



HOUSE OF LORDS

Revised transcript of evidence taken before

The Select Committee on Science and Technology

Inquiry on

GOVERNMENT FUNDING OF INTERNATIONAL DEVELOPMENT R&D

Evidence Session No. 1

Heard in Public

Questions 1 - 9

TUESDAY 12 JULY 2016

10.45 am

Witnesses: Professor Sir Leszek Borysiewicz, Dr Jeremy Farrar OBE, Professor Sir John Beddington and Professor Melissa Leach

USE OF THE TRANSCRIPT

This is a corrected transcript of evidence taken in public and webcast on www.parliamentlive.tv.

Members present

Earl of Selborne (Chairman)
 Lord Cameron of Dillington
 Lord Mair
 Baroness Morgan of Huyton
 Baroness Neville-Jones
 Viscount Ridley
 Lord Vallance of Tummel
 Baroness Young of Old Scone

Examination of Witnesses

Professor Sir Leszek Borysiewicz, Vice-Chancellor, University of Cambridge, **Dr Jeremy Farrar OBE**, Director of Wellcome Trust, **Professor Sir John Beddington**, former Government Chief Scientific Adviser, and **Professor Melissa Leach**, Director, Institute of Development Studies

Q1 The Chairman: On behalf of the Committee, I give a very warm welcome to our four expert witnesses, and “expert” is indeed the right word. We are most grateful to you for coming at relatively short notice. As you know, we thought we should do a short inquiry on government funding of research and development to support international development. Please introduce yourselves for the record and, if you would like to make an opening statement, please feel free to do so.

Professor Sir Leszek Borysiewicz: My name is Professor Sir Leszek Borysiewicz, vice-chancellor of the University of Cambridge and chair of the DFID’s independent expert Research Advisory Group (RAG).

The Chairman: Would you like to say anything by introduction or wait until everyone has introduced themselves?

Professor Sir Leszek Borysiewicz: I can wait.

The Chairman: Welcome back, Sir John.

Professor Sir John Beddington: Thank you, Chairman. I am John Beddington. As the Chairman has indicated, this is not a new event for me, but it is very nice. As everyone knows, I am retired as the Government Chief Scientific Adviser, and I spend the majority of my time at the Oxford Martin School as an adviser. I have no statement to make.

Professor Melissa Leach: I am Melissa Leach, director of the Institute of Development Studies at the University of Sussex, and I am also happy to wait. My opening statement will fit well with the first question.

The Chairman: I have to declare that one of my sons once worked for the IDS.

Professor Melissa Leach: Absolutely. I supervised his PhD, so I wanted to say hello.

Dr Jeremy Farrar: Good morning. Thank you for the invitation. My name is Jeremy Farrar, director of the Wellcome Trust. I have a background in infectious diseases and have spent the last 18 years living in Vietnam.

The Chairman: Sir Leszek, you said that you would like to make an opening statement.

Professor Sir Leszek Borysiewicz: It relates very much to the first question. The importance of development and research into development is at the forefront of what ODA funding is about. The key element we see in DFID, and in particular in R&D, is the way those monies are distributed. For me, one of the most important issues your Lordships will have to consider is how we monitor that effective use is being made of those resources for development purposes rather than plugging holes that might appear during periods of austerity. The primary purpose of the ODA funding, in particular for research associated with ODA funding, is at the heart of many of the questions and issues you raise and, therefore, the development of appropriate mechanisms for that scrutiny goes to the heart of many of the questions you pose.

The Chairman: Would anyone else like to make an opening statement before we go to the questions?

Professor Melissa Leach: I will. I want to start with two examples. Over the last four years a programme called The Dynamic Drivers of Disease in Africa Consortium, funded by DFID through the ESPA scheme, has brought together 20 partners from the UK—from Sussex, Cambridge and others—with government and African universities, to look at the drivers of zoonotic diseases (diseases that jump from animals to people), bringing together social science, epidemiology, medicine, veterinary medicine, environmental science, and coming up with solutions that enable people to live with animals and ecosystems in healthier and more sustainable ways. In 2014-15, as we all know, the Ebola crisis hit the world and DFID, along with the Wellcome Trust, helped to support an Ebola response anthropology platform in which innovation communications tools, building on long-term research, enabled social scientists to change the nature of government strategy and response to make it more sensitive and effective. This has been recognised in the ESRC Celebrating Impact Award. Sir Mark Walport, as the UK Government Chief Scientist, earlier this year cited this example when calling for mechanisms to integrate social science evidence in addressing all global challenges.

To me, this is the kind of research that DFID has been so good at funding and that is so vital for international development. There are four key features that are vital to retain as we move forward. One is that it is cross-disciplinary. It brings together natural science, medicine, environmental science, but also social sciences. Rigorous and robust science is needed but it must be multifaceted because the problems we are dealing with are interconnected and difficult and require multiple angles. Social sciences do not have to be the handmaiden; they can often be the lead, because, critically for international development, questions about poverty, inequality and the links to policy have to be central. Secondly, it needs to be integrated with policy and practice, not just producing science but feeding it through to policymakers and often co-constructing that research with government agencies and civil society organisations so that the policy implications are integrated and can be used. Thirdly, it has to be impact-oriented; it has to use the best of our communications tools and mechanisms, including the digital, to mobilise that evidence for impact. Fourthly, critically, it has to be international and partnered, involving the people and organisations on the ground in low and middle income countries, not just as data collectors or receptors, but in conceptualising and designing work. DFID has been fantastic in supporting exactly that kind of work, those ingredients, over the years. We must ensure that amid current pressures, which I am sure will come up in this inquiry, that capacity is retained.

The Chairman: Dr Farrar?

Dr Jeremy Farrar: Very briefly, and through the lens both of my own personal background, of which 75-80% has been outside this country, and in my role now as director of the Wellcome Trust, notwithstanding the events of the last two or three weeks and to bring some context to that, we are going through a period of profound change as a nation and a world with a number of different issues colliding at once, and I think that is going to lead to very uncertain times. The UK has been a world leader in its outward-facing approach to that, its integration of different research elements and making sure that research feeds into policy, and it is done, as Melissa says, in areas of the world where the need is greatest.

