through our country offices to ensure that there is dissemination. Some of you may have had the opportunity to check out the DFID and R4D websites. Most reactions are that these are pretty positive experiences in terms of the communication of what is going on. I do not know whether it is in sufficient detail for the sort of evidence that was adduced to you; if you want to know whether it can be amplified, I should ask Chris Whitty. It is my impression that, yes, there is some effect, but it is not that appreciable so far as DFID is concerned.

Q115 Chair: I am conscious that a lot more could be said about this. It may be helpful if Professor Whitty could drop us a note on it, because I am conscious of the pressures on everyone's time.

Mr O'Brien: That would be fine, I am sure.

Q116 Sarah Newton: You have been really generous with your time. We are probably in the last few

minutes now, but, before you go, I want to look at the whole area of business, particularly what you are doing to encourage innovation and the application of science to businesses in developing countries. Can you give us an update on the sorts of encouragement that you give to attract investment? It was very pleasing to hear what you said about the rapid improvements in Africa, with countries becoming more able to look after themselves. How can we help businesses in those countries?

Mr O'Brien: It is a really important area of work. You will be aware that, following the transformative approach to programmes, value for money, impact and driving for results that we have sought to embed within the Department over the last two years, one of the essential pillars that everybody has been challenged to produce is wealth creation interventions that will have a major effect. Most of that is on private sector development, but one has to say that, equally, it can often be tied to some of the academic and research areas as well as to higher education transfers. Of course we want state-of-the-art evidence to justify any investments. Indeed, in many ways, what we are trying to do abroad we try to apply to ourselves, in terms of the rigour of the business case process. However much we set a strategy or policy, and whatever we say at the Dispatch Box and in our publications to justify that, each and every programme comes to Ministers with a really detailed business case that we then have to apply. We are really seeking to interrogate that, including all the research that lies behind it. That includes business, innovation and growth, often in the context of countries across Africa that now have growth rates that we would die for. Often growth is not very well spread; there could be overdependence on extractives, for instance. Yet in places like Kenya, which does not have many natural resources, a lot of it has to do with a past approach—the fact that they had a commitment to land tenure and legal rights to land, whereas in Tanzania that is still a challenge after 45 or 50 years. You have to look at what asset can be collateralised. These are very important parts of the evidence base, which then give us the chance, particularly in our dialogue with these countries' Governments—as I said, whether it is in budget support contexts or in relation to specific programmes—to be deeply persuasive that these are the right points of emphasis on which to partner with them, as part of this broad graduation from aid over time, however long it may take.

One has to look at a country like South Korea as a good example of the fact that, if you take a 45-year view, countries can really fly. Ghana is looking very promising at the moment. Of course, the point of graduating from aid will have a lot to do with how the private sector takes off—not just because they landed oil at Cape Three Points in December last year, but because of the legislative, regulatory and fiscal context as to how, with that unique asset, international people with expertise will get the stuff out of the ground. The question is, how much will that unique national asset yield to a transparent, democratically accountable Government that can choose how to deploy it to pump-prime the economy around Tamale in northern Ghana, which is still very poor? At the

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point at which we cease to be aid partners, there will still be some very poor people in Ghana, but they will have the domestic mobilised resources to help them. This is all deeply evidence-based and very private sector-driven, working with others. A specific example is the International Growth Centre, which is working with a large network of scholars. It is convened at the LSE and the university of Oxford; I am sure you will have heard the name Paul Collier mentioned frequently. I was at the launch of the Ghanaian enterprise map the other day, but Professor John Sutton of the LSE has published a number of books that are basically the culmination of research detailing countries' industrial capabilities and investment opportunities. We may have helped with a product, but at that point, in truth, it is up to others to make their risk assessment. If you like, it is me mapping back 15 years to what I used to do—deciding where I could best place a business bet. That is not a role for Government. Ministers should be very cautious about getting involved in either picking champions or trying to run businesses.

Professor Wheeler: We have many examples; you may want some of them on paper rather than now. In the agricultural sector, we see the role of business in two phases: first, taking research findings into use, so into market; and, secondly, scaling up. We have a range of programmes in both those areas. We have livestock vaccine programmes with significant private sector involvement, where we have now got vaccines for East Coast fever and Rift Valley fever out into use in east Africa. There is an agricultural enterprise challenge fund; there is working with small and micro-businesses; again, it is getting research findings into use and filling that space. We also have the African Agricultural Technology Foundation, which is working with the private sector to see how we can exploit IP—perhaps through new, improved crop varieties that can be used to improve the water efficiency of various crops in Africa. There is a whole portfolio of these; there are more in the health part of the portfolio as well.

Mr O'Brien: In the interests of time, we may be able to do another short note detailing the roles of, say, the PIDG and the CDC.

Q117 Chair: It would be useful to have a paper on that, including how it interfaces with the work of knowledge transfer networks, TSB and so on.

Mr O'Brien: We will happily do that, because it is quite a range of things that I think you will find helpful.

Q118 Sarah Newton: Thank you, Chairman. Those were my follow-up questions. I would be very interested to hear about your relationships with UKTI, in addition to those bodies.

Mr O'Brien: We work with UKTI, but at that point you have to remember that we, as DFID, have untied aid. As soon as it moves from being sectoral or contextual to being either company-specific or lead-specific, both I and all officials in the Department are very conscious that we have to take a step back and let the Foreign Office or BIS take the strain.

Q119 Jim Dowd: I am conscious of the time, so I shall attempt to condense all my questions into one. I want to look briefly at monitoring and evaluation, if I may. Minister, you and Professor Whitty referred earlier to the science and engineering assurance review. I am sure you can remember recommendation 4 off the top of your head, but in case you cannot—you will forgive the fact that it contains a brutal split infinitive, but it is not my words—it states: "DFID needs to do more to systematically learn lessons from evaluation of work, including, for example, in disaster areas or conflict states, or the impact on health and poverty of various sectoral policies; and make sure the lessons are used across the organisation."

The question is, what are you doing, and what have you done, in response to that? What, if any, plans, do you have to look further down the road, after projects are completed, so that you assess them not just at the time but for their lasting impact?

Mr O'Brien: Those are excellent questions, and the recommendation was very helpful. You will be aware that, as a matter of policy and practice, we are seeking to get absolutely maximum value for every pound spent and to measure impact. You asked about monitoring and evaluation. In terms of the broad parameters of grants and programmes, we are withholding 5% in order to put it into M and E work, to make sure that we are detailing that. Operational research gives us a much better fix on the data that underline how to be more nimble within contract, if I can put it that way, which is very much over-summarising the complexity of the situation, because that has been part of the problem. Even if you have had relatively good post-audit or M and E, the danger is that, by the time you have learned the lessons and applied them to the next time you issue a grant or commission work, it is almost a six-year time lag. Of course, within six years in development, things can change dramatically.

I think we are all going through a process of learning how to maintain very strong, transparent, accountable and detailed expectations of performance that are related to results and impact, but at the same time to be nimble enough not to be totally reliant upon saying, "You haven't performed in exactly the way you promised," and having those who are the performers say, "We need more money", but to be able to adjust more within the time. That is one of the ways of trying to be much more mature about the way that this works.

In broad terms, evaluation is clearly critical. We have the Independent Commission for Aid Impact, which reports directly to the International Development Select Committee of Parliament. Clearly, that is looking at things in a very detailed way; after its first full year of activity, we can certainly testify to that. How much deep scrutiny it is giving to all the DFID programmes, including this very point, is on the public record.

As you know, evaluating scientific capacity, which is what underlies your fundamental question, is inherently difficult. I do not think we should shy away from just how difficult it is. The process is complex enough, but then assessing it is equally difficult. However, there is a real commitment to rigorous

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evaluation processes. Through annual reviews, through the Chief Scientific Adviser's very detailed appraisal of people, programmes and timelines, and through independent, external peer review and scrutiny practices, we are really committed to this. I understand fully its importance and think the recommendation is helpful in reinforcing that. In building our evaluation capability of staff, at the moment we are in the process of recruiting more—if I remember correctly—both at the centre and in the country offices, so you are getting it as near 360° as is practicable. That is broadly the answer. I hope that what I have given you sufficient for it not to be necessary for me to call on my sidesmen.

Jim Dowd: That is fine. I shall study the draft as well.

Q120 Chair: Minister, we have covered a huge amount of ground. Regrettably, we had to squeeze the last few questions because of pressures on time. We would welcome the follow-ups that have been referred to. I want to leave you with one conundrum that I would like you to think about before you put pen to paper again. We have had an informal paper sent to us that we hope, when finally cleared, will be put formally to us. It sets out a conundrum that we have come across with several of our witnesses, relating to the pressures on you and the pressures on the

Research Councils. It states: "Applications for research, monitoring and evaluation in developing countries should include partnership and capacity strengthening as essential, heavily weighted evaluation and reporting criteria. While this is already in place to a considerable extent at DFID, it is conspicuous by its total absence from all research council funding, with the exception of some MRC grants specifically for African investigators."

That is a challenge for your academic colleagues to contemplate. How does DFID ensure that the bright young scientists who are involved in many of the programmes that you have supported get the recognition they deserve when there is not the expertise in what is happening in some of the countries they are working in among the people peer-reviewing their papers? I leave you with that thought.

Mr O'Brien: It is a very interesting conundrum.

Q121 Chair: It is a conundrum.

Mr O'Brien: But there are certainly some prime examples. The prize the Royal Society gave to Julie Makani the other day is a great way of observing what really can happen on a world-class basis in-country.

Chair: We are extremely grateful to you for your time. It has been a very interesting session.

Written evidence

Written evidence submitted by the Department for International Development

INTRODUCTION

1. The UK Government is committed to ensuring high-quality scientific evidence is effectively integrated into policy development and delivery.

2. Strengthening the capacity of science¹ and scientists in the developing world by the British Government takes many forms and several parts of Government support it directly or indirectly. This submission to the Select Committee on Science and Technology covers some of the direct support, in particular by DFID as that is specifically mentioned as a focus for the Committee, but it should be seen in the context of work across the developing world where other Government departments take the lead. UK support with Government funding for improving science capacity in the developing world also includes: work undertaken by the British Council; the Research Councils; the professional Academies; the Commonwealth Scholarships Commission and many UK universities and other Government backed bodies. The European Union and United Nations bodies such as United Nations Educational, Scientific and Cultural Organisation or the Food and Agriculture Organisation (which in turn the UK contributes to) provide significant levels of support in this area. In addition private and civil society organisations in the UK such as the Wellcome Trust provide major support in specific areas (for example health), and the UK Government provides collaborative support. We have excluded these from this return, but some organisations are submitting evidence separately.

3. The UK Government recognises the importance of increasing scientific capacity in developing countries, and in particular in Africa and resource poor parts of Asia. But we recognise that strengthening scientific capacity is a long-term activity, involving a number of complex interventions. The monitoring of such interventions at key milestones at steps along the way, allows DFID to gain valuable feedback on progress, allowing activity to be adjusted and improved on the basis of information gathered.

4. There are a number of steps towards building a good body of scientists in developing countries, across many specialist disciplines, including the social sciences and operational research. Addressing any of these in isolation will not lead to optimal outcomes. These include adequate schooling so that there are sufficient numbers of people entering tertiary education, undergraduate and masters level training in local universities; availability of high-quality doctoral programs; postdoctoral positions for the ablest doctoral candidates to go into; merit-based career progression, and functioning universities and other higher education institutes including proper financial management. In order to develop world-class scientists, they must also have access to research funding. There also has to be a balance across the different scientific disciplines particularly given the importance of multidisciplinary work.

Question 1: *How does UK support scientific capacity building in developing countries and how should it improve?*

Examples of Scientific Capacity Building in Developing Countries

5. The UK, through DFID, commissions research and capacity strengthening programmes that aim to deliver impact in developing countries by (i) improving the skills of individuals to both undertake and use research at several points in their career; (ii) strengthening the ability of research departments to fund and manage independent research and innovate; and (iii) helping to improve the enabling environment for research (for example increased Government funding for research or the establishment of national research councils).

6. All directly managed research consortia are required to have a research capacity building component. This includes realistic and achievable plans for country-led research and devolving research responsibility to Southern partners.

7. In areas where DFID has identified significant gaps, it has, or is in the process of developing, stand alone research capacity initiatives in order to provide longer term, more predictable funding to Southern country research organisations and networks.

8. DFID often collaborates with others who have expertise in this area, including the British Council, Research Councils, Commonwealth Scholarships Commission and the Wellcome Trust. *Examples* of DFID centrally-funded programmes supporting research capacity strengthening in sectors with a significant science component include the following. A full list can be provided to the Committee on request:

(a) AGRICULTURE

Strengthening Agricultural Research and Development in Africa

9. There is a significant lack of capacity to conduct and manage agricultural research in Africa. This programme aims to strengthen human and organisational capacity to ensure that National Agricultural Research

¹ The working definition of science for this submission includes natural and physical sciences as well social sciences (including statistics and economics).

Systems are better able to identify, generate and deliver research outputs that meet the needs of the poor. It has strengthened the organisational capacity of 12 institutions to deliver training and supported MSc graduates in 10 countries including Rwanda, Sudan, Zambia, DRC and Mali. Interim evaluation results indicate that the graduates have started to play important roles in leading research initiatives in their countries and institutions.

(b) CLIMATE CHANGE

Policy Innovation Systems for Clean Energy Security

10. DFID is responding to identified capacity needs in Policy Innovation Systems for Clean Energy Security within four countries in East Africa by building research skills for young scientists in the area of bioenergy. To date 19 MSc students have graduated, while 17 MSc and 8 PhD students are in the process of studying. Twelve papers (eight peer reviewed), two Book Chapters and two Books have been published.

(c) HEALTH

Health Research Capacity Strengthening Initiative—Kenya (DFID and Wellcome Trust)

11. In Kenya the pool of scientists is aging and most health research is un-coordinated and funder-reliant. This programme is addressing these constraints by taking a “whole systems” approach to capacity building. It addresses research governance, improving researcher skills and career progression, as well as strengthening demand for research outputs by the Ministry of Health. It has delivered:

- Improved capacity of young Kenyans to undertake research, with research from intern to post-doctoral levels.
- Strengthened capacity within Kenyan research organisations: four centres of research excellence have been established.
- Improved enabling environment for research: ongoing work with the National Council for Science & Technology to strengthen ethics regulations, raise the profile of science with young Kenyans and establish a knowledge sharing platform to facilitate policy making.

European and Developing Countries Clinical Trial Platform

12. The European and Developing Countries Clinical Trial Platform, with significant UK Government support, undertakes training in clinical trials that focuses on poverty related diseases. It is a partnership between 14 EU countries and Norway and African countries. Specific capacity development includes strengthening skills in laboratory expertise, research monitoring and research management.

(d) INFRASTRUCTURE

Africa Community Access Programme

13. The focus of this programme is sustainable road provision and maintenance and reliable access for poor communities. To strengthen research capacity it has established a community of practice of 530 experts across Africa, comprising transport practitioners in agencies and ministries across the African focal countries. This is enabling knowledge sharing of the latest research, providing new links for efficient transport provision, as well as ensuring the sustainability of the network.

(e) SOCIAL SCIENCE

African Economic Research Consortium (AERC)

14. The AERC is a capacity building programme supporting African universities to raise the quality of MSc and PhD programmes through enhanced teaching and mentoring. Approximately 100 MSc graduates and 5 PhD graduates are trained each year.

15. In Côte d’Ivoire, for example, the Minister of Finance, the permanent secretary in the Ministry of Finance, and the economic advisors to both the President and the Prime Minister are AERC graduates. So are the governors of the central banks of Nigeria and Kenya and the general manager of the Bank of Mozambique. Impact mediated through behavioural change in governance is demonstrated through the number of AERC alumni occupying senior positions in Africa.