The UK should not underestimate the impact it has, not only on the countries with which it works, but in providing that world leadership and leveraging of others, whether it be the Wellcome Trust, the Bill and Melinda Gates Foundation, the World Bank or others. The UK's leadership in this has had a tremendous impact on others and the model by which the UK has done this over many years, supported by all sorts of governments, has truly led the world. I agree with Borys that accountability is absolutely crucial and co-ordination across government departments and with external partners is absolutely crucial. I can come back to some ideas of how that might be better achieved in the future, but it is a real jewel in the crown of this country and it would be a tremendous shame if that was reduced.

Q2 Viscount Ridley: On that specific point, there was a report last year from the All-Party Parliamentary Group on Health, organised by Lord Crisp and Lord Kakkar, pointing out that in all sorts of ways in terms of health organisation as well as health research, Britain has a very good opportunity to lead the world and "sell" its capability to the world. Has that report had any effect? Is anyone taking it up?

Dr Jeremy Farrar: As you may remember, we were at the same launch event in this building some time ago. I can say without doubt that that has had an impact. If people have not had a chance to read it, it would be a very important document to read because it was well thought through, the data included in it were very detailed, and it put on the map and celebrated what the UK is achieving. Those activities you talk about have been picked up by others—USAID, the Bill and Melinda Gates Foundation, the Wellcome Trust—in partnership with the UK Government and that has leveraged huge other activities.

The Chairman: Following Dr Farrar's observation that the United Kingdom is a world leader and greatly respected in this area, can we specifically look at the role of DFID? Clearly, when you talk about the United Kingdom you are talking both about organisations such as your own, the Wellcome Trust, and other charities as well as DFID. How effective would you assess DFID to be in addressing these key challenges and monitoring the impact? Sir John, would you like to take that one?

Professor Sir John Beddington: Thank you, Chairman. It was probably a good decision not to give an opening statement; otherwise I would have been slightly repetitive. Focusing on DFID, there has been an important change over the last decade. When I was first involved in government DFID did not have a chief scientific adviser. A chief scientific adviser was appointed in Sir Gordon Conway and a pretty fundamental error was made in giving him no resources other than the proverbial one boy and a dog. I am glad to say that after I became Chief Scientific Adviser in the Government and we opened this dialogue, that changed dramatically with the development of the Research and Evidence Division, which was

headed initially by Chris Whitty and is currently headed by Professor Watts. That division, which has control of the budget, has the opportunity to bring in individuals from outside and I would highlight the really important Senior Research Fellow Initiative, which was started by Chris and is continuing under Charlotte. It brings in academics from the outside who spend a couple of days a week—sometimes a bit more or a bit less—and bring a very different view of what research is needed to address development goals. Critical to that is some degree of independent scrutiny of what research is funded and what research is done.

A perfectly reasonable question to people who have contracted to provide research is, “What did you find out that is of use to us?” That is the sort of question I am very glad to see being posed by a whole series of bodies, such as the Research Advisory Group, which Borys chairs, and I am sure will talk to a little later, and which seems a really important innovation. In terms of what DFID is doing, going back to the points Melissa made, it is probably choosing the right questions. We could quibble about detail and the balance of funding, but there is real scope to see that the way forward is rather attractive. Of course, if things are working you really do not want to see them thrown away or modified significantly, so the role of the Chief Scientific Adviser and of the various independent advisers who are brought in under the system is essential.

The world has changed, and is changing, but there are a number of trends which perhaps one could look at to evaluate where DFID might be putting in more funding. For example, I think its joint initiative with the Gates Foundation to set up a global panel looking at agriculture and nutrition has potentially important effects. I would say that, would I not, because I am co-chair of that panel, but, ignoring the Mandy Rice-Davies quote, this is emerging as a major issue. The figures are quite frightening. If you look at the order of stunting in sub-Saharan Africa—58 million-odd children are stunted, increasing by 500,000 a year—the losses to the African economy are dramatic, and, in terms of research investment in nutrition, the rates of return which have been calculated are about 16 to one, comparable to other research on agriculture. These are new things which need to be addressed.

I promise not to talk for very much longer, but we need to think about the mega trends that are out there, and this Committee is well aware of them. The key trends that must be addressed are population growth, particularly in Africa, and urbanisation, and the consequence of those trends, coupled with some degree of increasing prosperity and the pressure that puts on natural resources, whether it is soils or water and so on, and then complicated, of course, by the potential problems generated by climate change. These are my opening thoughts.

Professor Melissa Leach: I agree with everything Sir John Beddington has said. I would like to emphasise that DFID, as it clearly states in its own research strategy, does at least three kinds of research which are all important and it is this combination that is critical. One is about developing new technologies, whether they are in health, climate change or agriculture. The second is about helping understand what development approaches work well. That is critical. It involves understanding states and citizens’ organisations and the processes of development rather than just their outcomes. A third is also really important. That is about the work they support to understand bigger picture questions, whether they are around the impacts of climate change or some of the bigger issues coming up on the horizon. I am sure we could all have our lists. Some of them have been alluded to here. I would add inequalities, which we are understanding are multi-dimensional, and the effects

of inequalities are going to be big, as are questions about movement, mobility and migration. It is these three areas which are very important.

Although the UK is very strong in its technology focus, I think it would be an enormous shame if the pressure to enhance those often easier to measure, more tangible impacts around developing the technology fixes downplay these other really important emphases on processes and approaches and the bigger long-term questions. Horizon-scanning too, work to identify what the next big picture questions are going to be as well addressing the ones we know about at the moment in a world that is, as colleagues have said, changing fast, complex, uncertain and very globally interconnected, I think will be critical.

Q3 Baroness Young of Old Scone: In spite of increased urbanisation, about 50% of the poorest people in the world depend on the natural environment and biodiversity for their livelihood. Do you think DFID sufficiently recognises that in its research and does sufficient research on the natural environment?

Professor Sir Leszek Borysiewicz: In answering that, may I inform your Lordships about the structures in place in DFID to monitor and advise DFID on where new areas of research are?

The Chairman: Not just the structures, but your assessment as to how effective it is.

Professor Sir Leszek Borysiewicz: I joined DFID when I was finishing my time at the Medical Research Council and have now been chair of this advisory board for the best part of six years. It was set up with the pure intention of being able to ask the questions you are posing; in other words, what should the major thematic areas be, what should the relative investment be in both manpower, not just of funding, in those areas both within the department and external to that department? How do we bring interdisciplinarity to all of those elements and ensure that the impact is primarily around the poorest countries in the world rather than the possibility that much of the research which is sometimes undertaken under the rubric of development has more impact in the developed world.

The committee functions on a three formal-meetings-per-annum¹ basis under my chairmanship, attended by the Chief Scientific Adviser. At each of the meetings we scrutinise two key areas whereby all the officers are made available to us, present a report to us and then undergo a two-hour scrutiny of what is going on and what progress has been made against the targets so that we can advise the chief scientific adviser as to whether that is on track or whether we would like to see variation from those major thematic areas. The second part of the meeting deals with issues that the chief scientific adviser wishes to raise with the advisory board where new issues are coming up, usually internal to DFID or other government departments, to seek our advice as to where as to where we believe emphasis should be placed from the point of view of research as it impacts on DFID. The third component is matters which are brought up independently by the experts we have at the research advisory board to put to the chief scientific adviser where they need perhaps to be looking in new directions in terms of focus. In addition, the meeting has always been utilised by DFID because the Director General of Policy and Global Programmes frequently also attends, and that gives you some idea of the emphasis given within the department of the

¹ The DFID Research Advisory Group (RAG) holds 3 formal meetings per annum. If required by the Department (and with RAG Chair approval) the RAG can hold either another formal meeting per year or initiate a RAG lead working group.

importance of investment in R&D for development. That means we cover a very broad portfolio.

We have also been asked, in the preparation of the strategy, both to scrutinise the ideas that come from within DFID and to bring in an external perspective on those ideas. The external perspectives, because some of the members are even outside the United Kingdom, are bringing in some very interesting views which have to be taken on board.

We not only serve as a group which scrutinises and ensures that there is real-time assessment of where investment is going and whether it is appropriately being spent, but also as a forum where new ideas and evolving themes can be looked at to see if emphasis needs to be changed in real time, providing advice to the Chief Scientific Adviser and the Director General of Policy and Global Programmes and therefore going forward to Ministers in those ways.² That is very unusual in many other government departments all the way through the structure of a department and that is why I believe it has been a very worthwhile entity which was created.

The impact of individual areas is considered in the scrutiny of every single area. The broad areas are ones that you would identify and have been identified with the sustainable development goals of the United Nations, therefore very much in keeping with those thematic areas that under ODA have been decided as priority areas for future investment: health, sustainable agriculture, clean energy, and particularly the implementation of clean energy. The natural environment in particular is considered around inclusive growth so that the environmental impacts of these areas and biodiversity and those issues are considered. By the very fact that we consider that leadership in these areas very often does come from social sciences, it also comes from the private sector, and therefore we are not frightened of engagement with the private sector but also with other funders and providers in the area such that we began to look at where DFID could make the biggest impact in joint partnership with the Wellcome Trust, Bill and Melinda Gates and elsewhere in order to get more bangs for buck for the UK taxpayer in the investment we are putting into the developing world. It is a structure that I think is robust, it is one which has stood six years of reasonable scrutiny, it looks at impact very positively and reports all the way through the department and is better than I have observed in other departments.

Q4 Lord Cameron of Dillington: First I had better declare various interests, for which I apologise. I am a farmer. I chair the All-Party Parliamentary Group for Agriculture and Food for Development. I am a trustee at Rothamsted. I am chair of the Advisory Board of the Centre for Ecology and Hydrology. I chair the Strategic Advisory Board of the Government's global food security programme. Sir Leszek has answered my question, which is about how the strategy evolved, so to follow up on that, as someone who has been trying to get DFID to take agriculture seriously as being the best tool for development and suddenly being amazed that they produced this great agricultural conceptual framework last winter, which was brilliant as far as I was concerned, to what extent do you, as the advisory board, follow and mimic the policies DFID are putting forward? To what extent do you have an independent role? Did you influence that decision on agriculture or did you take that decision and react to it? How does that work?

² Under the Terms of Reference of the DFID RAG, the Chair has impartial access to the DFID CSA, DFID Director General of Policy and Global Programmes and if required the DFID Permanent Secretary.

Professor Sir Leszek Borysiewicz: Both. For example, the situation in setting the strategy first became a survey of activities that were viewed within DFID as being important. I can tell you from recollection that about 89 separate proposals were put forward. That is not a strategy. This was whittled down by the RAG board bringing in their own external view. On the research advisory board we have many international research experts, such as Jeff Waage and others, who are involved in agriculture, and they were very keen in particular that the agriculture component has to deal with direct impacts of agriculture in the poorest parts. This is not agriculture as we might look at it; certainly in Cambridgeshire and East Anglia, as you know, we are driving agriculture.

Lord Cameron of Dillington: I should have said smallholder agriculture.

Professor Sir Leszek Borysiewicz: We are looking at the far larger concept of how to develop that small agricultural area. That is so important because it touches on how you sustain biodiversity in those areas as there is an increased pressure for agriculture from small communities. It has a big impact, based on the fact that we also perceive that urbanisation is going to have a detrimental impact as to the manpower available in small agriculture units. That means we have to increase efficiency, but at the same time get that efficiency translated into what is possible in those areas such that the ever increasing urbanisation in those poor countries does not result in a problem of shortages because the agriculture system is unsustainable. You can see how these now begin to interplay one after the other, because if you do not have the transportation systems to supply the urbanised setup you do not have the structures within the development of an urbanised settlement to enable markets and other situations to take place and farmers to access funding in order to develop systems because you have to pump-prime those systems, and the whole panoply Professor Leach was talking about, the interdisciplinarity and multitude of disciplines you have to bring together come to the forefront. Those are the challenges we then leave with the Chief Scientific Adviser to come back to us at the next meeting with how we are going to implement ideas going forward, which again is then subject to discussion, deciding how much is best done in-house, how much is best outsourced, bearing in mind the limited capabilities there are in DFID, because it is still a relatively small group of researchers and they do not have, for instance, all of the numbers of groups and advisers you might expect in a research council or other body. By and large they do a good job; I am very satisfied with their job, and I think it stands scrutiny from other experiences I have had in government.