16. Additionally *DFID country offices* are often involved in projects where there are perceived to be gaps specific to that country. Three examples include DFID-Nepal which provides support for the National Academy for Science and Technology; DFID-India’s support for Indian scientists to publish work on climate change, and to prepare research bids; and DFID’s work with the International Centre for Diarrhoeal Disease Research in Bangladesh (ICDDR, B)

In other developing or middle-income countries other Government Departments undertake work which includes significant capacity strengthening for science. Examples include:

17. The Government Chief Scientific Adviser and the Head of the Government Office for Science (GO-Science) Sir John Beddington made the first high level science visit to Vietnam in 2009, during which opportunities for collaboration on Biotechnology and Biological sciences were identified. The visit was followed by a BBSRC mission that led to a joint project on rice genome sequencing being taken forward by the John Innes Centre and Vietnam's Ministry of Science and Technology. The project is helping develop scientific capacity in Vietnam as well as providing information to improve flood, drought, salt and pest tolerance in the world's most important staple food in the face of a changing climate and growing population.

18. The GO-Science Foresight Unit has invested in a programme of "follow-up" to its major projects including working with developing countries and emerging economies to help them develop or enhance their scientific capacity. Two examples are:

A. *The report Infectious Diseases: preparing for the future (2006)* analysed the science and social context of the future long-term risks for plant, animal and human health in the UK and Africa. This led to a consortium of leading African organisations from five countries established the Southern African Centre for Infectious Disease Surveillance in Tanzania. This Africa-led initiative has attracted support from a range of international donors. In addition, the African Union commissioned Foresight's lead African experts to develop the "AU Science and Technology Framework for the Detection, Identification and Monitoring of Infectious Diseases in Africa".

B. *The Foresight report Future Flooding (2004)* has had major international impact, not least as the basis of a four-year UK-China "flagship" project on sustainable flood-risk management; and the Foresight report on the *Future of Food and Farming (2011)*, which was jointly commissioned by DFID and Defra, has had wide international impact.

19. The Department of Health (DH) supports scientific capacity building in developing countries through their role as secretariat for the cross-Government Health agenda through the Global Outcomes Framework. Examples of DH activities to assist scientific capacity building include: the development of e-learning packages and training materials for health professionals outside the UK; international knowledge sharing and awareness events and overseas secondments for shared learning purposes.

20. DH bilateral work provides significant opportunity for capacity building, including capacity building to support the science behind the reform and development of health care systems in countries such as China, Brazil, India and South Africa.

21. The UK supports the conservation and sustainable use of global biodiversity predominantly through the Darwin Initiative. This small grants programme, which is jointly managed by the Department for Environment, Food and Rural Affairs (Defra) and DFID, funds projects between UK institutions and developing countries and has supported over 700 projects in 156 developing countries since 1992. It aims to share UK expertise in conservation and scientific techniques with host countries, and has seen long-lasting legacies established in developing countries benefitting better scientific evidence on native biodiversity, more effective conservation management and enhanced capacity building in the host countries benefitting both individuals and communities.

22. The UK is also working to address global research challenges in the area of animal health. Defra is leading an EU-sponsored strategic global alliance, funded under the Seventh Research Framework Programme (FP7) that will promote the coordination and cooperation at international level of animal health research programmes, in particular infectious diseases including zoonoses.

CHEVENING SCHOLARSHIPS

23. The Foreign and Commonwealth Office (FCO) run the Chevening Scholarships scheme which offers scholarships to citizens from over 100 countries. Since its establishment in 1983, thousands of Chevening scholars have studied, and continue to study, a wide range of science and technology related courses. FCO now have an active scholarship programme in all its relevant missions. The success of the programme means that there are now over 35,000 Chevening alumni in total, the majority of whom live in countries which are eligible for Official Development Assistance. The Chevening Scholarships scheme is building networks with future leaders and decision-makers in science and technology as well in a range of other fields including international relations, economics, media and law.

24. The Science and Innovation Network (SIN) is jointly run by FCO and the Department of Business, Innovation and Skills (BIS). The network consists of around 90 staff, based in 40 British Embassies, High Commissions and Consulates, across 25 countries around the world. SIN promotes strategic partnerships between UK and international science and innovation communities to enhance research, business and policy interests, which helps to contribute to research capacity building.

25. BIS supports research capacity through the British Academy International Partnership and Mobility Scheme. This is designed to foster long term institutional collaborations in the humanities and social sciences based on long-term links between UK and overseas scholars.

26. The Department for Energy and Climate Change (DECC) in collaboration with DFID has funded projects on climate change impacts on agriculture. These projects involve close partnership with scientists in India and China. An important element of these projects has been the training of Chinese and Indian scientists on climate models developed at the Met Office Hadley Centre. In addition, DECC is in the process of finalising a Memorandum of Understanding (MoU) on energy research with the Government of Bangladesh. This MoU will include a significant element of capacity building in Bangladesh on energy policy, greenhouse gas inventory and energy modelling. Finally, DECC is supporting the establishment of a Low Carbon Energy for Development Network which brings together leading energy institutes in the UK and will develop a programme of bilateral projects on energy with developing country academic institutes. The expansion of bilateral projects will directly lead to enhancing scientific and technical capacity in these countries.

(ii) *How should UK support for scientific capacity building in developing countries improve?*

27. In 2011 the DFID external Research Advisory Committee of distinguished academics, chaired by Sir Leszek Borysiewicz FRS FMedSci (Vice-Chancellor of Cambridge) reviewed approaches to capacity strengthening in research following an internal review of DFID's research capacity initiatives. Several major themes came from this, including that trying to achieve capacity strengthening only through research consortia was likely to lead to uneven results. The considerable time needed to plan and execute good capacity strengthening is a significant issue where there have to be limitations in administrative budgets. DFID is therefore committed to trying to concentrate on a limited portfolio of things it can do well, taking account both of need, its own comparative advantage, and what others are doing in a crowded field. There is a relatively poor evidence base on research capacity strengthening (in all areas, not just those funded by the UK Government). DFID is building a better evidence base by:

A. *Commissioning seven systematic reviews* by discipline to provide a baseline on evidence of effective capacity interventions at the institutional, organisational and individual levels. The reviews will cover the following disciplines: agriculture health, education, climate change, environment, economics, social and political science.

B. *Commissioning a research programme* to (a) develop a better understanding of research capacity strengthening as a process; (b) develop a monitoring framework (with indicators) and impact evaluation strategy that would apply across the different disciplines; and (c) assess research capacity gaps by discipline and geographic region to inform priorities.

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

28. The evidence base on research capacity strengthening remains thin. DFID is helping to address this gap (paragraph 25).

29. The threefold approach to research capacity strengthening (paragraph 4) is probably the most effective. This approach has evolved significantly from a narrow focus on training and fellowships to dealing more systematically with the capacity of individuals, organisations and the broader enabling environment within which they operate to undertake research.

30. In many developing country research organisations these three elements are not aligned. Where staff are trained, organisational structures may inhibit performance through top heavy or ineffective management. And even when research departments or universities are well structured and well managed, performance may still be poor due to weak incentive regimes (arising from low pay, nepotism in appointments and promotions, the absence of effective discipline, lack of commitment to research and culture of the organisation, etc).

31. It is increasingly recognised in the academic and practitioner literature that turning individual competence into organisational research capacity requires institutional change. This is complex and there is no one-size fits all solution. As a result, DFID uses a range of different approaches to capacity building, including:

A. *Research partnerships*: between southern researchers/research institutions and international researchers. An example is

Sustainable Agricultural Research for International Development (SARID) and Combating Infectious Diseases in Livestock for International Development (CIDLID)

32. These two programmes focus on improving capacity in plant breeding and biotechnology by strengthening North-South partnerships. It has supported 32 research collaborations between UK Research Institutions and Southern Universities and Institutions in Ghana, Kenya, Tanzania, South Africa, Senegal and Uganda. Alongside the research, targeted training at post doctoral, PhD and MSc levels responds to specific gaps in research skills

B. *Direct training and mentoring*: through formal and informal training schemes such as internships, PhD programmes, and research methodology and uptake training, etc. Examples include:

TROPICAL DISEASE RESEARCH SPECIAL PROGRAMME (TDR)

33. The WHO/UNDP/UNICEF/WB Tropical Disease Research Special Programme's purpose is to strengthen research into the most neglected tropical diseases and to provide training and capacity building for developing countries to develop and implement new and improved disease control approaches. It has been responsible for training many hundreds of scientists and decision makers from a wide range of developing countries over the past three decades.

DEVELOPING PARTNERSHIPS IN HIGHER EDUCATION PROGRAMME (DELPHÉ)

34. The UK Government supports scientific capacity building in 25 priority countries through the Developing Partnerships in Higher Education Programme (DelPHE), delivered in partnership with the British Council. The programme supports links between universities and institutions which build capacity in science and technology related knowledge and skills. DelPHE supports:

- 22 partnerships South/South partnerships.
- 178 North/South partnerships (68% Africa, 32% Asia).
- 68 partnerships linking two or more countries.
- Recent evaluation confirms that as a result of DelPHE, 128 departments are producing internationally recognised research.

35. Examples include The African Partnership for Public Health which is led by South Africa, and linked with the UK (University of Strathclyde), Kenya, Malawi, Tanzania and Swaziland. *In Iraq* 14 Higher Education institutions throughout Iraq have benefitted from 35 partnerships with UK and other universities, and a significant number of these partnerships are focused on science; De Montfort University and Kerbala University are working together to develop a forensic science curriculum; Reading University is supporting Diyala University to restore teaching expertise in its Chemistry Department.

36. With DFID support, the *Commonwealth Scholarships Commission (CSC)* runs a range of scholarship and fellowship schemes which enable people from the Commonwealth's developing countries to pursue studies or professional development with UK institutions. Of 2,860 new awards made in the four years from 2007–10, 36% are classified as being in science and technology. A further 9% took up awards classified as Agriculture Forestry, Veterinary Science and Environment, and a further 15% in Medicine, Dentistry and Public Health. The vast majority of awardees (approximately 88% according to a 2008 CSC survey) return to their country of origin after completing their studies.

C. *Core funding of southern research institutions or regional organisations* as a means to support well managed research institutions and regional networks. An example includes:

ASSOCIATION FOR STRENGTHENING AGRICULTURAL RESEARCH IN EAST AND CENTRAL AFRICA (ASARECA)

37. The absence of strong and well-resourced agriculture research organisations in Africa is slowing down the generation and uptake of research needed to stimulate growth and reduce poverty. To address this gap, DFID has been supporting regional agricultural research organisations through its support to the Association for Strengthening Agricultural Research in East and Central Africa. DFID has enabled ASARECA to strengthen its organisational capacity to conduct and manage research. A 2011 evaluation by USAID highlighted the following outcomes:

- New technologies generated and disseminated,
- Evidence of impact in increased productivity, household incomes and food security,
- Application of more effective methods and partnerships in scaling-up agricultural technology,
- harmonization of policies that have proven valuable in supporting market access and intra-regional trade, and strengthened institutional capacity of national institutions.

D. *Support to regional capacity strengthening bodies* that target specific disciplines and provide technical support to university departments and manage competitive grants. For example:

PARTNERSHIP FOR AFRICAN SOCIAL AND GOVERNANCE RESEARCH

38. African social science institutions are in the words of the Commission for Africa Report in "a state of crisis", reflected by diminishing resources, declining academic standards, falling outputs and limited engagement in domestic policy formulation. This programme has been designed to strengthen the capacity of African universities and research institutions; produce relevant governance and social policy research; enhance university curricula; and strengthen demand and capacity for research uptake in Africa. It includes a collaborative Higher Education Programme combining a focus on social science research with public policy. Sixteen African universities from nine countries are involved in what is effectively new academic terrain in

Africa. In addition, it funds an Africa-wide research programme through competitive grants that are designed to support *teams* of African researchers from different organisations (universities, think tanks, research capable NGOs) rather than a focus on individual research training.

Question 3: How does the UK monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?

39. Strengthening research and science capacity in developing countries is a long-term issue and it is widely considered a difficult area to assess—reflected for example in the conclusions of the joint Academy of Medical Sciences/Royal College of Physicians/Wellcome Trust meeting in November 2011 on building institutions through equitable partnerships. However, it is possible to track outputs, and longer-term outcomes. For this, the UK Government through DFID has guidance on design and monitoring of research capacity strengthening programmes. In line with this guidance, all programmes with a significant capacity component are required to conduct institutional assessments; develop research capacity strategies; collect baseline data; and monitor progress annually.

Question 4: What role does DFID's CSA play in determining priorities and in the development and assessment of capacity building policies?

40. The CSA Prof. Christopher Whitty, supported by the Deputy CSA Prof. Tim Wheeler, has direct oversight of priorities in capacity building through delegated authority for the central research budget which funds many of the science capacity strengthening activities. Additionally they, or some of DFID's Senior Research Fellows seconded in from academia, are involved in wider DFID strategy on science including capacity strengthening, and the CSA sits on the Development and Investment sub-Committees of the Management Board.

Question 5: How are government activities co-ordinated with the private and voluntary sectors?

41. The GO-Science has the mandate to co-ordinate cross Whitehall efforts in areas of Science and Engineering, under the leadership of Sir John Beddington. The relevant CSAs meet regularly (typically weekly) informally, and in formal meetings. DFID has a Civil Society Department which coordinates with NGO and other civil society organisations, and an International Division which coordinates with multilateral groups such as CSC and UNESCO, which sit in the same general directorate as the DFID CSA and Chief Economist. The UK Collaborative on Development Sciences (UKCDS) provides a forum through which both Government, arms-lengths bodies such as Research Councils, and major private science foundations (Wellcome and Gates) coordinate their activities. Internationally there is also the International Forum of Research Donors (IFORD) which includes other Governments and private organisations working in this area such as the Rockefeller, Hewlett and Ford Foundations.

ACRONYMS AND ABBREVIATIONS

AERC	Africa Community Access Programme
AU	African Union
ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
BIS	Department for Business, Innovation and Skills
CIDLID	Combating Infectious Diseases in Livestock for International Development
CSC	Commonwealth Scholarships Commission
CSA	Chief Scientific Adviser
Deputy CSA	Deputy Chief Scientific Adviser
Defra	Department for Environment, Food and Rural Affairs
DeIPHE	Developing Partnerships in Higher Education Programme
DFID	Department for International Development
DH	Department for Health
DRC	Democratic Republic of the Congo
EU	European Union
FAO	Food and Agriculture Organization
FCO	Foreign and Commonwealth Office
FP7	Seventh Research Framework Programme
GCSA	Government Chief Scientific Adviser
GO-Science	Government Office for Science
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
IFORD	International Forum of Research Donors
NGO	Non-Governmental Organisation
MSc	Master of Science
PhD	Doctor of Philosophy
SARID	Sustainable Agricultural Research for International Development
UKCDS	UK Collaborative on Development Sciences
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund

USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organisation

19 December 2011

Supplementary written evidence submitted by the Department for International Development

ADDITIONAL INFORMATION REQUESTED BY THE COMMITTEE

1. *Communication (see Q 114 and Q 115 on the oral transcript)*

A note on the impact that the Government-wide moratorium on communications has had on both the communication of research and engagement with researchers. Also, a general note on how DFID supports the communication of research to inform policy, and what more could be done.

DFID RESPONSE

The Government-wide moratorium on communications has had limited impact on DFID in terms of our science and research work in assisting developing countries; within DFID the moratorium's major effect was on UK-based communications and non-technical communications.

We work hard to increase awareness and dissemination of DFID funded research, through verbal and written communications with a wide range of audiences. The DFID Research for Evidence (R4D) website is a free access on-line portal containing the latest information about research funded by DFID, including details of current and past research in over 30,000 research project and document records. Information on the site is searchable in many different ways—browsing by region, country or subject, or searching using key words, and an advanced search. There is also a search for research contacts. This repository allows any external audience to keep up-to-date on DFID research.

DFID is committed to supporting the communication of our research to inform policy. Within Research and Evidence Division (RED), we have established the Evidence into Action Team which is dedicated to getting evidence into policies, programmes and business cases both within DFID and beyond. The Team has recently been strengthened. Amongst other activities, and working with colleagues across RED, the Team:

- Works closely with policy colleagues to develop and deliver evidence syntheses to inform policies and business cases;
- Puts in place DFID wide systems, training and practices for finding, appraising and applying evidence in all DFID's work;
- Works with DFID country offices to identify evidence and commission high quality research to inform programming decisions;
- Funds programmes that boost the impact of global public good research on policy in and for developing countries; and
- Works closely with DFID research teams to build research uptake strategies into the research that they fund.