Professor Sir John Beddington: I endorse that entirely. The only point that has not been made, which I think would be a serious omission, is on the issue of water. People talk blithely about agriculture and growing crops or, indeed, having urban development, and the issue of water has been massively under-researched. On the issue of the broad-brush calculations and being aware of spurious accuracy, I am talking about probably a 60% shortfall in water availability in the context of the development you are going to be seeing in terms of urbanisation and population growth. It tends to be coupled with agriculture and it probably should not be. It needs to be thought about rather more separately. It is not just the simple calculation that 80% of the water used in the developing world is coming out of agriculture; it is vastly more important than that. That, if anything, has been one of the things I feel has been slightly underplayed in the documentation I have seen.

Dr Jeremy Farrar: May I underline a point I made earlier? One of the judges of how you are doing is whether others follow you—whether you are one of the first organisations which identifies an issue, follows it through and brings others with you. I speak now from the

Wellcome Trust's perspective and the work that has gone on, as you say, on agriculture has led us to re-think an area. Quite recently we launched something called Our Planet, Our Health, which is looking at these broad agendas. Agriculture is a central component of that, and nutrition in a changing world with ever-increasing urbanisation, but not forgetting the populations who are living still in rural communities and the challenges of that as articulated with water and everything else. In a sense, what DFID has done has influenced others' thinking and has followed some of that, and we would be the first to admit that may not have happened without DFID's lead in that space. I think that is a very positive thing to say about the leadership which has been provided.

Professor Melissa Leach: I would absolutely like to endorse the role that DFID has played over many years in thought leadership in international development, not just as an implementation organisation but as an organisation that has led the way in some big, important concepts that have driven the field, whether it was the emphasis on poverty 15 years ago or now the way DFID is moving towards thinking about interconnected challenges. That really needs emphasising. DFID is looked at as a leader for the world for other bilateral agencies, as well as the Wellcome Trust and other foundations. We have talked about a lot of different issues, but what international development demands and what the 17 sustainable development goals which the UK, along with every other country in the world, has signed up to emphasises is not just that there are now 17 goals which cover the things we have talked about—agriculture, water and natural assets, biodiversity and health as well as equality and gender—but also that these are linked to each other. One of the big research and development challenges is to look at the synergies and trade-offs between some of these goals. Yes, we are thinking about agriculture in relation to water, or we are thinking about climate change in relation to equality or gender equality. This is a big area where the kind of advisory committee that Professor Borysiewicz has talked about and, indeed, the professional cadres working with each other within DFID can really help to emphasise. The world does not need siloed thinking that chops up a sector or an issue and looks at it separately from others, but needs to think about how these can be pursued in win-win solutions together but, also, where you can sometimes get quite difficult trade-offs between them.

Viscount Ridley: Can I follow up on the agricultural point? Before I do so, I will declare two interests. I am an investor in a Newcastle start-up trying to do genetic testing in the developing world with the Gates Foundation in a project called QuantuMDx, and last year I was given an award called the Bledisloe Award for Land Management by Sir John in his capacity as President of the Royal Agricultural Society of England. That is showing off rather than declaring an interest.

The Chairman: I had it years before you.

Q5 Viscount Ridley: More deservedly, I am sure. About a month ago the European Parliament produced a report which “urges the G8 member states not to support GMO crops in Africa”. Is that a helpful statement? Does DFID and do your organisations agree that that is a good or bad thing? Is the European attitude here holding us back and does Brexit represent an opportunity here? I mention that in the context that we know that—Sir John mentioned water—drought-resistant maize is in development in Kenya, wilt-resistant bananas in Uganda and insect-resistant cotton in Burkina Faso. Are we helping on any of these projects and what is our attitude in this country?

Professor Sir Leszek Borysiewicz: I can speak not just from DFID but particularly from the University of Cambridge, which is heavily involved in this. It is unhelpful and we are rather more interested in the position India is taking where the Modi Government are looking at the possibility of introducing edible crops in relation to GMO. The issue here is a difficult one. We all recall what happened to Anne Glover in Europe as a consequence of taking a strong stance in pointing out there are not deficits.

We find the positions on GMO are largely relatively ill-informed and political with ideological biases, rather than focusing on the objective evidence of safety and security. Our belief—certainly from the group that operates in East Anglia, which couples not just Cambridge but all major East Anglian institutions in this area—is that that is an unhelpful stance. We believe we are going to need to feed 2 billion more people in a period of 20 to 30 years, which is about 30 to 35 growing seasons, depending on where you are. As a scientist, if I was looking to increase yield by nearly 20%, and had 30 experiments in which to do that, I think I would be looking to accelerate the way in which we can produce appropriate variation crops to be able to do it. On a personal level, I am firmly of the belief that GMO is not the only solution but is part of the solution and has to be used judiciously and be appropriately tested, but to have blanket statements that it is unacceptable is not helpful to some of the needs that we can foresee in agriculture. To the best of my knowledge on the advisory committee, DFID does not take a view on the position that GMOs should not be utilised; it is up to individual investigators to look at that issue.

Sir John Beddington: Borys has covered a lot of the points I would make. The key here is evidence. As Borys alluded to, Anne Glover and many scientists have made the point that the evidence of any harm caused by GMOs in particular does not exist, particularly on human health. On a number of occasions people have made the point that the idea that you classify a technology as being unacceptable is completely fatuous. What one needs to be thinking about is a particular GMO. It is not impossible that a GMO may be developed which does have problematic effects either on ecosystems or human health. On the other hand, it has to be looked at on a case-by-case basis. The worry I have is that a number of NGOs have taken a very radical position that all GMO activity is illegitimate and dangerous to the world at large. There is no evidence to that effect. In fact, the evidence is very clearly against it, and there are major opportunities to improve human nutrition in a way that can be done relatively cheaply by using already developed GM technology. Secondly, if one thinks about the environment, for example, Rothamsted has developed a technology to look at plants that can produce Omega 3, which means the saving of, essentially, in aquaculture, catching fish to feed to fish, which is a pretty dumb idea in basic principle.

I should say that I am chairman of Rothamsted's board, following on the line of Lord Cameron that I should declare an interest. These are really problematic. It stems from some of the early introductions and debates about this when one was very concerned about the monopoly power of GM and the use of patenting to develop this which could act in a detrimental way on small farmers. That was a long time ago; this is not happening now. A lot of DFID's work is done with African institutions which are involved in developing this technology, and that is the way forward. I am glad to say that, in all my observation of DFID, it has taken a very reasonable and sensible attitude to it. To respond to the question of whether Brexit will help, the straight answer is that we do not know at the moment.

Professor Melissa Leach: I agree with what has been said. The other danger that critics have picked up with GM is that there has become a kind of over-focus; there has been a lock-in to

this as the major solution, to the extent that sometimes other alternatives have not received the R&D attention they deserve. This has been a conclusion of the Independent Panel of Experts on Sustainable Food Systems (IPES-Food). It has also been a conclusion of the Future Agricultures Consortium in Africa, which DFID has been supporting over a number of years. This is not an argument against GMOs per se but an argument for putting them in their place. They are part of the solution, they work in certain ecologies and for certain social and governance set-ups, but farmers in Africa and some parts of the world are going to need other solutions, which may be based on different sorts of technologies, other kinds of breeding, and agro-ecological approaches. We should be aware of diversity and make sure we foster the R&D that is enabling that diversity to flourish; these multiple pathways to sustainable food for all.

Sir John Beddington: Professor Leach is really attacking a straw man. I do not think anybody I have ever heard talking about GM has indicated that this should be the central foundation of all research. Of course there should be diversity, and indeed there are new techniques that are going way beyond genetic manipulation. One can think of agriculture in a whole series of ways which are going to be beneficial beyond GM. I probably ought to put that in. I do not see there is a concern that GM is being funded to the exclusion of other activities; it is part of a properly balanced research portfolio.

Baroness Young of Old Scone: I absolutely take the point that the case-by-case evidence base is fundamental. Do you think DFID is sufficiently influential in making sure that research done elsewhere is getting at that case-by-case evidence base? There has been a tendency in the past to cut corners. I should declare an interest in that I am on the global advisory group for BirdLife International, the international bird and habitat conservation organisation.

Professor Sir Leszek Borysiewicz: The important element is, because of the independent experts we have on the advisory board, we can begin to consider elements around conservation in relationship to these areas and the relative impacts that we have. Frankly, the biggest impact on agriculture that we have been able to identify is education in relationship to farmers. Something that pervades a lot of the thinking in DFID is the big role that education has to play in health SDGs and how you begin to promote good practice in relation to themes such as this. For example, how do you instil that conserving local wildlife and plant species is a good thing to do so that you preserve land in those areas where development is taking place? It is fair to say that the research advisory board, from my perspective, brings that holistic element and can provide that advice and ensure it is a general perspective; you do not override one particular theme with another and you begin to look at the impact across the board.

This goes back to Professor Leach's original comments on interdisciplinarity, on bringing in different disciplines and people with expertise in different areas and the board is a fairly unique environment in which to do it. It is not just the board; that also pervades much of DFID's activity, with the interactions occurring on a day-to-day basis between experts looking at education, specifically, looking at agriculture, looking at conflict zones and impacts on societies and security. There is a general sense that by the time we see this reported back at the advisory board a lot of thinking has gone on across these boundaries. That is really important in a structure such as DFID, where that interactive environment is created internally in the department so that we observe first-hand that that is already happening. You do not have to force that agenda on DFID at all.

Dr Jeremy Farrar: We should also acknowledge the tremendous strength of this country in that area of research and development. If you look at the UK in the areas where it is truly world leading, this is certainly one of them, through Rothamsted, the BBSRC centres around the country and the Sainsbury centre just outside Cambridge. These are truly world leading and have world leading partnerships around the world, along with the Kew Gardens initiative on seeds of the world, and I hope Wellcome will contribute in future. On your earlier point, it does not see this as being a biomedical or other solution, it is putting GM crops and everything that goes with it in the context of the whole of the society in which it operates. That is an almost unique strength at a global level, so do not underestimate the quality of the research and the way that research is put in the context of the societies it is operating within in this country.

Q6 Lord Vallance of Tummel: I have only my ignorance to declare. This comes back to what you said, Sir Leszek, about the interconnectedness of these systems. Are you satisfied that the way of measuring the impact on these systems is robust, both in deciding where to invest—that is, the prospective impact—and then the return thereafter? There are a number of references to specific returns, which are matters of IRR. Is that what you are about or are you more at the sort of Benthamite felicific calculus end of things?

Professor Sir Leszek Borysiewicz: There are two things that are very important with research for development. The first is that research for development is no quick fix. What is needed here, more than in any other field I know—like Jeremy, I am very heavily involved in the health area—are things you can do quickly; there are certain interventions that are needed. For example, there are issues that DFID, because of humanitarian and other crises, is expected to respond to. It is very important in those areas that there is a rapid response situation. Ebola was a good example of how that needs to happen. For many of the areas we have been talking about, for example, the education of girls in the developing world—a hugely important area—that is an area which will have greater bearing on maternal health and child health. Frankly, if you do not make any further investment in health, investment in secondary education of girls will have a huge impact. Those are UNESCO reports that speak to that. To do that is a 14-15 year programme, therefore simplistic IRR measures are not going to work.

We rely very much on peer review. How do our peers and other funders look at what DFID is actually doing? Are they co-investing in these areas? Do they see the directions we are taking as helpful in those domains, and looking for feedback on the ground of what is and is not working? In some areas one has to also be careful this is not a simple clinical trial where you give drug X or drug Y and count the body bags at the end of the day, you have to look at it and say it is more like an audit process; you are looking to see whether progress is being made against parameters, being able to re-review as to what you might do to improve that process. The role of the advisory board is to advise the Chief Scientific Adviser that this needs to be thought through or amended or adjusted because it is a continuous process of that investment. It is a far more sophisticated system which requires subjective peer review as well as, where it is available, objective measures of success and, through success, being able to judge what impact it is able to have on countries.

Lord Vallance of Tummel: Is this primarily qualitative rather than quantitative cost-benefit analysis?