2. *Innovation (see Q 116, Q 117 and Q 118 on the oral transcript)*

A note on the roles of PIDG and CDC. A note on DFID's relationship with the Technology Strategy Board in terms of promoting innovation in developing countries (particularly, whether UK structures such as knowledge transfer networks could be successfully applied abroad). A note DFID's relationship with UKTI.

DFID RESPONSE

ROLE OF PRIVATE INFRASTRUCTURE DEVELOPMENT GROUP (PIDG)

The Private Infrastructure Development Group (PIDG) is an innovative multi-donor organisation constituted in 2002. The PIDG Members are Austria, Australia Germany, The World Bank, International Finance Corporation, Ireland, Netherlands, Sweden, Switzerland and the UK.

The objective of PIDG is to encourage private infrastructure investment in developing countries that contributes to economic growth and poverty reduction. The PIDG has established a range of facilities and investment vehicles which provide varying types of financial, practical and strategic support in order to realise this objective. The PIDG was one of the organisations assessed by the Multilateral Aid Review (MAR). The MAR was very positive and concluded that the PIDG plays a critical role to UK development objectives. In response to this the Secretary of State approved uplift in funding in February 2012 to provide an additional £477 million (up to a possible £700 million, subject to performance) over four years from March 2012 to March 2015.

With the new funds from the UK we expect the PIDG to scale up service delivery and strengthen its development results by building on its success to pioneer new markets. Through key reforms, including

competition between the various PIDG facilities in allocation of funds, we anticipate higher development results and value for money in future. The attributable development outcomes the UK expects from this new funding are:

- \$11.7 billion of private investment catalysed;
- 79 million people with additional or improved services;
- Of which 49 million women and girls with access to additional services;
- 67,000 long term employment positions created; and
- 107,000 construction jobs created.

One example of a PIDG investment in Science and Technology amongst numerous on-going projects is the SeaCom Fibre-Optic Subsea Cable. The USD 600m Seacom project was the first undersea fibre optic cable project along the east coast of Africa. The Emerging Africa Infrastructure Fund (EAIF) provided US\$35 million debt financing to SeaCom to lay a 15,000 km cable.

Before SeaCom, eastern and southern Africa were significantly underserved in telecommunications bandwidth. The SeaCom network went live in July 2009 with a capacity of 1.28 terabits per second providing much-needed bandwidth capacity for countries that previously relied on expensive and limited satellite bandwidth. This boosted bandwidth supply in Kenya by 700%, in Mozambique by 850% and in Tanzania by 1000% and at a much reduced cost compared to satellite connections.

ROLE OF CDC GROUP PLC

CDC Group plc is a development finance institution (DFI) which is 100% owned by the UK Government. DFID is responsible for CDC.

CDC does not provide aid. CDC's mission is to support the building of businesses in the poorest countries, creating jobs and making a lasting difference to people's lives. It does this by investing its capital in developing countries where a lack of capital is holding back growth.

Following a wholesale review in 2010, DFID and CDC published a new High Level Business Plan in May 2011 that will change the way CDC invests. Under the leadership of the new CEO, Diana Noble, appointed in December 2011, CDC launched a new strategy in May 2012 that sets out a five year vision for a more distinctive, effective DFI with a greater appetite for risk and a more sharply focussed development mission with a focus on Africa and South Asia.

£1.9 billion of CDC capital is invested in 1,126 portfolio companies in 74 countries and those companies are supporting 976,000 jobs at year end 2011. Some examples of CDC-backed success in business and innovation are:

- RedBus: an online bus ticketing and route information service in India;
- SWIFT Networks: expanding broadband in the Nigerian domestic market;
- AnantaApparals: providing risk capital for a ready-made garments business in Bangladesh; and
- Vortex: using ATMs to deliver financial services in rural India.

For further information please see CDC's 2011 Annual Review.²

TECHNOLOGY STRATEGY BOARD

Innovation is vital for economic growth. The TSB plays an important role in stimulating business innovation, and so increasing UK growth and competitiveness. DFID is keen to explore opportunities to partner with the TSB in order to help to stimulate innovation and growth in developing countries. To do this, we are in the early stages of working with TSB with the aim of developing a pilot platform for science and innovation for development.

DFID is in the process of setting up an Innovation Hub. The Hub will aim to inspire, nurture and support innovative thinking and the development and implementation of practical, value-for-money, high impact solutions. The Hub will also have a co-ordinating role across DFID, and its partners, to facilitate knowledge sharing and transfer on innovation and support the Research and Development Division to build up the evidence base for innovation.

UKTRADE AND INVESTMENT (UKTI)

UKTI is the UK Government body that helps UK companies succeed in overseas markets and supports overseas companies establish themselves in the UK.

DFID through its Private Sector Department works with UKTI on work-streams which are relevant to DFID's mandate and objectives. Since UK aid is untied, DFID is not involved in promoting UK plc overseas. This is the role of BIS (via UKTI) and FCO.

² CDC's 2011 Annual Review, www.cdcgroup.com/uploads/cdcannualreview2011.pdf

The Government has made it clear that promoting UK commercial interests will be central to its foreign policy. The Trade and Investment White Paper states that we must adopt a whole of Government approach to trade and investment policy, involving all Departments and utilising DFID overseas networks. The government has reiterated that all UK aid will remain **untied** from commercial interests. The White paper explains how DFID, UKTI and FCO staff at overseas Posts should work together to pursue the commercial diplomacy and untied aid agendas.

Commercial diplomacy is at the heart of the government's agenda for growth. It is about using diplomacy to help create and promote the conditions for strong UK economic growth through trade and investment. Under the International Development Act (IDA) 2002, DFID is not able to use staff time or financial resources to promote UK commercial interests. DFID officials should not be involved in lobbying nor should staff use development advice or funding in any way that could be construed as favouring commercial interests. However, if development assistance that is provided by DFID satisfies the tests in the IDA, it is legitimate for DFID to support spin-off commercial benefits to the UK resulting from that assistance, provided that they are not its primary purpose. Commercial diplomacy can support UKTI, FCO and DFID agendas; increasing the total number of bidders for a project increases competitiveness and improves value for money. There are many practical ways in which DFID, UKTI and FCO can work together to deliver UK commercial priorities resulting in a win-win for trade and development.

3. Research assessment (see Q 120 on the oral transcript)

Views from the CSA/DFID on how DFID ensures that scientists who are involved in many of the programmes that it has supported get the recognition they deserve from the people peer-reviewing their research funding applications and research papers.

DFID RESPONSE

Where DFID co-fund research programmes and projects with the Research Councils we ensure that there is equal access for developing countries in terms of peer-review; and developing country peer-reviewers are usually on the expert panels. DFID encourages the publication of its research in peer-reviewed journals, which will acknowledge both the source of funding and the author.

Research Councils funding (from core funds from BIS) is mainly aimed at strategy for the UK research base; which includes support of science which will assist in development. However, these funds are not specifically for development purposes and therefore, inevitably this funding supports a different set of priorities.

July 2012

Written evidence submitted by the ESRC Social, Technological and Environmental Pathways to Sustainability (STEPS) Centre

1. The STEPS (Social, Technological and Environmental Pathways to Sustainability) Centre is an interdisciplinary global research and policy engagement centre uniting development studies with science and technology studies. Our work addresses two vital global challenges: linking environmental sustainability with better livelihoods and health for poor people; and helping science and technology work for poverty reduction and social justice. The STEPS Centre is based at the Institute of Development Studies and SPRU Science and Technology Policy Research at the University of Sussex in the UK. We work with partners in Asia, Africa, Latin America and Europe and are funded by the Economic and Social Research Council. Further details are available at: www.steps-centre.org

2. The STEPS Centre believes the UK Government can improve support for scientific capacity building for science, technology and innovation in developing countries in a number of ways and we welcome the opportunity to submit evidence to this inquiry. In summary, we believe investment and support for sustainable capacity building activities must move beyond a focus on elite science and so-called "centres of excellence" to support science that works more directly for diverse social and environmental needs (STEPS Centre 2010³). To that end, the inclusion of groups outside of mainstream science, such as civil society organisations, local entrepreneurs and small businesses, in the scope of capacity building is vital, as is extending beyond technical to encompass social dimensions of innovation. We would particularly like to address points 1, 2, 4 and 5 in the terms of reference for this inquiry and have a number of recommendations to make.

3. Many recent policy statements concerning science, technology, innovation and development have emphasised the creation of "centres of excellence" in developing countries as a key goal. These are seen as a means to enhance science and technology capacity in developing countries, and hence, so it is argued, promote linkages between science, technology and development (Leach and Waldman 2009⁴). Advanced countries provide support to the centres through funding and skill provision.

³ STEPS Centre (2010), *Innovation, Sustainability, Development: A New Manifesto*, Brighton: STEPS Centre

⁴ Leach, M. and Waldman, L. (2009) *Centres of Excellence? Questions of Capacity for Innovation, Sustainability, Development*, STEPS Working Paper 23, Brighton: STEPS Centre

4. It is beyond doubt that developing countries need to build and retain scientific expertise and to foster top quality science through new partnership arrangements. And, in part, centres of excellence have been invaluable in shifting the centres of gravity in science, technology and innovation capacity from north to south. But, a universalised, a-political notion of capacity and excellence which responds to globalised ideas of economic progress has been fostered. We believe a notion of capacity which responds to the diversity of development needs and contexts would be preferable. To do this, there is a need to go beyond—or at least to complement—centres of excellence with a range of principles and actions

5. We believe the transformative power of science and technology can be harnessed more effectively to address social justice and poverty alleviation. But first the benefits of innovation need to be shared more widely and equitably; innovation must be organised in ways that are networked, distributed and inclusive, involving diverse people and groups, including those that are poor and marginalised; effective models and mechanisms for supporting sustainable research capacity are needed; and government activities must become more aligned with the local needs and priorities of diverse groups. Capacity building for science, technology and innovation must begin to focus on supporting science that works directly for diverse social and environmental needs, and in relation to specific sustainability goals.

6. It is worth investigating what is meant by the phrase “capacity building”. In the development context, “Capacity development...seems to have become a catch-all that incorporates just about any form of technical assistance, and which appears to be a rather neutral, value-free form of engagement between development actors” (Taylor and Clarke 2008: 6⁵). There is often little specification of “capacity of whom to do what, to what ends?”—ie little consideration of the directionality of science and innovation (towards sustainability goals)—and its particular distributional effects—that capacity building might assist. We believe the introduction of this focus is urgently needed. However, what one person sees as scientific excellence another may see as, at best, irrelevant or, at worst, misconceived and damaging. Science, technology and innovation have tremendous potential for development, but there are also pitfalls and unexpected consequences. Dealing with these, in conjunction with the types of problems experienced by today’s society and influenced by globalisation, climate change, and other unprecedented processes, requires a broadening of the notion of excellence and a re-evaluation of who the experts are.

7. Issues of power and social relations should also be considered in relation to science and innovation capacity development. When building international partnerships for supporting science and technology capacity in the south, the imbalance of power between developing countries and highly-funded international institutions is rarely considered. However, “systemic” approaches for understanding and supporting capacity—as outlined by the Institute of Development Studies-based Capacity Collective—attends to (a) individuals’ abilities to construct, share and apply useful knowledge; (b) organisations’ abilities to learn, adapt and manage change effectively, and (c) the dynamics of power that underlie relationships between individuals and organisations, and which shape access to and use of knowledge, learning and performance (Taylor and Clarke 2008:7)

8. If capacity is defined in terms of “useful” knowledge, new avenues are opened up for exploring “usefulness to whom, and for what”. This would enable a diversity of need and context, and directionality (towards specific sustainability goals), to be addressed, and for the types of knowledge and learning that might be appropriate to be investigated. And those types of knowledge and learning might look very different to those promoted through existing “centres of excellence”.

9. Capacity building needs to move beyond technical elites in large international, state and commercial organisations in order to support and harness the energy, creativity and ingenuity of users, workers, consumers, citizens, activists, farmers and small businesses. For this to happen, the definition of scientific excellence needs to be broadened out to encompass interdisciplinary knowledge, practical expertise and users’ ways of knowing. Particular, normative directions of innovations and development pathways—directions towards specific sustainability objectives—need to be taken in to account.

10. The training of science and technology experts must continue. But alongside this, local entrepreneurs, citizen groups, small businesses and other players in the innovation system should be included in the scope of capacity building. These groups are often left out of the equation when thinking about expertise, excellence and innovation.

11. Capacity building investments should be focused on enhancing the ability of citizens and users to engage actively in innovation processes, not just as passive recipients but as active users, creators and inventors. It has become evident that citizens can innovate—on both local and larger scales—without centralised, top-down organisation. The practices, ingenuity and passion of citizen networks and social movements to innovate needs to be fostered. They should be supported to facilitate the sharing of technologies, practices and wider experiences and learning. Capacity support should be offered to civil society networks and social movements to allow them to engage with national and international political debates about science, technology and innovation.

12. Evidence is emerging of practical examples where approaches to innovation address these principles of direction, distribution and diversity, and harness poorer people’s own innovative capacity. Capacity-building efforts need to focus on creating the conditions in which this kind of process can flourish.

⁵ Taylor, P. and Clarke, P (2008) *Capacity for a Change*, report based on outcomes of the Capacity Collective workshop, Dunford House, 25–27 September 2007

13. For example, recent approaches to Community-Led Total Sanitation highlight the role of bottom-up innovation in addressing local challenges. Sanitation, previously neglected in much development funding, is now enjoying increased support. In contrast to many top-down sanitation projects, community-led total sanitation (CLTS) is an example of an alternative approach that takes communities themselves as the point of departure. This originally began in South Asia and involves the facilitation of a participatory process in rural communities whereby residents come to analyze and reflect on their defecation practices and their consequences in terms of hygiene and health. In numerous cases, this has triggered a change in mindset in which villagers embrace the desire to eliminate open defecation completely. Thereafter, they have developed an array of locally appropriate, innovative, social and technological arrangements for sanitation to achieve this goal—for instance, combining low-cost, self-built latrines with peer pressure to ensure that people use them. CLTS has now spread throughout large areas of Asia and Africa, with varying degrees of success. A massive diversity of technological designs has emerged, adapted to local conditions. Widespread sharing of local innovations and experiences, and ongoing research, are paving the way for further improvement geared towards greater sustainability. This emerging second “wave” of CLTS emphasizes greater diversity of CLTS pathways adapted to particular climatic, ecological and cultural settings and greater attention to distribution within as well as between communities.⁶

14. A second example highlights the role of innovative marketing arrangements in meeting particular technology distribution challenges.⁷ The social enterprise Scojo designs and produces low-cost eyeglasses for people with age-related vision problems. In the vibrant markets of South Asia, it has established distribution systems or linked with other organizations that have a local distribution network. In Bangladesh, Scojo is working with BRAC, a very large non-governmental organization (NGO) with a major health program, which has trained an extensive network of village health volunteers. To motivate continuing involvement, BRAC also identified a need to ensure that this volunteering helps to maintain a livelihood in a context where there are increasingly other opportunities for the volunteers to earn a living. Thus, Scojo is filling an important need in rural populations for the distribution of low-cost eyeglasses whilst also providing income to BRAC’s health volunteers, effectively linking need and demand through an innovative organizational arrangement.

15. The example of participatory plant breeding in marginal environments highlights the value of bringing technology users centre stage in shaping innovations.⁸ In contrast with the convention of breeding for optimal environments, the innovative CIMMYT-led African Maize Stress (AMS) project, for instance, developed new methodologies for diverse “managed stress” conditions. The research team employed a participatory varietal-evaluation methodology popularly known as “mother and baby” trials and went on to instigate a second stage of farmer participatory field research. Starting with the concerns of the most routinely marginalized groups such as women and resource-poor farmers, involving them centrally in designing and implementing the selection and testing of different plant varieties, can enable context-sensitive adaptation and shaping of technologies—paying attention to their social as well as technical dimensions.