Professor Sir Leszek Borysiewicz: In the main, many of the questions have to be qualitative. There are things we can begin to look at; for example, impact of education on childhood mortality. Frankly, it is not the sole intervention. We have to remember that in development there are 101 interventions going on in every single country, and we have already heard about those interdependencies. To dissect out which was the critical area is extremely difficult. You have to use good qualitative subjective measures alongside peer review, as well as objective measures wherever possible. In an education intervention, yes, we can look at educational attainments as an objective measure, but if, for example, we want to look at, as in one project I was involved on, the impact of childhood education on the reduction of schistosomiasis in those populations, it is not as straightforward as being able to claim it is all down to education because the drugs are more readily available as a country begins to develop. It is against a moving baseline and that is why all these elements of assessment are essential.

Sir John Beddington: A very short defence of using IRR—the internal rate of return. Borys has characterised fairly halcyon days of how one looks at the future, which is fine, and that is clearly the way we should be thinking. However, there are often short-term problems and short-term choices that need to be taken. I can give you an example from my recent experience. Dealing with nutrition in Africa, an initiative has come out funded by Gates, DFID and the global panel I chair looking at whether there should be investment in a variety of areas in Africa to mitigate what will be very quick returns on GDP. The internal rate of return is a perfectly reasonable calculation to make, and it shows that investment in improving nutrition and better diets would have a very quick effect through the workforce in improving it. The IRR will be calculated on a three, four or five year timescale, and can be quite important in that context. Manifestly, all the good things Borys is characterising one needs to be thinking about long-term. One thinks about how you address these problems and their integration in the long term, but there will still be short-term problems, particularly for policymakers in the developing world. They are going to want to know, if I decide to put my restricted investment into a particular area, “What is the area that will most quickly benefit my country?” That is a perfectly reasonable request, and these rather simple economic models enable one to quantify that.

Professor Sir Leszek Borysiewicz: I stress that I in no way demur from that. We have been discussing large goals such as SDGs, and then IRR is very hard to measure, but short-term IRR returns as well as, for example, straight clinical trial-type models which the International Monetary Fund is using for interventions even in areas such as education where what might be the best way to deliver, do provide some objective guidance. Of course, we use objectivity wherever possible, but the big questions are sometimes the ones we are charged with. What impact are you having on national security, for example? It is difficult to answer that in terms of IRR.

Professor Melissa Leach: Picking up these points, I agree with what has been said. I emphasise that DFID over the last few years has developed a strong monitoring and evaluation culture. This is partly driven by the value-for-money agenda and the desire to make sure that taxpayers’ money and the 0.7% the UK gives to international aid is spent really well and with impact. That is a very laudable aim. We should also be aware that what has been discussed is not only the impact of research but also the impact of programmes themselves, and there is often a blurred boundary when you have something like an intervention programme or a clinical trial.

I endorse the point made about the need for multiple evaluation techniques. There are some things you can measure and there are some things which are really important that you cannot; there are some outcomes and impacts that are short term and there are others which take a long time to unfold and you might not see the impact for a number of years. The UK is also part of an area of leadership globally in impact evaluation techniques, and DFID, I believe, is at the moment commissioning a centre of excellence for impact evaluation which will do research and development on those techniques and look at some really innovative ways to combine the quantitative and the qualitative, the short term and the long term, to deal with these questions of uncertainty. We should recognise that as a big step in learning from what it commissions externally into the evaluation of its own programmes in a fast moving field.

Q7 Lord Mair: I should declare an interest. I am a fellow of the Royal Academy of Engineering, a fellow of the Royal Society and professor of civil engineering at Cambridge University. My question is about some of the new funding that has been announced at the Global Challenges Research Fund and the Ross Fund. How have these new funding initiatives changed the picture for international development research?

Professor Sir Leszek Borysiewicz: I will start on this issue because it is one that is concerning us as an advisory board within DFID. The funding is really welcome; let us start from that perspective. I think it is brilliant that the UK decides that 0.7% of our taxpayers' resource is placed at the benefit of countries that are a lot worse off than us, and I believe we get an enormous amount of national benefit from being seen to be a country that really engages with these issues. I find it difficult at times when people find that 7p in £10 is too much to be investing in this area, so I will make my views on this absolutely clear from the outset.

There is, however, a problem that could arise. During the current period there are shortfalls in funding in research in many domains. The Ross Fund goes to the Department of Health, the research councils will receive a component of ODA budgets and they will be going to the research councils directly. Other government departments will doubtless also benefit, and it is good that they benefit because, from my point of view, it forces them to begin to think about the development agenda. In all of this discourse is the entity that will scrutinise that this investment, which is earmarked and targeted for development, is utilised for development purposes. My own view, and that of many members of the advisory board when we discussed this issue, is that this fantastic opportunity will need a level of scrutiny that is different from the level of scrutiny that is currently required. That level of scrutiny must be significant enough, because once the funds are transferred they are transferred into the budget lines of the Department of Health or BIS—whichever department it might go to—or Transport or Climate Change. It then behoves someone to say, "Are these fundamentally being used for the purpose for which they were intended?" A lot of us know how difficult it is to prise resource out of a Permanent Secretary when it has already been committed in that area, and those budgets are very often defended quite vociferously that the use they are being put to is an important one.

I believe a variety of models need to be looked at to create an essential, overarching body that can look at what use is made of this resource, building on the principles they have to fulfil Britain's commitment to the sustainable development goals and to the principles that development is at the core of this funding; a group that also recognises the huge impact that bodies such as the Wellcome Trust and others make, the importance of social sciences and

the diversity of those areas and, frankly, to hold those departments to account that the money is being spent on the purpose for which it was intended.

It may be helpful if your Lordships take a view that some such organisation is going to be required for effective scrutiny of the use of these resources, which are brilliant—it is fantastic that we have them—and which could place the UK at the forefront of work in this area. To continue what Dr Farrar was saying—we have international respect in this field—and we need to scrutinise how we put that investment in and maintain Britain’s enviable position as being seen as a very important player in this area, even though we may not be able to match the American dollar often thrown at these entities, and that we spend it judiciously and well and know what we are spending so that the impacts, the IRRs and other measures can be applied in totality.