16. One way of helping to foster the inclusion of citizens and local groups is to extend capacity-building towards “bridging professionals” who are able to link technical expertise with particular social, ecological and economic contexts. Bridging professionals try to marry ideas of scientific excellence with other development challenges. There are a number of initiatives and centres emerging in developing countries that respond to this new challenge of capacity-building; one example is the Victoria Institute of Science and Technology established by Calaeustus Juma in Kenya. There are also roles for overseas training. For instance there are several new masters’ degrees in the area of science and technology which look at how science and technology can be developed to meet the requirements of marginalised people. For instance, the Institute of Development Studies, at the University of Sussex, runs a Masters in Science, Society and Development and Maastricht University, in Amsterdam, offers a one year MA programme entitled Governance and Cultures of Innovation. Both courses recognise the needs to: (a) produce experts who are “able to deal with the science-technology-society relationship in a reflexive and politically conscious way”; (b) combine different disciplinary approaches in order to grapple with—and ultimately bring together—diverse perspectives, historically-bounded disciplines, theoretical insights and practical experiences; and (c) direct science, technology and innovation towards addressing questions of poverty, social justice and environmental sustainability.

17. New priorities should be set for training—including key reforms to tertiary, further and higher education in the area of science, technology and development. New or reoriented existing institutions are needed that actively link science and technology to located needs and demands. And those institutions should greater provision for local community engagement in tertiary, further and higher education, as well as building new learning platforms, virtual and face-to-face, and wiki spaces for innovation support that enables more inclusive, networked and distributed forms of innovation.

⁶ Kar, K., & Pasteur, K. (2005). *Subsidy or self-respect? Community led total sanitation. An update on recent developments* (IDS Working Paper 257). Brighton: Institute of Development Studies (IDS); Mehta, L., & Movik, S. (2011). *Shit matters: The potential of community-led total sanitation*. London: Practical Action.

⁷ Bloom, G. (2009). *Science and technology for health: Towards universal access in a changing world* (STEPS Working Paper 28). Brighton: STEPS Centre.

⁸ Millstone, E., Thompson, J., & Brooks, S. (2009). *Reforming the global food and agriculture system: Towards a questioning agenda for the New Manifesto* (STEPS Working Paper 26). Brighton: STEPS Centre.

18. Informing, developing and assessing capacity-building policies of this kind—that foster innovation for sustainability and development—must extend beyond the current role played by DFID’s Chief Scientific Adviser. The latter has proved effective in emphasising, and helping to chart a course for, capacity building that focuses on excellence in technical dimensions of science. However greater integration of social, citizen-led and “bridging” perspectives could benefit from expertise from a range of others, including social development advisors within DFID, and a range of civil society organisations and interdisciplinary research institutions both in the UK and internationally.

5 December 2011

Written evidence submitted by the Institute of Physics

1. The Institute of Physics welcomes the opportunity to respond to the important issues raised in this consultation. We consider that effective support to enable developing countries to engage fully in scientific and technological issues is key to achieving many international development goals.

2. We have not sought to try to answer all the questions posed by the consultation, only those where we think learned societies have an important input to make.

Question 1: *How does the UK Government support scientific capacity building in developing countries and how should it improve?*

3. We have focused in this response on the activities of the Department for International Development (DfID) as the major UK agency for providing support to the developing world. DfID has made some progress in supporting scientific capacity building, but our perception is that this may be overshadowed internally by more obviously immediate issues, for example support for poverty alleviation and a more recent focus on countries where conflict resolution is a priority. It should be emphasised that support for science and technology development is an underpinning—not a competing—priority. It is one of the most important keys to effectively addressing all other development goals, and in particular to tackling the challenges of climate change.

4. We would draw the Committee’s attention to comments recently made by Bill Gates at the G20 summit on the vital importance of supporting innovation for development (<http://www.scidev.net/en/science-and-innovation-policy/innovation-policy/news/gates-tells-g20-innovation-is-the-key-to-development.html>). Innovation is of course not possible without support for the development of the underpinning capacity to create and assimilate relevant research and technologies.

5. In this context, we are concerned by the lack of visibility of the importance of scientific capacity building in the summary of the recent DfID report *UK Aid: Changing Lives and Delivering Results* on the conclusions of their Bilateral and Multilateral Aid Reviews.

Recommendation 1: *The Institute of Physics believes that support for scientific capacity building needs to be more overtly stated as a development objective by DfID, if it is to be treated as seriously as it deserves in decisions on the allocation of funds.*

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

6. UK learned societies, including the Institute of Physics, have been actively considering this issue. In 2009, a discussion meeting involving a broad spectrum of UK learned societies concluded that many international programmes in scientific capacity building, including those supported by DfID, tend to focus on building research infrastructure, providing relevant education, and supporting research projects. These activities have significant value in that developing country scientists need access to education, laboratories to work in, and research funding for their projects. Such programmes have often included some capacity building support for individuals and related research networks, but have not addressed longer term support needs. We believe this approach is flawed in that the value of underpinning long term scientific networks, which support professional careers and drive much of the way in which science is actually done, has been relatively neglected. This threatens the sustainability of the valuable institutional and other investments made.

7. The discussion meeting also noted the view of American academic Caroline Wagner that international agencies have mistakenly tried to take the existing western model of “big science” and transplant it to the developing world—ignoring the fact that it had taken the western world 200 years to evolve such systems. The networking activities of learned societies were highlighted as having been a very important driver of the historical development process. She concluded that supporting smaller, more organic, networks of scientists in developing countries might be more productive to catalyse similar development processes.

8. Learned societies of every discipline are perhaps in a unique position to contribute to addressing this gap. They are quite different from the many other ways in which science is organised, whether through government funding agencies, universities or science based industries. In essence they are clubs of scientists, whose *raison d’être* is to provide mutual support and to build capacity in their disciplines. They are not by nature hierarchical, and are naturally organised as extended networks of scientists with strong links at grass-roots level. Many of

the well-established societies, founded in the UK to serve their immediate scientific communities, have naturally extended to include an international membership, and have been quietly supporting budding scientists in the developing world before the main international aid agencies woke up to the importance of this. Such activities have not been developed by remote policy makers, but have the advantage of having been driven by the expressed needs of their memberships.

9. Learned societies can address capacity building at many levels in an integrated way, from working with scientists at grass-roots level to advising on science policy at governmental level. Learned societies and their members know how to set up and run scientific journals (many of which are still closely connected to the societies that created them), promote the highest research standards through peer review, run events on topical research issues, provide networking and career development support, train students, work with schools and universities to encourage young people to study and take up careers in science, promote the engagement of women in science and engineering, liaise with industry, and engage with the media and the general public on crucial issues of public concern.

10. We believe that there is a valuable potential opportunity to support the growth of indigenous learned societies in developing countries. The Institute already seeks to do this (see attached summary) as do other learned societies in different disciplines. DfID funding to enable UK learned societies to mentor equivalents abroad, helping them to provide much needed local support to their scientific communities and integrate them into international networks, would be especially useful to allow us to expand these activities and would help DfID meet the capacity building objectives stated in their *Research Strategy 2008–2013*: Strong and more equal north-south partnerships; access to global research networks and expertise; practical help to ensure that research is high quality; and opportunities for personal and career development within wider organisational support.

Recommendation 2: The Institute of Physics proposes that DfID should provide support to enable UK learned societies to partner and mentor their developing country equivalents.

11. Another issue identified at the 2009 discussion meeting was the perception that DfID prefers to fund large scale initiatives and lacks the flexibility to provide support for smaller scale programmes. Although this approach may be attractive in terms of administrative economies of scale and perceived added impact of highly visible major investments, it lacks the ability to test new approaches in a low risk way and rules out promising, small-scale projects like those the Institute sponsors through our *IOP for Africa* programme, which offer excellent value for money (see attached summary).

12. Learned societies have had the flexibility to be able to support innovative small-scale initiatives, and have therefore been able to respond in a timely way to ideas being generated by scientists in developing countries. However, surveys of capacity building initiatives in learned societies, conducted by the Royal Society and the UK National Commission for UNESCO (UKNC) in 2007 and 2009, indicated that because of lack of funding many such programmes, though successful, remained small. This means that it has not been possible effectively to build on success. The best initiatives start small and are enabled to evolve to meet real local needs. Donors should have funding programmes that can cope with flexibility, diversity and small applications.

Recommendation 3: The Institute of Physics proposes that DfID's funding mechanisms should be sufficiently flexible to enable small scale pilots with successful outcomes to be scaled up where appropriate.

Question 5: How are government activities co-ordinated with the private and voluntary sectors?

13. The Institute can only comment on this question from the perspective of learned societies in the third sector. Our experience is that there is no obvious gateway to co-ordinating our efforts in international development with government activities, and indeed the many small initiatives undertaken by individual learned societies would also benefit from a co-ordinated approach.

Recommendation 4: The Institute of Physics would encourage DfID to consider how to engage the learned societies in a forum which facilitates their involvement in the international development agenda. In particular DfID's Chief Scientific Advisor should actively engage with UK learned societies on this issue.

14. The Institute has also noted the creation of an independent watchdog to scrutinise DfID's activities (<http://www.dfid.gov.uk/News/Latest-news/2011/UK-aid-watchdog-publishes-first-reports/>). We emphasise the importance of representation of the scientific community on this body (the Independent Commission for Aid Impact), to facilitate co-ordination and provide guidance on capacity building issues.

Recommendation 5: The Institute of Physics recommends that the science and engineering community should be represented among the membership of the Independent Commission for Aid Impact.

REFERENCES

E Bell *Science, Technology and Innovation: International Capacity Building for Sustainable Growth—A Preliminary Concept Paper* (2009) http://www.ukcds.org.uk/page-Learned_Societies-144.html

E Bell & C White *Sharing our Experience: Report of a Discussion Meeting on International Capacity Building by UK Learned Societies on 2 June 2009 at The Royal Astronomical Society London*. http://www.ukcds.org.uk/page-Learned_Societies-144.html

Caroline Wagner, *The New Invisible College: Science for Development* (<http://www.brookings.edu/press/Books/2008/newinvisiblecollege.aspx>)

Attachment: *Physics for a better world—a summary of Institute of Physics international programmes*⁹

15 December 2011

Written evidence submitted by The Association of Commonwealth Universities

THE ACU AND DECLARATION OF INTERESTS

1. The ACU is a membership association of 533 higher education institutions (HEIs) across the Commonwealth. Two thirds of our members are in Asia and Africa. Since the late 1960s our membership profile has been strongly southern; we have been engaged with supporting developing country science over several decades and are familiar with the wider shifts in policy. Much of our work in the past decade has focused on supporting our members in Sub-Saharan Africa, and we therefore draw particularly on this experience in this submission.

2. The ACU provides the secretariat for the DFID-funded Commonwealth Scholarship Commission, and has worked with DFID in the past on a number of projects. It is currently the lead partner in the DFID funded Development Research Uptake in Sub-Saharan Africa (DRUSSA) programme.

INTRODUCTION

3. One of the greatest problems facing developing country scientific and technological research capacity, and one of the barriers to the rebuilding of such capacity, has been the *de-institutionalisation of research*. Inadequate funding and support for research at national level, the need for academics to supplement poor salaries, and the reliance on donor and other external funding has meant that in many cases researchers have become *consultants for hire*.¹⁰ Research has become more individualistic and often undertaken as a fee-earning enterprise, rather than reflecting the collaborative work of HE research departments. In many cases it has been of the problem-solving, consultancy variety, with frequently changing and short-term assignments, leaving many researchers with no discernible specialism or focus and with *core disciplines weakened* as a result.

4. *Development agencies have and continue to contribute to this problem*. Frustrated by the declining ability of HEIs to undertake and manage good research, many funders have opted to approach individuals instead of institutions. The brightest minds have thus become development analysts, producing applied and policy-driven work to answer donor questions instead of independent and rigorous basic research. While policy-relevant and applied research is vital, it must undoubtedly be built on strong foundations of basic science.

5. *The decline of higher education institutions in many developing countries during the 1980s and 1990s* has been well documented and widely discussed over the last ten years.¹¹ The development of mass higher education systems internationally has been reflected in a huge growth in undergraduate enrolments in developing countries.¹² In most cases this has not been met by proportional increases in public spending; already overstretched facilities must now serve many more students. In Tanzania as a whole, the student-staff ratio grew by 60% between 2003 and 2007 to 24:1. At the University of Ghana it grew by 93% between 2000 and 2008 to 29:1.¹³

6. The success of developing country science, and the strength and sustainability of the research base, will *depend on the strength of the tertiary system*. Developing countries have already made firm commitments to expand their tertiary sectors; the success of science will therefore depend on whether or not these universities succeed. Many tertiary systems are fragile and in need of external support. The world cannot afford to let systems in developing countries collapse again as in the 1980s and 1990s.¹⁴

7. *Scientific capacity and research capacity are two related but different things*. We understand research capacity to be about the capacity of HE and research institutions to carry out basic research, whereas scientific capacity is broader and includes the production of scientifically trained graduates for other industries and sectors. Higher education institutions are central to both, but we concern ourselves here with the former—the

⁹ http://www.iop.org/about/international/file_43479.pdf

¹⁰ Wight, D. (2008) "Most of our social scientists are not institution based... they are there for hire" *Social Science & Medicine*, 66, pp.110–6.

¹¹ World Bank (2008) *Accelerating Catch-up: Tertiary Education for Growth in Sub-Saharan Africa* http://siteresources.worldbank.org/INTAFRICA/Resources/e-book_ACU.pdf; Cloete, N., Bailey, T., Pillay, P., Bunting, I. and Maassen, P (2011) *Universities and economic development in Africa* http://chet.org.za/webfm_send/642

¹² UNESCO Global Education Digest 2011 www.uis.unesco.org/Education/Pages/ged-2011.aspx

¹³ Tettey, W. (2010) Challenges of developing and retaining the next generation of academics: Deficits in academic staff capacity at African universities www.foundation-partnership.org/pubs/pdf/tettey_deficits.pdf.

¹⁴ This was partly as a result of the policies of the multilateral and bilateral donors who concentrated support on basic education at the expense of the tertiary sector, and encouraged national governments to do the same. See footnote 2 for references.

capacity of the research system in universities and other national research institutes. In understanding capacity, DFID highlights three distinct but interrelated levels to be addressed—individual, organisational and institutional.¹⁵ As is common in the tertiary sector, the word “institution” is used here to refer to higher education institutions, rather than in the sense of overarching national/regional frameworks implied by DFID’s definition.

8. *There is an urgent need for doctoral training in many tertiary systems.* In 2007/8 only 28% of academic staff in Ghana, 15% in Mozambique and 12% in Uganda held doctorates.¹⁶ This masks huge variation at institutional level, and between public and private institutions.

9. *The proportion of postgraduate enrolments is low and falling in some cases.* Over 2000–2008 the University of Ghana witnessed a drop in the number of postgraduates as a proportion all students from 14% to 7%.¹⁷ While master’s student numbers have grown in many universities, doctoral enrolments have been low and growth has been particularly low year on year. Between 2001 and 2007 doctoral growth at Makerere University was 2.3%; at the University of Nairobi it was minus 17%. *Quality of training is critical, to ensure that PhDs are completed, and that those graduating can become independent researchers.* In 2007, the University of Botswana produced just four PhDs, the universities of Dar es Salaam and Ghana 20, and Makerere 23. Nairobi by contrast had 32 doctoral graduates.

Q1: *How does the UK Government support scientific capacity building in developing countries and how should it improve?*

10. *UK Government provides important support at a number of levels.* DFID contributes significantly through research funding, scholarships for study in the UK, and through the provision of funding other training and capacity building support, either embedded within research programmes or as free-standing initiatives. Notable examples include: the multi-year Research Programme Consortia; support for master’s and PhD study through the Commonwealth Scholarship Commission; the Development Partnerships in Higher Education (DePHE) scheme which enables partnerships between HEIs in north and south; and contributions to the work of organisations such as INASP¹⁸ and to programmes such as Development Research Uptake in Sub-Saharan Africa (DRUSSA). Further support is provided by BIS, via grant in aid to the national academies¹⁹ and through the research councils, to enable UK scientists to collaborate with developing country counterparts. In such contexts, capacity building is not the primary objective. The UK Government also provides important capacity support through contributions to multilateral initiatives, including the European Development Framework, which supports EDULINK, the ERASMUS programmes, as well as the mobility instruments funded by the EC’s framework programme.

11. *The development of genuine and sustainable research capacity is a complex process,* and understanding of how to do it well is evolving. Too often, capacity development is seen to be a natural consequence of research funding; support to capacity at one level (eg individual) is often assumed to contribute to the development of capacity at other levels (eg at HEI level). This is not always the case. A handful of workshops as part of a research project do not constitute capacity building; and training an individual will not necessarily increase an institution’s research capacity unless that individual has the necessary support and resources.

12. *Producing high quality research at the same time as building capacity is sometimes seen as incompatible.* In some instances it may be possible to achieve both at once; in others there is a risk that longer-term capacity building is overlooked in the immediate pursuit of high quality research outputs. Much depends on the approach adopted and the specific needs of the HEI or the discipline in question. Embedding research in a capacity building initiative, such that a programme designed to build capacity provides opportunities for research to be undertaken, but where the success of the initiative is not judged primarily by the quality of the work produced may be more appropriate in some situations.²⁰

13. *Effective capacity building efforts must acknowledge the interactions between different levels and forms of support.* Individuals are part of research institutions and institutions operate in wider policy environments and as part of a national research system. DFID should be commended for its emphasis on research capacity and efforts to improve the way in which it does this. *DFID’s existing support to research capacity, and to universities, is currently split across a number of departments and domains* (Research & Evidence, UN & Commonwealth, education advisors, and advisors in specialist sectors such as agriculture). DFID should consider developing a specific policy to guide its support to universities, to ensure that its various channels of support are well connected, and to ensure that its current and future support to the sector is more than the sum

¹⁵ DFID (2010) How to note: Capacity Building in Research. DFID Practice Paper. London: DFID www.dfid.gov.uk/R4D/pdf/publications/HTNCapacityBuildingFinal210610.pdf

¹⁶ Tetley, W. (2010) Challenges of developing and retaining the next generation of academics: Deficits in academic staff capacity at African universities www.foundation-partnership.org/pubs/pdf/tetley_deficits.pdf.

¹⁷ Tetley, W. (2010)

¹⁸ The International Network for the Availability of Scientific Publications (INASP) www.inasp.info

¹⁹ The British Academy, Royal Society, and Royal Academy of Engineering

²⁰ This thinking informed the development of aspects of the DFID-supported Partnership for African Social and Governance Research (PASGR) which included a research grant stream where recipients would be actively mentored and supported, and benefit from a number of workshops, and where the expectation was not necessarily that the highest quality work would result, but that individuals would develop a much stronger grounding methodologies as a result.

of its parts. Greater coordination between DFID's scholarship mechanism and the Research and Evidence Division would be particularly valuable.

14. *DFID could also coordinate its work more effectively with other bodies*, some of them funded in part by UK Government. The Research Capacity Strengthening Group of the UK Collaborative on Development Sciences (UKCDS) has provided an important forum for discussion and information sharing, but could be used as the basis for greater collaboration in programme design and implementation.

15. Of particular importance is that *DFID coordinate its work effectively with other donors*. The UK Government has already committed to do so in its wider aid programme through its signature to the Paris Declaration and Accra Agenda for Action. Many HEIs are in receipt of support and funding from a number of donors at once. At the level of the individual institution this can at best be confusing, but at worst wasteful, of time and resources, as well as favouring those institutions which are already well-established and receptive to donor support. HEIs can be over-burdened by multiple and different reporting requirements. A workshop of international funders convened in 2010 explored how donors could work more effectively together to improve universities' access to their support, whilst also meeting their own reporting requirements.²¹ There have been related discussions under forums such as ESSENCE (in health)²² and under the Europe-Africa "Access to Success" initiative.²³

Q2: *What are the most effective models and mechanisms for supporting research capacity in developing countries?*

16. There is a lot that can be done, but there can be no quick fixes. *A consistent and long-term policy view is required*. Two to three year projects are an insufficient basis on which to deliver meaningful capacity support; 10–20 year time horizons are required. There are a variety of models for research capacity development, and approaches depend heavily on the discipline in question and institutional contexts—some fields may lend themselves to particular approaches, or some institutions may be stronger or weaker in particular areas.²⁴ Ensuring a range of approaches is likely to be important, and rather than highlight specific models we seek to highlight some of the key underlying issues.

17. *Strong research departments require highly skilled people, the facilities and resources to enable them to undertake high quality work, and strong leadership*, at senior level, and at the faculty and departmental level. HEIs and research institutes must be able to develop a critical mass of researchers in particular disciplines.

18. Facilities and resources are of course critical (the laboratories, libraries, IT and communications infrastructure, and shared national or regional research infrastructures),²⁵ as are decent salaries: staff must be properly remunerated if they are to be retained, and if they are to concentrate on long-term science rather than on short-term consultancy. *Where it is not feasible to develop sufficient facilities in all institutions, or at least in the immediate future, shared models may be valuable*, like the Biosciences eastern and central Africa (BecA) Hub.²⁶

19. *Scholarships, supported by DFID through the Commonwealth Scholarship Commission (CSC), have been hugely important*, particularly in providing a route for PhD study.²⁷ There continues to be substantial demand. While alternative modes of delivery (including split site programmes)²⁸ and the introduction of new doctoral programmes in developing countries provide new routes, traditional scholarships will continue to be a critical and valued part of the package of support. Scholarship programmes are also typically long-term commitments; the CSC's alumni and evaluation work has a record achievement over a period of 50 years.

20. *There is considerable scope to foster postgraduate training initiatives which make use of new models of delivery*. These might include virtual graduate schools, several institutions working together to form collaborative doctoral programmes, such as the Consortium for Advanced Research Training in Africa (CARTA).²⁹ At master's level the Partnership for African Social and Governance Research is developing a collaborative social sciences training programme.³⁰

²¹ Funders and African Universities: Enhancing the Relationship: www.acu.ac.uk/member_services/professional_networks/research_management/funders_african_unis_seminar_report_2010

²² <http://apps.who.int/tdr/svc/partnerships/initiatives/essence>

²³ www.accesstosuccess-africa.eu/web/events/workshops/capacity-building.html

²⁴ These might include but are not limited to: scholarships and fellowships; competitive research and training grants, including for collaborative work; hub models to connect networks of institutions and researchers around specific disciplines; direct support to individual higher education institutions; support to higher level networks or associations who set wider agendas and distribute grants; funding to multilateral programmes to support larger scale initiatives. The UK Collaborative on Development Studies hosted a recent workshop to discuss the potential of different models and to share experiences between UK and other international donors.

²⁵ For example, dedicated national and regional broadband networks for academic use, or larger scale facilities in fields such as radio astronomy

²⁶ <http://hub.africabiosciences.org/>

²⁷ See CSC evaluation studies available at <http://cscuk.dfid.gov.uk/category/publications/evaluation-publications/>

²⁸ <http://cscuk.dfid.gov.uk/apply/split-site-scholarships/>

²⁹ www.cart africa.org

³⁰ www.pasgr.org

21. Strong cores of researchers in a given field, and in a given institution or network of institutions is needed. We must therefore guard against spreading resources too thinly, whilst also recognising that a diverse HE sector is important, and is increasingly the goal of many countries seeking to promote greater access.

22. *If the potential of doctoral training is to be realised beyond advancing a single career, individuals must have strong institutions to return to.* Well-trained individuals can do little to advance science and research if they have nowhere to work. An often overlooked aspect of research capacity is the *ethos and culture of research within an institution*. Better facilities and good leadership can go a long way towards fostering this ethos, but cultures of research take time to build and require strong and supportive inter-generational relationships so that junior scholars benefit from the experience of more senior colleagues.

23. *Greater attention must be paid to the early research career.* The immediately post-doctoral years are critical for an emerging researcher. However, the over-individualisation of research has led some senior staff to see junior colleagues as a threat to be checked rather than as potential to be nurtured and encouraged.

24. *This would include developing better career structures for those graduating from PhD programmes,* ensuring good mentorship by senior researchers, providing seed funding to initiate new research projects, support to publish, and assistance to establish links with the appropriate networks in their field. A post doc period is also normally needed for a researcher to acquire the necessary skills to run a research group of critical mass. The ACU and the British Academy have recently prepared a more detailed study on this subject, to be published this month, and would be willing to provide an advance copy to the committee.³¹

25. A potentially valuable approach would be to develop a mechanism for *three to five year early career fellowships*, where researchers remain based in their home institutions, but are able to spend six weeks each year in a host institution, within Africa or overseas. This would be a relatively new model, and would utilise the possibilities for remote as well as physical networking. While there is understandable concern over brain drain, in a world where research is increasingly international and collaborative, the question of whether people “return home” is now far too simplistic. Such an approach would be of mutual benefit to science in both the country concerned and in the UK.

26. *HEIs need to be able to manage their resources for research and capacity support centrally, and to determine their own priorities.* DFID has responded positively here, untying its aid and promoting southern management of research capacity programmes. It should continue to lead the way. HEIs need to be assisted to understand funding frameworks better, including the calculation of overheads and budgeting for staff time more effectively. The ACU has developed a substantial research management programme in recent years to address this need.³²

Q3: *How does the Government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?*

27. *There is a need to develop systems of impact assessment and evaluation which take a long term perspective.* It may take many years for the impact of a particular intervention to be realised. PhD training may take three years, but it may be many more before an individual’s impact on the research strength of their institution can be meaningfully assessed. Long term goals are all too often assessed through the completion of short term projects. This tends to encourage defensiveness on the behalf of project implementers or funders (who wish to secure future support), and often only the positive stories are told. The candid evaluation offered by the US-based Partnership for Higher Education in Africa was valuable for its willingness to be self-critical.³³

28. Research capacity is much more than can be measured by outputs and evaluating through output based metrics alone is therefore misleading. Research capacity depends on networks of individuals collaborating over time, and on cultures of scholarly inquiry.

29. *For higher education institutions in receipt of funding, DFID’s approach to evaluation may be too complex.* Mechanisms are needed which enable universities to capture the benefit of external support to their own internal capacity, and the lessons and benefits of prior schemes need to be collected, analysed and discussed in greater detail. Too much learning has been lost over the years as interests have changed and schemes have come and gone. The England-Africa Partnerships and Education Partnerships in Africa schemes³⁴ are a case in point: there are many important stories to tell from these schemes, but there has been relatively little attempt to extract any learning from them. Longer-term retrospective evaluations can provide valuable opportunities for learning in the way that trying to match a project’s goals to its outcomes cannot.

30. Developing country science would benefit from the ability to develop strategies and plan more effectively, and capacity in agenda setting and the undertaking of foresight studies would be potentially valuable here.

³¹ ACU/British Academy (forthcoming) *Foundations for the Future: Supporting the early careers of African researchers*—copy available on request.

³² www.acu.ac.uk/member_services/professional_networks/research_management/research_management_Programme

³³ PHEA (2010) *Accomplishments of the Partnership for Higher Education in Africa, 2000–2010: Report on a decade of collaborative foundation investment and A Case Study of the Partnership for Higher Education in Africa: Lessons from a Ten-Year Funder Collaborative* www.foundation-partnership.org/index.php?id=3

³⁴ Funded by what is now BIS

31. *Pressures to keep DFID's administrative costs as low as possible are in danger of negatively impacting the effectiveness of its capacity building support.* To design, deliver and monitor effective capacity support (even where external organisations are involved as implementing agencies), to understand and evaluate this appropriately, and to ensure continued learning as an organisation, requires sufficient numbers of experienced staff in-house.

Q4: *What role does DFID Chief Scientific Adviser plays in determining priorities and in the development and assessment of capacity building priorities?*

32. *The CSA should be a strong and independent position, in order to effectively and impartially advise on the range of science related work across DFID.* The current arrangement where the CSA doubles as head of Research and Evidence Division is thus problematic.

33. DFID's efforts to recruit specialist research fellows in key areas is worth acknowledging, since it offers an opportunity to ensure that a range of perspectives and disciplinary expertise is brought to bear, not least in contexts where interdisciplinary approaches are essential to gaining better understandings of key development questions.

Q5: *How are government activities co-ordinated with the private and voluntary sector?*

34. The private and voluntary sectors are important partners for government in research capacity building, and include HEIs, associations and networks of HEIs, NGOs, charitable funding bodies, learned societies and professional associations, as well as private sector consultancies. A visible UK Government strategy or framework for scientific and research capacity to which all parties could adhere, on a voluntary basis, or a widened UK research capacity providers' network, building on the valuable foundations laid by UKCDS, might help to address the issue of sector coherence.

15 December 2011

Supplementary written evidence submitted by The Association of Commonwealth Universities

At the meeting of the Committee on 8 February 2012, I promised to send some further details on the proportion of Commonwealth Scholars who undertake DFID-funded split-site doctoral degrees. You may recall that the figure quoted in the Commonwealth Scholarship Commission submission of 97 such awards between 2007–10 (cited as 4% of all awards) caused some concern.

In fact, this figure understated this actual number of students who study at more than one site for their Commonwealth Scholarships for three reasons.

The first is a technical one. The figure actually refers to the number that had secured their scholarships through our split-site route. In fact, a number of scholars also apply each year through our main doctoral route but are ultimately selected for a split-site award. Including these would take the number from 97 to 113.

The second reason is more substantial. The 4% figure quoted was the proportion of split-site doctorates amongst ALL DFID-funded awards given by the Commission. This portfolio is much wider than doctoral study—embracing two categories of mid-career fellowship, and three forms of Master's degree. When set only in the category of doctorates, (and including the adjustment above) split-site degrees account for 113 out of 449 over the period—around 25%.

Finally, I mentioned to the Committee that our definition of a split-site award in this context is a relatively narrow one. It involves supporting a student whose doctorate is based overseas (and registered at this "home" institution) to undertake up to one year in the UK. In practice, there are many more ways than this for doctoral students to study at two sites. One of the most common is to undertake an extended period of fieldwork (perhaps six to 12 months) at a different location—often in the student's home country. We do not keep actual statistics of these (they remain classified as "conventional" three year awards at UK institutions, which technically they are). However we would estimate that about half would actually undertake a period of extensive fieldwork at another location, almost certainly overseas.

I hope that the above will put the figures into context, and would be happy to provide further information if required. I was also delighted to hear that the Committee had expressed a wish to meet some Commonwealth Scholars at first hand, and look forward to this event at the end of the month.

February 2012

Written evidence submitted by The Association of Commonwealth Universities

It is now some weeks since members of the Select Committee kindly came over to talk to some of our Commonwealth Scholars, and also since my own evidence to the Committee. During those discussions, we promised to send a few further items of information.

I'm sorry that this has taken so long, due in part to our desire to wait until 2012 selections were complete. I now, however, list these below:

1. During the Select Committee hearing members expressed support for further increases in “split-site” models of doctoral training. We mentioned, I think, that the average number of such awards in recent years had been about 25. I can report that in 2012, 45 offers of such awards have been made. Experience suggests that a small number of these may not be taken up, but this still confirms that the proportion is growing. As I stressed at the Committee, though, it is important to recognise that this is not the only model through which PhD students can study on more than one site. For example, most of our regular doctoral students undertake substantial periods of fieldwork—in many cases in their home countries.
2. We stressed that other DFID programmes were also now being used as a source of high quality students. In 2012, 13 successful candidates were nominated by their DELPHE (Development Partnership in Higher Education) or DFID research programmes. We consider there be to significant scope for further collaboration with wider DFID research interests.
3. There was a question about the number of Commonwealth Scholars in Scotland. This year, 94 Scholars and Fellows have been studying there. A further 110 Commonwealth scholars are pursuing distance learning qualifications at Commonwealth Scholarships offered by Scottish institutions.
4. There was some discussion on the extent to which the very high return home rates for developing country students varied between types of award. We have now investigated this for Ghana (the country of the Scholar who raised this issue). Whilst some variation exists, in no case was the figure below 75%—and even here supplemented by a small number of students who had returned to other developing countries within the region. The overall rate for Ghana (84%) was slightly below that for developing countries as a whole.
5. We also undertook to let you have a breakdown of alumni by sector of employment. Again, using Ghana as a sample, our figures suggest that 61% continue to work in education (primarily higher education), 17% in professional, scientific and technical services, and 9% in public administration. The high proportion in higher education reflects the historic emphasis on doctoral study, and use of universities as nomination route. Both of these have diversified somewhat in recent years.