The Chairman: May I ask Dr Farrar to respond to that?

Dr Jeremy Farrar: I also believe that these various funds that have been available for Global Challenges, Ross and sub-groups within that have the ability over the coming years to push the UK’s leadership in this space to a new level and actually transform the landscape. Given that the monies will be divided up into departmental budgets, I want to reiterate the absolutely critical need to have an overarching body that brings together those departments so that there is a co-ordinated mechanism and that these are not seen as siloed elements. We have heard the importance of cross-sectoral work and interdisciplinarity. The danger of giving little bits of larger funds to individual silos, potentially, is that you will not get that joined-up approach. The best model I am personally aware of, and I declare a conflict because I sit on the OSCHR board—the Office for Strategic Co-ordination of Health Research in the UK—which has played a very important role in bringing together the various components for health research in England and in the devolved nations to make sure that across the health research piece there is a forum through which these debates can be had and that the different elements are then represented and know what is happening to each other. I would very strongly endorse the idea of a similar body being established. There are discussions about this, and encouragement to allow that to be put in place would be hugely positive for everybody.

Lord Mair: I have a follow up about new funds going to different government departments. Is there a danger of stretching the meaning of research for international development? There will be lots of organisations, universities and others, wanting to do research and putting in proposals which are rather loosely connected with international development but might not be compliant with overseas development aid.

Professor Sir Leszek Borysiewicz: That is exactly the point. From my point of view, having been scrutinised by OSCHR in a previous incarnation, it is a system that does work, and a body of that sort does matter. However, there was one important element that OSCHR had, and that was the capacity to go to the source of where that resource was being allocated so that in the ultimate position where there were completely recalcitrant bodies it was made very clear to all the participants that making sure things were working together is a form of scrutiny that ensures that the budgets will be used for the purpose intended, and they can be scrutinised by House of Lords committees to make sure that the budget is genuinely spent the way it is. Models are there, but if you could stress the importance of such scrutiny it would be very helpful for future proper utilisation of these funds.

Professor Melissa Leach: I endorse the point about an overall body to ensure accountability. The Global Challenges Research Fund has already moved some way to ensuring this; this is the £1.5 billion being held by the research councils, where in the initial funds allocated to research councils there is very strong awareness by those councils of the need to be compliant with ODA and, in a soft sense, not just to tick the box of its low and middle-income countries but to be aware of the need for the kinds of things we have been talking about: interdisciplinary and interconnected approaches and partnerships with organisations in low and middle-income countries.

The bigger problem is embedding those ways of working in practice in research councils and communities that have not necessarily been involved in working that way. There are some, such as the ESRC and MRC, that have been and there are others that are less experienced. It is about making sure that people with international development experience and experience within DFID are sitting on panels to ensure that the research that is funded is compliant in this softer sense. There is also an advisory group for the Global Challenges Research Fund common pot, as it is being called. This is the larger amount of money that has not been allocated yet to individual councils. It is very important that that group is internationally representative and it is also a very positive move that Professor Watts, the DFID chief scientific adviser, is part of that SAG, as it is called. These are exactly the mechanisms we need to ensure that ODA is being used effectively. It should also be recognised that the Global Challenges Research Fund, as well as being ODA money, is also funding that is being used to maintain the level of the UK's science base in the research councils. There is tension between spending in and for low and middle income countries and the kind of spending that enables the UK science space, in general, to hold its own internationally. We need to be aware of that tension moving forward.

Sir John Beddington: I think Borys and Jeremy have made points I would endorse. I would expand it a little because it is a necessary but not sufficient condition that this work is actually being done, in a sense, to address the ODA's goals, and we need to be thinking about the coherence of it. One needs to be thinking about not a whole series of research funding projects that address and tick the box that this is of course focused on middle income and lower income developing countries and meets the agenda, but you could have a whole series of relatively unconnected pieces of work. The OSCHR model is an interesting one. It will be an issue to think about how that develops and it will need quite a substantial bureaucracy to support it. The agenda is not just "Do you pass this test?" but that you ask in a wider sense whether the research coming up under this set of new funding will be coherent in a way that addresses theme messages. That would be a minor caveat, but I certainly think, and would agree with Borys, that an endorsement of this as a principle by this Committee would be extremely helpful.

Professor Sir Leszek Borysiewicz: One thing which, to me, is very clear—and I am in complete agreement with many of the things that have been said—is that such a body must be independent of any group, even the global fund, which is looking at it. It is within a single department. The key issue for me is that the Ross Fund, coming into health, has a large part to play. If we are to get added value out of the investments in individual departments, as Sir John has said, it is essential that this group thinks more broadly. I would also hope that organisations such as the Wellcome Trust, which invests so much of the money it has available in this area of development, would wish then to play a part, much as happens on OSCHR, because they have a great deal to contribute because of the cohesion that can then

be developed between the resources that are available for the purpose of development. That in itself puts added value back in the system. Independence is key if we are to go forward.

The Chairman: Sir Leszek, I will ask you specifically where in government would you place this independent forum.

Professor Sir Leszek Borysiewicz: That is a very good question. I am a great believer that in committees one looks at “follow the money”. At the end of the day, the resource is allocated to ODA from a group from the Treasury and in some way it has to have traction within the point where money is allocated to the individual departments. If it is beholden in BIS, DFID, health, or any other department, it will potentially be skewed to one or other of those dimensions. Like OSCHR, it has to remain independent. It does not have to have formal draconian powers. OSCHR was able to achieve a lot of cohesion between charities and the medical research councils, NIHR, through the knowledge that through soft influence it was able to ensure cohesion occurred. The trick is to have a body that is overarching, has the respect of the research communities, has understood its primary purpose is to answer the question of cohesion and development, and its membership truly reflects the variety of component parts essential for research into development. None of the players receiving these funds, I genuinely believe, would be malevolent in any way; they all want to contribute to this agenda or they would not be seeking this support from the ODA budget. It is a matter of ensuring we get the added value that the ODA funding can deliver.

Sir John Beddington: I would add, if I may, that I think “follow the money” is the right answer. You need a body, but some reporting into Treasury seems to me to be essential. It is not so much where it sits, because that is for development, but a reporting line into Treasury is going to be essential if it is going to have the sort of leverage that Borys has been describing so well.