I hope that this information will be of some help. Needless to say, we would be very happy to provide further figures, or explanations, should this be of use.

April 2012

Written evidence submitted by The Academy of Medical Sciences

SUMMARY

1. The Academy of Medical Sciences welcomes the opportunity to respond to the House of Commons Science and Technology Committee inquiry into science and international development. The Academy is an independent body that represents the spectrum of medical science and seeks to improve health through the application of research. Our elected Fellows include some of the world's foremost experts in global health who have contributed to this response and would be happy to provide oral evidence to this inquiry. The Academy's response focuses on medical science, although some of the issues raised may be relevant to other disciplines.

2. Medical science can make an important contribution to international development and medical research capacity building in developing countries can help achieve this goal. The Academy commends the Government's continued support for international development, as well as the Department for International Development's (DfID's) commitment to science and efforts to build medical research capacity. Opportunities to further strengthen medical research capacity building include:

- Putting sustainable and equitable academic partnerships at the heart of efforts to build medical research capacity.
- Supporting a balance between strengthening individual capacity, strengthening institutional capacity and strengthening the capacity of national research systems.
- Strengthening monitoring and evaluation capacity, and supporting methodological improvements in this field.
- Providing additional resources to ensure that both the capacity building and the research components of DfID's initiatives are sufficiently funded.

- Using the UK's role on major global health decision making bodies to advocate for medical research capacity building internationally.
- Helping researchers from developing countries to apply their skills at home through mechanisms such as "return home grants", establishing endowments at academic institutions in the developing world and helping academic institutions provide better career development and administrative support for researchers.
- Reintroducing DfID's competitive grants programme and ensuring that criteria for decision making about funding for medical research and capacity building is clearer.

3. The Royal College of Physicians, Academy of Medical Sciences, Wellcome Trust, Universities UK and the Bill and Melinda Gates Foundation recently held a major international meeting on global health partnerships and capacity building. We would be happy to share the report of this meeting with the committee, which we expect to be published in the early 2012.

INTRODUCTION

4. Medical science has an important role in alleviating extreme poverty. Research indicates that every £1.00 invested in public or charitable research into cardiovascular diseases in the UK between 1975 and 1992 produced a stream of health and economic benefits equivalent to earning £0.39 per year in perpetuity.³⁵ While we are not aware of a similar study for medical research in developing countries there is reason to believe that medical research, health and wealth are closely linked. For example, it has been estimated that malaria has slowed growth in Africa by 1.3% per year since 1965 and medical advances have helped reduce malaria deaths globally by 20%.^{36,37} We therefore commend the UK Government's continued support for international development and the priority that has been given to research and health in achieving this goal.

5. The Academy strongly supports long-term, sustainable efforts to build medical research capacity in developing countries and believes this should be a priority for the DfID. Building medical research capacity contributes to international development; a strong research base can help developing countries in a number of ways, including:

- Strengthening their role in global medical research and reducing the need for future development assistance.
- Tackling local health challenges such as neglected diseases that might not otherwise be addressed by researchers from elsewhere.
- Developing health solutions that are more relevant to the local context such as how drugs previously tested elsewhere work in local populations.
- Strengthening local health service delivery, education and policymaking by generating and providing access to cutting edge and locally relevant evidence.
- Encouraging local researchers to stay and work in their home country rather than move abroad thereby reducing "brain drain".
- Stimulating local life science industries and the local economy.
- Building up science as a component of a country's overall culture.

6. Medical research capacity building in developing countries benefits the UK as it increases opportunities for international collaboration. To help realise this opportunity, UK universities should take a longer-term, more global view of science by engaging students early with these issues.

7. The Academy welcomes DfID's strong commitment to science and its efforts to support medical research capacity building. These include:

- DfID-Wellcome Trust Health Research Capacity Strengthening Initiatives in Kenya and Malawi.^{38,39}
- Research Programme Consortia that include a capacity building component.
- Commonwealth Shared Scholarships.⁴⁰

8. Medical research is inextricably linked to education and health service delivery so capacity building in these three areas should be coordinated. Much would be gained from an increased focus on higher education that has previously received limited attention.

³⁵ Health Economics Research Group at Brunel University, Office of Health Economics and RAND Europe (2008). *Medical research: what's it worth?* <http://www.acmedsci.ac.uk/index.php?pid=99&puid=137>

³⁶ Gates, B (2011). *Innovation with impact: financing 21st century development*. <http://www.thegatesnotes.com/Topics/Development/G20-Report-Innovation-with-Impact>

³⁷ Lawson S and Gilman D B (2009). *Health buys wealth*. <http://www2.goldmansachs.com/our-thinking/health-and-education/health-wealth.pdf>

³⁸ Further details are available from: <http://projects.dfid.gov.uk/project.aspx?Project=113982>

³⁹ Further details are available from: <http://projects.dfid.gov.uk/project.aspx?Project=114075>

⁴⁰ Further details are available from: <http://cscuk.dfid.gov.uk/apply/shared-scholarships/>

9. The UK is a major beneficiary of the migration of doctors from developing countries some of whom are researchers. One recent study of the financial cost of doctors emigrating from nine Sub-Saharan African countries estimated that the UK gained \$2.7 billion from this process while some African countries lost out.⁴¹ Investing in research capacity is therefore not just about aid but also an obligation to repay the debt that the UK owes the countries that originally trained the staff.

IMPROVING UK GOVERNMENT SUPPORT FOR SCIENTIFIC CAPACITY BUILDING

Ensuring capacity building is sufficiently resourced

10. The Academy welcomes DfID's efforts to include capacity building in their research programmes. However, this additional capacity building function sometimes has to be undertaken using existing resources. Additional resources would help ensure both the capacity building and other aspects of research programmes can both be successfully progressed. Part of the forthcoming increases in DfID funding might be directed toward this endeavour.

11. Scientific excellence should be a major factor when making decisions about medical research capacity building. Experience shows that while government can identify overall strategic priorities for science, scientific experts are best placed to identify particular projects. Currently it is not always clear how DfID decides what to support and it would be helpful if this process was more transparent. We believe DfID should consider re-introducing its successful competitive grants programme that provided significant funding for important initiatives.

Promoting capacity building through international institutions

12. One important opportunity for DfID and the UK Government to promote medical research capacity building is through the UK's membership of major global health decision making bodies such as the World Health Organisation (WHO) and the Special Programme for Research and Training in Tropical Diseases (TDR). As one of the most important advocates for global health and international development the UK is well placed to help shape the policy agenda and ensure research capacity building is an international priority.

MODELS AND MECHANISMS FOR SUPPORTING RESEARCH CAPACITY IN DEVELOPING COUNTRIES

Global health partnerships

13. Sustainable and equitable international partnerships between academic institutions offer an excellent mechanism to build medical research capacity in developing countries. One major advantage of this approach is cost effectiveness because the financial input remains under the direct control of the partners rather than going through external parties that might redirect resources elsewhere. Another benefit is the increased scientific impact achieved through such international collaborations, which increases for each additional international author up to around 10.⁴² Partnerships allow UK universities to provide technical support and expertise to developing countries to help build capacity. In the UK, the Wellcome Trust has been a strong supporter of this sort of activity. Examples of successful north-south partnerships involving UK institutions include:

- The Malawi-Liverpool-Wellcome Trust Clinical Research Programme.⁴³
- The partnerships between the University of Oxford and Sri Lanka.
- The London School of Hygiene and Tropical Medicine and several Tanzanian institutions.
- Partnerships involving the University of Oxford, Wellcome Trust and institutions including the Oxford University Clinical Research Unit in Vietnam, Mahidol University in Thailand and the Kenya Medical Research Institute (KEMRI).^{44,45,46}

14. Historically many partnerships have been between institutions in the global north and south. Increasingly, however, partnerships are developing between southern institutions. South-south partnerships break the model of the one way transfer of knowledge and technology from north to south and often involve a greater degree of trust through shared experience, geography and language. South-south partnerships between institutions with different levels of resource can help engage countries with fewer partnerships through a "hub and spokes" model. Examples of south-south partnerships, some of which are at least partly funded from the UK but with southern leadership, include:

- Wellcome Trust African Institutions Initiative.⁴⁷
- Initiative to Strengthen Health Research Capacity in Africa (ISHReCA).⁴⁸

⁴¹ Mills E J *et al* (2011). *The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis*. *BMJ*, **343**, doi: 10.1136/bmj.d7031

⁴² The Royal Society (2011). *Knowledge, networks and nations*. <http://royalsociety.org/policy/reports/knowledge-networks-nations/>

⁴³ Further details are available from: <http://www.mlw.medcol.mw/>

⁴⁴ Further details are available from: <http://www.tm.mahidol.ac.th/en/wellcome/index.html>

⁴⁵ Further details are available from: <http://www.wellcome.ac.uk/Funding/International/Major-Overseas-Programmes/Vietnam/index.htm>

⁴⁶ Further details are available from: <http://www.kemri-wellcome.org/>

⁴⁷ Further details are available from: <http://www.wellcome.ac.uk/Funding/International/WTX055734.htm>

⁴⁸ Further details are available from: <http://ishreca.tropika.net/>

— PProgramme for Improving Mental healthcarE (PRIME).⁴⁹

15. While partnerships offer considerable benefits, like most efforts to build research capacity they require substantial long-term resources over many years. DfID should ensure that partnerships receive sustained core funding with appropriate safeguards to halt support for those partnerships that are not working.

16. Various individuals and organisations have developed principles to help guide the establishment and development of equitable global health partnerships.^{50,51,52,53,54} Common messages include the need for:

- Clearly defined focus, roles, responsibilities and objectives that have been established through consultation.
- Shared decision making, mutual trust and respect.
- Local ownership with progressive independence of the partners from the developing country.
- Monitoring and evaluation.
- Staff training and development.
- Support of national and regional health priorities and socially relevant research.
- Application of research findings to policy and practice.

17. We welcome DfID's support for partnerships as a tool to build medical research capacity in Africa and would encourage DfID to support partnerships in India and South East Asia. Sustainable and equitable academic partnerships should be at the heart of DfID's efforts to build medical research capacity and particular attention should be given to supporting south-south partnerships. This echoes the messages of the influential WHO report "*Genomics and World Health*".⁵⁵

Comprehensive capacity building

18. Many previous efforts to build medical research capacity in developing countries have focused on individuals. However, without strong institutions and strong national research systems individuals will not flourish. For instance, skilled researchers will find it difficult to be successful without support such as IT, finance, buildings, administration, suitable national funding systems, equipment and appropriate regulation. Examples of initiatives that involve institutional and national capacity building include:

- Malaria Capacity Development Consortium.⁵⁶
- Consortium for National Health Research in Kenya.⁵⁷
- European and Developing Countries Clinical Trials Partnership (EDTCP).⁵⁸

19. When building medical research capacity DfID should seek to support a balance of strengthening individual capacity, institutional capacity and the capacity of national research systems. Specific opportunities include:

- Training future research leaders from developing countries in governance, management and leadership earlier in their careers.
- Establishing research support centres that help with matters such as budget review, administration, grant writing and ethics.
- Creating champions for capacity building and global health partnerships at senior positions within academic institutions.
- Supporting core costs for emerging research centres in developing countries through untied grants for expenses such as IT systems, financial management and grants management.

International interchange

20. One effective mechanism to help build research capacity in developing countries is international interchange. This approach can be particularly effective where individual researchers are hosted in an institution, either in the same country or abroad, for several weeks or months to learn particular technique,

⁴⁹ Further details are available from: <http://www.health.uct.ac.za/research/groupings/prime/about>

⁵⁰ KPFE (1998). *Guidelines for Research in Partnership with Developing Countries*. <http://www.int.uzh.ch/northsouth/KPFEGuidelines.pdf>

⁵¹ Netherlands Development Assistance Research Council (2001). *North-South Research Partnerships: Issues and Challenges Trivandrum Expert Meeting Report, 1999*. The Hague, The Netherlands.

⁵² Costello A and Zumla A (2000). *Moving to Research Partnerships in Developing Countries*. *BMJ*, **321**, 827–829.

⁵³ COHRED (2004). *Principles of good partnership for strengthening public health capacity in Africa*. <http://www.cohred.org/wp-content/uploads/2011/05/783.pdf>

⁵⁴ *Canadian Coalition for Global Health Research (2007). Building Respectful and Collaborative Partnerships for Global Health Research: Learning Resource*. www.ccghr.ca

⁵⁵ World Health Organisation (2002). *Genomics and World Health*. <http://whqlibdoc.who.int/hq/2002/a74580.pdf>

⁵⁶ Further details of the Malaria Capacity Development Consortium can be found at: <http://www.mcdconsortium.org/>

⁵⁷ Further details are available from: <http://cnhrkenya.org/>

⁵⁸ Further details are available from: <http://www.edctp.org/>

which can be implemented on their return home.⁵⁹ Where possible reciprocal exchanges should take place to develop more sustainable and productive links and collaborations.

21. The Academy currently administers a travel fellowship scheme between the UK and Middle East in partnership with the Daniel Turnberg Trust Fund.⁶⁰ Participants at a recent international workshop between UK and Brazilian scientists organized by the Academy, FAPESP and Science and Innovation Network (SIN) office in Brazil highlighted the potential value of annual residential summer school for early career researchers as a mechanism for interchange and capacity building.

Retaining researchers in developing countries

22. Limited opportunities and support at home means that many researchers from developing countries emigrate in search of better opportunities elsewhere. Often this is to the country in the north where they received education and training. Southern researchers who are trained in the north sometimes gain skills that are less useful when they return home. This too can lead them to emigrate. Retention of post-doctoral students from developing countries is a particular challenge as there are major gaps at this stage in their careers.

23. The UK has a good record of helping researchers from developing countries who trained in here to undertake work in their home country. To further help ensure “brain drain” does not undermine capacity building DfID and the UK Government should help:

- Provide researchers from developing countries who spend time training in the global north with “return home” grants that cover salary and research support for a reasonable period of time upon returning home.
- Assist academic institutions in developing countries by establishing endowments to support research careers to reduce job insecurity and allow clinical academics in particular ring fenced time for research.
- Assist academic institutions in developing better support for researchers such as mentoring, networking opportunities and training in grant writing, advocacy and ethics.

24. The Academy will shortly be publishing a booklet about its mentoring scheme that we plan to disseminate internationally and may be of use in helping others develop similar schemes to support the careers of researchers in developing countries.

Monitoring and evaluating scientific capacity building

25. Monitoring and evaluation are vital components of efforts to build medical research capacity. Measures for assessing the impact of capacity building should encompass:

- Individual measures such as the number of people trained to doctorate level; number of post doctoral students and more senior staff holding their own peer-reviewed grants; proportion of research staff based in the partnership country; and proportion of staff lost to the “brain drain”.
- Institutional measures such as overall grant income from peer reviewed competitive sources; impact profile of publications; robust procedures to manage research grants and provide supportive career structure for researchers; and evidence that the relevant institutions are playing a leadership role in coordinating international research collaborations.
- Policy impact of research such as case studies of how the research in the relevant institutions has supported evidence based policy decisions.
- Intellectual property and innovations that have resulted from the research undertaken as a result of the capacity strengthening activities.

26. At present evidence about medical research capacity building is limited and too often not undertaken. DfID is well placed to help strengthen monitoring and evaluation capacity and support improvements in methodologies in this field.

Coordinating with the private and voluntary sectors

27. We believe that DfID coordinates well with many Non-Governmental Organisations (NGOs), however, there are also opportunities to engage more with industry from developing countries. Many companies from developing countries have considerable resources that might be harnessed to help build medical research capacity for the public good. There are also opportunities to engage southern governments, southern funders and southern philanthropists that have to date only had limited involvement in this area. When engaging industry and others in medical research capacity building it will be important to ensure that no single partner dominates the agenda.

28. SIN have been helpful to our Fellows in their efforts to build capacity, particularly the offices in Singapore and South Africa. The UK Government should consider widening the reach of SIN so that it covers

⁵⁹ Academy of Medical Sciences (2009). *Response to the DfID inquiry on Eliminating world poverty and securing our common future* <http://www.acmedsci.ac.uk/p100puid152.html>

⁶⁰ Further details of the Academy’s scheme can be found at: <http://www.acmedsci.ac.uk/p175.html>

more countries. There are major opportunities for the overseas offices of British governmental organisations in India to engage more with global health partnerships and capacity building, and greater support and attention should be given this goal.

Declaration of interests

Many of the Academy's Fellows including some of those who contributed to this response are involved directly or indirectly with efforts to build medical research capacity in developing countries some of which have been used as examples in this response.

This response was prepared with advice from Professor Shah Ebrahim, Professor Brian Greenwood CBE FMedSci, Professor Sir Andrew Haines FMedSci, Professor David Heymann CBE FMedSci, Professor Anne Mills CBE FMedSci, Professor Vikram Patel FMedSci, Professor Robert Souhami CBE FMedSci and Professor Sir David Weatherall FRS FMedSci.

16 December 2011

Written evidence submitted by the British Academy

INTRODUCTION

1. The British Academy is pleased to respond to the inquiry commissioned by the Science and Technology Inquiry to look at the way in which the UK Government supports scientific capacity building in developing countries.

2. As the UK's national academy for the humanities and social sciences we are keen to promote the fundamental role which our disciplines play in understanding the cultural and societal context for sustainable development, and the distinctive contribution which can be made by social sciences and humanities (SSH) researchers in identifying methods for poverty alleviation. The social sciences and humanities disciplines are essential in addressing areas such as empowering girls and women, boosting wealth creation, strengthening governance and security, and combating climate change. We are concerned that "scientific" capacity building should not be narrowly defined to refer only to the STEM subjects, and that the value of the humanities and social sciences in improving and sustaining the best development and humanitarian outcomes should not be underestimated.

3. The British Academy engages with capacity building issues in a number of ways. Since 2006, we have run an international capacity building programme with a focus on equitable partnership and sustainability. The International Partnership and Mobility scheme is intended to build long-term institutional links between the UK and developing countries based around a programme of research and training. Working with the Association of Commonwealth Universities and other partners, we have also led the development of what is being termed "the Nairobi Process" which proposes a series of frameworks for improving humanities and social sciences research in Africa. Born out of the *Nairobi Report*⁶¹ published in 2009, the process incorporates a number of initiatives focussed on issues of research capacity, and a follow up report, *Foundations for the Future*,⁶² centred on the challenges faced by, and support for, the next generation of African academics, will be launched by the British Academy at in February 2012 and an advance copy can be made available to the committee.

How does the UK Government support scientific capacity building in developing countries and how should it improve?

4. The UK Government has primarily supported scientific capacity building through programmes funded by DFID and run with other bodies, such as the British Council and the ESRC. DFID has actively pursued a research capacity strengthening agenda over the past decade and a half, with funding focussed on programmes and centres, rather than individual projects, and a growing emphasis on South-South collaboration, and capacity-building as an objective.

5. Though capacity building activities were identified as "an area of weakness" by the Science and Technology Committee's 2004 report on *The Use of Science in UK international development policy*, we believe that a large part of their limited success has been due to the complex nature of capacity building, and the difficulties inherent within this, rather than being solely the result of failings on the part of DFID. However, there are a number of ways in which support for capacity building can be improved.

6. Long-term, sustainable approaches should be developed as opposed to short term solutions. Building capacity is by definition a long term and multi-layered endeavour, particularly for institutions and research cultures where initial capacity is low. However, DFID has traditionally adopted a more short-term outlook.

7. The UK Government should make strengthening research capacity a more integral part of its development work. DFID's main priority is poverty alleviation, and the short-term measures frequently associated with this are often at odds with the need to develop long-term strategies for fostering sustainable research cultures and

⁶¹ British Academy/ACU, 2009. *The Nairobi Report: Frameworks for Africa-UK Research Collaboration in the Social Sciences and Humanities*.

⁶² British Academy/ACU, 2011. *Foundations for the Future: Supporting the early careers of African researchers*.

developing capacity. Approaches should take account of the contribution which a strong, local research base could make to poverty alleviation in the longer-term. Developing country researchers need to be involved in identifying and tackling problems in their communities; the development of well trained and knowledgeable people in enabling local research environments which can produce locally-generated data and analysis required to inform evidence-based policy making at the national and regional level needs to be the focus of greater development efforts.

8. Smaller grants should be made available for capacity building activity. Large programmes can struggle to maintain coherence and focus in their project designs, and the pattern of making fewer, larger consortia grants reduces the different points of view around development theory and policy. An introduction of smaller grants (around £200k), following the Social Science Research Council model in the USA, would also better support the contribution made by SSH, which typically benefits from a smaller, more participative, project scale. Furthermore, smaller scale projects are more likely to secure the involvement and leadership of researchers within developing countries, given that the low levels of administration available to them often precludes their engagement with larger projects.

9. Application procedures for schemes involving developing countries should be simplified. Current processes have earned criticism for being vastly over-complex and for serving as a deterrent to good potential applicants in developing countries. The procedures used by the Leverhulme Trust, the Humboldt Foundation and the British Academy, are suggested as alternatives.

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

10. Any effective model for supporting research capacity in developing countries will need to take into account the interdependence between the three levels of capacity building, as referred to by DFID.⁶³ Individual (the development of researchers to undertake research); Organisational (developing the capacity of organisations to manage and sustain themselves) and Institutional (changing the context and the resource base in which research is undertaken).

11. An approach which does not provide support at all three levels is unlikely to yield success. Support targeted at individual researchers may produce quick results, but without the appropriate organisational frameworks to make research careers attractive, the individual is likely to leave the organisation for a better one, often in the global North, causing a loss of local capacity and propagating brain-drain. Similarly, any approach which focuses on improving organisational capacity will fail unless the individuals operating within the organisation are fully involved in the process. Support at the institutional level is also crucial, and local ownership of activity is an important factor here. External funding for capacity building is unlikely to produce results if there is a lack of support from the partner country, or if it cannot overcome local problems which make it difficult to undertake research.

12. Mechanisms for supporting research capacity will also need to be flexible to take into account the complex conditions within which capacity building occurs, particularly within the fragile states which represent 20 of DFID's 27 priority countries. Funders should be prepared for experiments that fail, and for programmes and projects which may need to be adjusted over the course of their duration.

13. In cases where research capacity is developed through North-South-South collaborations, funders should recognise the importance of language capacity in understanding the scientific needs of developing countries, as well as the larger issues of inter-cultural understanding. As an example, many clinical trials now take place in developing countries where community consent, rather than individual consent, is an issue.

14. The British Academy advocates an approach which follows the recommendations made in the *Nairobi Report* and in the forthcoming *Foundations for the Future* report, and which focuses on the support of research cultures through better governance, communities and networks, and a focus upon early-career researchers. As with the multiple levels of capacity building, these issues are fundamentally inter-connected and require even attention and a holistic view involving a number of linked forms of support:

- *Governance*: As argued in the *Nairobi Report*, “New money for research can only be provided if there is confidence in the ability of institutions to manage it and to deliver good research”. Structures, systems and governance all need to be coordinated to provide the best framework for supporting and developing research practices within institutions.
- *Communities and Networks*: South-South exchange and collaboration is essential to building self-sustaining communities of research excellence. Few institutions in developing countries have the capacity to support full programmes of research, and an approach which encourages the linking of existing capacity, and which makes use of institutional hubs as appropriate, is needed.

⁶³ DFID, 2010. *How to Note: A DFID practice paper*.

- *Early-career Researchers*: In many developing countries, an ageing professoriate, together with more attractive prospects for researchers overseas, has led to a shortage of capable researchers at the early career level. A concentration of support for the next generation of academics is critical, but as the *Foundations for the Future* report argues, “it is vital that these investments in people are designed to strengthen the wider research base in universities and their faculties and departments.” Support for the individual needs to be embedded within organisation frameworks, in order to begin to regenerate the ‘academic core’ of an institution.⁶⁴

15. Through the International Partnership and Mobility scheme, the British Academy has designed a model for supporting research capacity development which seeks to address the issues raised above. By requiring organisational ownership from the partner developing country, the scheme aims to impact on organisational structures and systems for doing research. Intra-regional collaboration is integral to the scheme, as is the involvement of early career researchers. The scheme also gives valuable experience to British researchers in improving their understanding of research cultures overseas. Though modest in scale, the scheme has had demonstrable success in building capable, self-sustaining research teams, the majority of which have gone on to submit successful bids for funding on a far greater scale.

How does the Government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?

16. As capacity building is complex in its very nature, the monitoring and evaluation of its effectiveness is equally so. As a long-term endeavour, capacity building is unlikely to yield the short-term impact which best fits existing monitoring and evaluation (M&E) systems. Capacity building is not a “stable target”, and the M&E approach must be “flexible enough to adapt to all the changes inherent in CB, and must ensure that learning is captured”.⁶⁵ Recognising these difficulties, we welcome DFID’s efforts to develop appropriate M&E procedures and to conduct internal reviews of its capacity building record.

17. However, we believe that DFID should be more transparent in its evaluation methods, and should make greater efforts to make the results of its M&E known. It is our experience that there is a lack of awareness within the research community about what DFID is doing in this area, and greater transparency and communication would serve to redress this. Furthermore, the sharing of lessons learned—both success factors and, equally importantly, what has not worked—is beneficial for the research community, funders and intermediaries to build collectively on experience and improve future research capacity initiatives.

What role does DFID’s Chief Scientific Adviser play in determining priorities and in the development and assessment of capacity building policies?

18. The role of DFID’s Chief Scientific Adviser (CSA) performs a vital function in ensuring ministers and policy-makers take decisions based on the best available evidence. While the current CSA comes from a natural sciences background we would highlight the need to take into consideration perspectives from the social sciences and humanities.

19. The British Academy welcomes the more integrated role for the CSA within DFID, which we believe has resulted in a greater contribution on his part in the development and assessment of capacity building policies. We commend the CSA’s regular meetings with ministers, and maintain the value of ensuring communication between the CSA and their Department.

20. However, we have found that there is again a lack of understanding within the research community about the role played by the Chief Scientific Adviser. We would recommend that the Chief Scientific Adviser develop a more transparent way of taking advice from UK academics working with researchers in the developing world, in order to fully benefit from the wealth of expertise available. As noted in our September submission to the House of Lords Select Committee on Science and Technology’s inquiry to investigate the role and function of departmental CSAs, the national academies are uniquely placed to support the development of greater understanding between CSAs and academics, and the British Academy is especially willing to play its part in supporting cross-disciplinary expertise to government that will supplement the expertise of the CSAs.

How are government activities co-ordinated with the private and voluntary sectors?

21. The co-ordination of the many capacity building activities across different sectors is crucial to creating greater impact and effectiveness. There is a wide range of different activity taking place at different levels, including the work undertaken by the national academies and learned societies.

22. The role played by organisations such as UKCDS (UK Collaborative on Development Sciences) in providing a forum for research funders in the UK with an interest in development to share information, and in organising events to develop more co-ordinated approaches, has been of great importance in this area. The British Academy has benefitted greatly from its involvement with the UKCDS’ Research Capacity Building Group. We welcome further opportunities for collaboration and sharing with UK Government on research capacity initiatives as we take forward the Nairobi Process.

⁶⁴ British Academy/ACU, 2011, p 6.

⁶⁵ DFID, 2010, p 16.

The British Academy, established by Royal Charter in 1902, champions and supports the humanities and social sciences across the UK and internationally. It aims to inspire, recognise and support excellence and high achievement across the UK and internationally. As a Fellowship of over 900 UK scholars and social scientists, elected for their distinction in research, the Academy is an independent and self-governing organisation, in receipt of public funding. Views expressed in this submission are not necessarily shared by each individual Fellow.

December 2011

Written evidence submitted by UCL Institute for Global Health

The UCL Institute for Global Health (IGH) is pleased to make a submission to the Committee's inquiry into Science and International Development.

IGH is developing an institution-wide agenda leading to strategies, programmes, research and teaching to bring UCL's combined expertise to bear on global health challenges. The Institute coordinates the cross-fertilisation and application of UCL's expertise to problems of global health.

IGH's experience with regard to the UK Government's activity in science and development is largely with DFID and for that reason our response concentrates mainly on DFID's policy and activity.

1. How does the UK Government support scientific capacity building in developing countries and how should it improve?

We would contend firstly that Government should improve its definition of what is meant by capacity building in regard to scientific research. We suggest that scientific capacity developing includes: the development of sustainable infrastructure within a country (ie sustainable either within the resources of the country or through income generation); the training of scientists to become discipline leaders and senior managers of global standing; and the establishment of self-sustaining networks of indigenous scientists to deliver research and train appropriate cohorts.

The aim of capacity building should ultimately be to develop sustainable and mutually beneficial partnerships between developed and developing countries. It is also important for scientific research to include a component which focuses on implementation to develop a clear understanding of how to improve the influence of research evidence on policies and programmes.

It is not clear that the UK Government overall has scientific capacity building as a key aim. Being more explicit across Government about aims with regard to capacity building would be helpful. In particular, we would advocate a clear statement that Government wishes to support scientific capacity building where appropriate, and the inclusion of capacity building as an outcome in relevant research calls by Government departments.

There may also an important role for the Science and Innovation Network in identifying priority areas for capacity building.

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

There is a key role for DFID in gathering and disseminating evidence on the most effective models and mechanisms for supporting capacity building, and this should be prioritized within DFID research activity. We suggest that DFID research applications should include an explicit statement of how capacity development will be delivered, with grant-holders held accountable for this.

DFID has an important role in improving the leadership and capacity of researchers so they can design and deliver appropriate research. Based on the definition of scientific capacity building that we have set out above, we would suggest that DFID should ensure a clear understanding of this and of DFID's priorities for capacity building among researchers in both developed and developing countries. There should be a clear focus on building skills, human resources and intellectual capacity.

As we argued in our submission to the Government Office for Science's Science and Engineering Assurance Review of DFID in early 2011, we do not believe that DFID's Research Programme Consortia model has worked successfully. We make a number of suggestions for priorities that should be embedded in capacity building programmes:

- training the workforce and researchers in developing countries to develop human capacity;
- funding research grants for at least five years (recognising that outcomes may be incremental or iterative and will take time to emerge);
- supporting full research costs through grants; and
- establishing a research funding stream to improve lab capacity in research institutions in developing countries.

We would suggest that a preferred model of research funding for capacity building would be to issue frequent calls for research in defined areas on a rolling basis which are specific in overall outcomes but leave the design and delivery to the researchers involved. These should support effective partnership research mechanisms between UK and developing country researchers and thus embed capacity building and mutual learning. Alternatively, DFID could seek to build research capacity by supporting multi-country, and ideally cross-regional, research so that countries learn from each other, although we recognise that there may be a challenge in managing such research effectively. A successful example of this model is the projects funded by the European and Developing Countries Clinical Trials Partnership (EDCTP), which uses a brokered approach to bring together complex consortia, comprising groups which previously would have competed against each other for funds, to address clear research aims.

We would also suggest that DFID should explore new ways of supporting universities in developing countries to undertake research, as this is one of the most effective methods of capacity building. Currently universities in developing countries are often peripheral to capacity building efforts because they are more focused on the practical training of researchers than on undertaking research. We noted in our submission to Science and Engineering Assurance Review of DFID that:

There is a need to support research institutions, particularly universities in developing countries, to manage and deliver robust, relevant and high quality evidence. DFID Research Consortia should be expected to have partners with a strong track record of research generation and capacity building in research methods and training. We are fully supportive of DFID's emphasis on the need to build research capacity in our developing country research partnerships, to strengthen capacity to do and use research at the individual, organisational and institutional level.