The Chairman: We are near the end but I am going to ask Baroness Young if she would like to ask a question. We will not take the last question. Dr Farrar first, quickly.

Dr Jeremy Farrar: It is no secret in these discussions that independence and reporting to Treasury is crucial, and an independent chair would help bring that. We have offered, if it is of any interest to the bodies, that we would be happy to host that sort of body to make it at arm’s length and give it a degree of independence, if that was of interest to a future such structure.

The Chairman: That would not be reporting to the Treasury?

Dr Jeremy Farrar: No, it would be reporting to the Treasury but independent of us. Someone has to host it. We would be happy, if it was of interest, at the Wellcome, but independent of us.

Q8 Baroness Young of Old Scone: My question has almost been answered, which is how effectively does DFID work with other organisations? Perhaps I could turn it round the other way. We have heard lots of statements from you that DFID is good at working with other organisations. Are there any ways in which you would want it to improve its working relationships with other organisations?

Professor Melissa Leach: This is moving to a slightly different level. We have been talking a lot about the governance, funding and determining of research priorities but DFID constantly

works with other organisations in delivering that R&D in the organisations it supports and funds and in its delivery partners. I would like to emphasise that, on the one hand, DFID has worked very effectively with UK and international universities, with think tanks and civil society organisations, often bringing those together in consortia, and that diversity is critical.

What I see as a slightly worrying trend is a movement away from that emphasis on public-facing organisations, research centres and their commitment to public access and knowledge for public good and policies such as open data sharing in contrast to the growing move towards privatisation of this kind of work. Sometimes it is commissioning out to private sector consultancy companies who, not to denigrate them, often do a very good job but have different interests. They are seeking profit and have less incentive to make their information widely available. They are not necessarily embedded in the country context and the longer-term research issues to the extent that some of these other partners are. Attention needs to be paid to that balance between the public-facing, public good organisations and the private sector ones.

Dr Jeremy Farrar: It has come across in many comments from around the table how universally positive individuals' partnerships with DFID and other elements of government in association with this have been. That has certainly been the experience of the Wellcome Trust in interactions, whether bilateral between us and DFID or part of multilateral activities. However, do not underestimate the human capacity required within organisations to partner. It is often easier to not partner than go through the sometimes complicated discussions and debates one needs to have to establish the chemistry between organisations and individuals and the ability to deliver on that. Partnering with others does not come at a reduction in need of the so-called back office functions of any organisation. If you reduce those beyond a certain level it is almost impossible to partner well.

Q9 Lord Cameron of Dillington: The main body is CGIAR, where DFID gives around £37 million per annum, which is nearly half the research budget.³ In the past, in my experience, CGIAR has not been particularly efficiently run, shall we say. I am wondering what influence you have had over the reforms and improvements. Monitoring and evaluation is a phrase that has come up with all four of you. How do you monitor and evaluate the success of the work done by the various CGIAR centres, particularly the really important ones? Are you really getting bangs for your buck on that? Would it not be better to reduce the £37 million and put it into your own directed and monitored research?

Sir John Beddington: A couple of years ago, I chaired the mid-term review of the CGIAR system, and I think it is fair to say our report was devastatingly critical of the structures it had in place. Since that report there have been a couple of years of what I suppose you might call intensive discussion, and as of 1 July a new organisation has been put in place which is broadly in line with the recommendations of the review that I chaired, which was saying, as opposed to two committees, which did not obviously operate—I will not bore you with the detail—there is now a structure which is potentially efficient. It has a systems council which will have the donors and it properly restricts council membership to donors who have a reasonable amount of input. Prior to that, if you put a couple of hundred thousand dollars in you became a member of the council. There is now a restriction on that council of at least \$10 million. All of these things are helpful. The CGIAR individual Centres

³ Agricultural research budget

now have an organisation based in Montpellier that will be responsible for co-ordinating across the whole CGIAR system. It is not exactly a blueprint of what we recommended in our mid-term review, but it is pretty much in the spirit of it. It started on 1 July this year, so the jury is out on how successful it has been, but the direction of trend has been an enormous improvement from what was a completely dysfunctional operation, and I am delighted to see that happening. DFID played a major role in that. It will chair the systems council. It was very influential in the discussions on the lack of function of the previous setup and it has been a force, in my view and in terms of the view of the review I led, for good. Lord Cameron, I would probably say keep the money going in for a little while and see how this new system works, because I have every hope that it will work extremely well compared with its predecessor.

Professor Sir Leszek Borysiewicz: There are two things that are going to be very important about getting partnerships right for the future. The first is an ability to sustain the in-house activity of scrutinising where other partners are. This is important to ensure you are not duplicating activity that, if somebody is better suited, it is better to partner. It is a principle, certainly as an advisory board, we have always tried to look at, but it does mean it requires manpower internally, otherwise, as Professor Leach has stated, you then become reliant on external consultants, and there are all sorts of pressures on those consultants to come up with particularly skewed views.

The second activity that I think is very important goes back to the issue that DFID has, at its heart, to partner, because these are global issues; they are not going to be solved. Even with a total ODA budget you are not going to solve food security agenda issues; you need engagement on an international scale. You also need the private sector, but the private sector has to be able to work effectively with the public sector in an open innovation system which can be genuinely utilised for the benefit of the people concerned. I am aware of programmes that GlaxoSmithKline, for example, as a pharmaceutical company, is engaged in. I chair a drug discovery programme, a charity that runs out of Tres Cantos in Madrid, in an effort to accelerate drugs for neglected tropical diseases. These things work but they have to be very carefully scrutinised to make sure there are not vested interests in there which are taking a free ride on the public money investment that occurs. This needs in-house presence through the Chief Scientific Adviser to ensure that attention and scrutiny is paid and we do not deflect public resources into private benefit.

The Chairman: I am sorry. I am going to have to bring this fascinating session to a conclusion. We have detained you longer than we said we would. We are most grateful to you for a very informative session, which will give us some thought as to how we can contribute to this important discussion. Very many thanks to Sir Leszek, to Dr Farrar, to Sir John Beddington and Professor Leach for helping us this morning.