Finally, we note that there is a continued tension between developing and delivering successful capacity building programmes, and the pressure from DFID to deliver rapid outcomes and good news stories. We would suggest that having appropriate evaluative goals for successful research capacity building, that recognise that it is likely to occur over the longer-term and in increments, could help to resolve this tension.

3. How does the Government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?

Our response here refers to DFID's monitoring and evaluation of research, rather than that of the Government as a whole. There is significant scope to improve the level of interaction between DFID-funded research programmes and DFID staff. There appears to be little time or resource invested in responding to research reports or engaging with what is being learnt through research. Furthermore, there appears to be a disconnect between the DFID staff who commission research, DFID's technical advisors in the UK and in country offices, and the scientists working on DFID-funded research. This disconnect is likely to impede DFID's monitoring and evaluation of the research and capacity building that it supports.

4. What role does DFID's Chief Scientific Adviser play in determining priorities and in the development and assessment of capacity building policies?

We feel that there is very little visible role for DFID's Chief Scientific Adviser (CSA). We would suggest that it would be helpful if the CSA could liaise with research advisers in DFID to identify needs in capacity building in order to inform funding and DFID's other work in capacity building.

We feel that DFID's articulation of capacity building remains vague. Although definitions are provided in a guidance note issued by DFID,⁶⁶ there is no clear vision of what this means in terms of implementation. We would suggest that developing guidance on implementation to include practical examples of what works and what is feasible in developing country contexts would be highly valuable.

DFID should also seek to better disseminate its guidance on capacity building; there may be a role of the CSA here. Finally, we would suggest that it is important that the CSA interacts closely with the DFID Head of Research; such appointments should not be seconded positions, which may potentially impede activities due to conflict of interest concerns, to ensure that post-holders can fully participate in DFID procedures.

5. How are government activities co-ordinated with the private and voluntary sectors?

We feel that DFID's coordination with trusts and endowment organisations seems to be successful and that this should be continued.

We emphasise that DFID has a respected and helpful role in advocating independent views and in demonstrating leadership on particular issues (such as family planning and safe abortion) and it is important that DFID continues this role.

⁶⁶ http://www.dfid.gov.uk/r4d/PDF/Publications/GuidanceNote_CapacityBuilding.pdf

We would suggest that it would be useful for DFID to work with NGOs to promote scientific good practice in NGO research and in particular to ensure that research results are published in peer-reviewed journals whenever possible to ensure a rigorous evidence chain that can in turn inform future research.

December 2011

Written evidence submitted by the Natural Resources Institute, University of Greenwich

1. The Natural Resources Institute (NRI) is a specialist Institute of the University of Greenwich providing research, consultancy, training and advisory services to underpin food security, sustainable development, economic growth and poverty reduction. The majority of these activities focus on the harnessing of natural and human capital for the benefit of developing countries.

2. The Institute maintains a programme of research and technology generation in life sciences, social sciences and economics. Funding is on a full cost-recovery basis with total research funding in the order of £10 million (2010–11), approximately from one third from UK central government, primarily DFID, and the other main sources of funding being European Commission, Bill and Melinda Gates Foundation. Since NRI joined the University of Greenwich, over 200 post-graduate students have been registered for research degrees, a high proportion of these from developing countries. Research also underpins postgraduate taught programmes in natural resources, food safety, and food technology management, as well as short courses in specialized areas carried out both in the UK and overseas. Capacity strengthening is one of NRI's key theme areas and we lead or participate in a range of training and institutional development initiatives supported by the European Commission and DFID.

3. Each year NRI staff undertake around 600 professional overseas assignments in over 80 countries (mainly in the developing world or in countries with transitional economies) as consultants, researchers, advisors or educators.

4. NRI's main focus is on agriculture, natural resources and food security and it is on scientific and technology capacity building in developing countries in these areas that our evidence focuses.

How does the UK Government support scientific capacity building in developing countries and how should it improve?

5. There are compelling reasons why agriculture, food and natural resource-related science and technology are important for the achievement of the MDGs. Over 70% of the world's poor live in rural areas and depend heavily on natural resources and agriculture for their livelihood and food security. But the limited institutional capacity of developing countries, particularly in sub-Saharan Africa, to use modern science and technology in support of their development will severely constrain their chances of reducing poverty.

6. As the UK Government's international development agency, DFID should have the lead focus for science and technology capacity building in developing countries. However, the role of DFID (and its predecessors) in this important area of development is chequered.

7. At independence in the 1950s and 1960s, there were very few agricultural research and training organisations in sub-Saharan Africa, and those that existed were heavily dependent on northern scientists, including those from the UK sponsored by the UK Government in various guises. International development agencies (including the UK) provided support for capacity development in science and technology for agriculture from the 1960s to the mid-1980s focussing largely on the establishment of public sector agricultural research stations, agricultural colleges and faculties of agriculture in universities. Priority was given to developing physical infrastructure through government funded capital projects and to the recruitment and formal training of staff.

8. During the 1980s locally provided public sector budgets for agricultural research and training in sub-Saharan Africa were substantially reduced as part of structural adjustment programmes and this led to an increasing dependence on donor funded projects and on loan programmes from the World Bank to support them. DFID was one of several agencies that actively contributed to these programmes in which there was a stronger emphasis on formal post-graduate training in universities in the North.

9. In the 1990s, bilateral and multi lateral donors lost confidence in support for agriculture, including scientific and technological research. Funding effectively came to a halt such that in many cases agricultural scientific and technological research institutes in Africa are no longer fit for purpose.

10. The loss of donor confidence in support for agriculture arose partly from the lack of clear evidence of impact and seminal studies showed that in many situations, particularly in sub-Saharan Africa, disciplinary-based approaches to research and the linear model of developing and transferring agricultural technologies were not effective. This led to the recognition of the need for more nuanced alternative approaches. These included "farming systems" and "farmer first" approaches, greater use of socio-economic expertise, and an

increased emphasis on linking farmers to markets and on the need to understand the “innovation system” in which the developments were grounded. However, such developments in thinking (largely in the North) have not been fully mainstreamed either in training or research institutions in sub-Saharan Africa and the problem of limited uptake of agricultural technologies remains. A related issue is that even with limited national or international funding, linkages between national agricultural research organisations, universities and other actors in putative National Agricultural Research Systems (NARS) remained very weak. There has been much discussion about the concept of NARS, in which different types of organisation contribute in different ways to agricultural research and development. However, although there have been some improvements in most countries the NARS do not function in an integrated and coherent way.

11. The current position is that the serious lack of investment in public agricultural research, extension and training organisations leaves sub-Saharan Africa in an extremely vulnerable state with respect to food security. There is little prospect in many countries in the region of meeting the Millennium Development Goals, particularly for poverty and hunger. Recruitment of new scientific research staff has been frozen in many countries for over 10 years and the age structure of existing staff is highly skewed, with a substantial proportion of staff close to retirement. Because of the low salaries and poor conditions in the workplace, there has been an exodus of staff to other organisations or professions. In countries which have undergone conflict the situation is considerably worse due to the destruction of infrastructure and the higher losses of trained staff.

12. Against this background, in 2007 DFID commissioned the Forum for Agricultural Research in Africa (FARA) and NRI to develop the project “Strengthening Capacity for Agricultural Research and Development in Africa” (SCARDA) designed to begin to support the wider needs of national agricultural research and training organisations in Africa. SCARDA aimed to develop and test an approach which enhances the capacity of national agricultural research and training organisations to plan, manage and implement high quality and relevant research. This approach had several key features. Capacity strengthening interventions were targeted at selected “focal institutions” which have a key role to play within their respective national agricultural research systems. The focal institutions were assisted to analyse their capacity needs and to develop change management plans which will help them to improve their effectiveness. Support was provided in specific priority areas identified by the focal institutions, but only if this had clear potential to enhance the overall performance of the institutions. Local partner organisations were included in selected activities and stakeholder feedback was an important means of assessing whether the performance of the focal institutions has improved.

13. The design of the SCARDA project reflected FARA’s commitment to position the initiative firmly within the framework of the Comprehensive Africa Agricultural Development Programme (CAADP) which is now the main focus of DFID’ support to agriculture in Africa. FARA provided overall coordination, whilst implementation of activities was managed by the sub-regional organisations in the three sub-regions of sub-Saharan Africa (ASARECA in East Africa, CORAF/WECARD in West Africa and SADC-FANR in Southern Africa). The active involvement of the sub-regional organisations created scope for capacity gaps common to several countries to be identified and for learning to be shared between countries. Learning was also shared across sub-regions through the establishment of knowledge networks. NRI was tasked with providing technical support to FARA and contributing specific capacity strengthening inputs in response to requests from the sub-regional organisations.

14. The SCARDA project ended on 31 March 2011 but DFID has provided additional support to 31 December 2011 to document the process and the main outcomes. DFID’s future strategy is to channel support for capacity development through the sub-regional research organizations.

15. Prior to the SCARDA programme DFID invested significant funds between 1995–2006 in the Renewable Natural Resources Research Programmes RNRRS. The component parts of these programmes generally invested in collaborative research projects involving partnerships between a range of local institutions and mainly UK partners. Although capacity building was not an overt feature of these programmes, there are numerous examples where the capacity of individuals and organisations were strengthened as part of the research and development activities. Elements of this continued in the Research into Use Programme.

16. In recent years DFID has also included a capacity strengthening component in programmes that it has jointly funded with the Biotechnology and Biological Sciences Research Council (BBSRC). However, the proportion of funds allocated to capacity building has been limited and did not form part of the original programme design. It remains to be seen whether this rather ad hoc approach of providing small amounts of additional funds for individual grant holders will lead to measurable benefits at the organizational level.

17. DFID also supports Fellowships or studentships funded through support for organizations such as the International Centre for Insect Physiology and Entomology (ICIPE) or programmes such as the Futures Agriculture Consortium.

18. DFID support to capacity strengthening is essential if increased overall support to agricultural research for development is to have the expected level of impact.

19. Approaches for improving the situation with respect to capacity building programmes.

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

20. There are a number of lessons that may be drawn from the experience of capacity development of agricultural scientific research and technology organisations in sub-Saharan Africa since the 1950s; for example:

- The returns on investment in infrastructure (often donor funded) have generally been low because inadequate funding for recurrent costs (mainly national funds) has meant that new facilities have not been fully utilized.
- Because of their limited operating resources, organisations have tended to welcome external support for particular initiatives which may not always be in line with their main priorities.
- Donor initiatives have often supported the training of individuals, for example through MSc and PhD programmes often hosted by northern universities. However, the impact of this type of training has not been as great as anticipated because returning staff have not always had suitable opportunities to apply their new skills in their home environment.
- Specific projects funded by international donors may have successfully strengthened individuals, departments or programmes in research and training organisations in sub-Saharan Africa but they have not commonly been able to transform these gains into wider institutional strengthening.

21. There is a need to ensure that capacity building initiatives are coordinated to maximise their effectiveness. This needs to be done within internationally agreed mechanisms (such as CAADP—see above).

22. Through observation of other sectors, such as health and education, it seems likely that distance learning approaches and making available open educational resources may well have a role to play in the agricultural sector.

23. The requirements for successful capacity development for agricultural scientific research and technology, development and training in Africa can be narrowed down to three key factors. Capacity development needs to be:

- long term,
- locally owned, both institutionally and politically, and
- with carefully focused and nuanced interventions that address real needs of farmers and others in agricultural value chains.

24. There needs to be an appropriate balance between capacity strengthening interventions targeted at the individual, organizational and institutional levels. In particular, where support for individual training is provided, this should be directly linked to the priorities of agricultural research and education organizations.

25. The SCARDA model has considerable merit and the project generated some very useful outcomes which are currently being documented and will shortly be available on the following website: <http://ruforum/a/scairn>. Examples of enhanced performance at the target organizations include an increased success rate in winning new research income; an increase in the number of research publications in peer-reviewed journals; the adoption of more efficient management tools and systems leading to savings in time and resources; stronger partnerships with other organizations in national agricultural research systems (in some cases leading to structural changes). However, a longer period of support is necessary to guarantee sustainable impact at the target organizations.

How does the Government monitor and evaluate the effectiveness of the scientific capacity building activities it supports? Is further assessment or oversight required?

26. DFID commissions reviews of individual projects and programmes but it is not clear how these are consolidated at a higher strategic level—could this be an issue for the Independent Commission for Aid Impact to Consider? One challenge for all donors is the lack of well defined methodologies for assessing the outcomes and impacts of capacity strengthening. Because it takes time for measurable benefits to become apparent, and as attribution of effects is often difficult, donors do not give adequate attention to evaluating the effectiveness of capacity development. Additional investment in monitoring and evaluation of capacity building would be beneficial.

27. However, more generally DFID needs to recognise capacity building for science and technology in Africa as a key theme for its programme and thus need to have in place monitoring and evaluation processes to assess these issues. DFID urgently needs to develop a strategy on capacity building for scientific and technology in developing countries.

28. NRI is currently undertaking a systematic review of capacity building for DFID that will support such strategic developments.

What role does DfID's Chief Scientific Adviser play in determining priorities and in the development and assessment of capacity building policies?

29. In the 1970s and 80s DFID was renowned for the quality of its in-house advisory cadre particularly in the area of agriculture, science and technology. Over recent years, this has been reduced, particularly in the DFID country offices and this change is arguably one of the prime causes for the absence of a clear strategy or view within DFID on capacity building for scientific and technology in developing countries. In this context, the role of a Chief Scientific Adviser becomes very important in determining priorities and in the development and assessment of capacity building policies. In this regard, it is noted that as a result of the S&T Committee's 2004 inquiry the first DFID Chief Scientific Adviser was appointed as an independent external candidate.

30. The role of the DFID Chief Scientific Adviser is therefore of considerable importance in the development and assessment of capacity building policies and needs to be revisited. Of particular importance would be how such a post fits into the hierarchy of DFID's management and whether the role can be made to have real influence.

How are government activities co-ordinated with the private and voluntary sectors?

31. The UK has a long and distinguished history in capacity building for science and technology in sub-Saharan Africa. Many UK research institutes and universities, including NRI, have had links and programmes with partner organisations in Africa going back half a century or more. The private and voluntary sectors also have such links but in many cases the expertise for this is derived from individuals with initial experience gained through contacts with publicly funded programmes at the research institutes and universities noted above. The acute reduction of DFID funds for such programmes over the last 20 years has meant that the pool of UK expertise with developing country knowledge in science and technology is diminishing rapidly through retirements, and is not being replenished by recruitment of new graduates. This affects the work of UK "plc" including the private and voluntary sectors in capacity building for science and technology in sub-Saharan Africa.

32. If the UK Government is concerned about the UK's ability to assist in capacity building for science and technology in sub-Saharan Africa then it (and particularly DFID) needs urgently to consider the extent to which it is in the UK's interest to maintain a minimum critical mass of expertise and knowledge of science and technology in sub-Saharan Africa in order to ensure it is an intelligent customer when providing development assistance in this area.

OTHER COMMENTS

33. The UK has a resource base of outstanding and world leading science and technology institutions. As has been explained above, these institutions have previously been funded by the UK Government in various ways to apply their expertise to help build the capacity of developing country institutions working in the field of agricultural science and technology, and thus play an important part in development. This approach has been largely discontinued and UK public funding is now primarily directed non-competitively to a number of international research institutes where the UK's S&T expertise is poorly represented. The EU, and indeed more recently the G20, is beginning to take a more coordinated approach to both a strategic vision for Africa's science and technology needs, particularly in agriculture, and practical ways of building capacity in this regard. The UK Government should be actively participating in these discussions and advocating for the UK's science and technology comparative advantage as appropriate—as for example is done very strongly by countries such as France and the USA.

DECLARATION OF INTEREST

The Natural Resources Institute of the University of Greenwich has received funding from DFID for capacity building initiatives.

16 December 2011
