Northern Ireland Assembly

Committee for Enterprise, Trade and Investment

OFFICIAL REPORT (Hansard)

Inquiry into Developing the Northern Ireland Economy through Innovation, Research and Development: Agri-Food and Biosciences Institute

22 March 2012

NORTHERN IRELAND ASSEMBLY

Committee for Enterprise, Trade and Investment

Inquiry into Developing the Northern Ireland Economy through Innovation, Research and Development: Agri-Food and Biosciences Institute

22 March 2012

Members present for all or part of the proceedings:
Mr Alban Maginness (Chairperson)
Mr Daithí McKay (Deputy Chairperson)
Mr Gordon Dunne
Mr Paul Frew
Ms Jennifer McCann
Mr Stephen Moutray
Mrs Sandra Overend

Witnesses:

Dr Mike Camlin	Agri-Food and Biosciences Institute
Professor John Davis	Agri-Food and Biosciences Institute
Mr Joel Ferguson	Agri-Food and Biosciences Institute
Professor Seamus Kennedy	Agri-Food and Biosciences Institute

The Chairperson: I welcome all of our witnesses to the Committee meeting. We will be briefed by Professor Seamus Kennedy, the chief executive officer of the Agri-Food and Biosciences Institute (AFBI); Dr Mike Camlin, the deputy chief executive officer; Professor John Davis; and Mr Joel Ferguson, the acting head of corporate services. I thank you for the paper that you have given us in response to the Committee's request for evidence. It is a very useful document. We look forward to hearing from you this morning. Would you like to start by making an opening statement? Thank you very much, Professor Kennedy.

Professor Seamus Kennedy (Agri-Food and Biosciences Institute): Chairman and members of the Committee, thank you for the opportunity to speak to you today. I was going to introduce my colleagues. However, you have already, very aptly, done so. AFBI is a non-departmental public body (NDPB) sponsored by the Department of Agriculture and Rural Development. The institute was created in April 2006 from an amalgamation of the existing DARD science service and the Agricultural Research Institute of Northern Ireland, which was based at Hillsborough. Therefore, we are a relatively young NDPB.

The institute provides research and development, statutory, analytical and specialist advice services to DARD and other Departments, including the Department of Culture, Arts and Leisure (DCAL) and the Department of the Environment (DOE), and the Food Standards Agency. We have a wide range of local,

national and even international public sector and private sector customers. Our work is mainly carried out in the areas of animal and plant health, animal welfare, crop production, marine and freshwater fisheries and ecosystems, the environment, food safety and innovation, and agrifood and rural economics. Therefore, we are a broad church with regard to the scientific disciplines that we cover.

As recognised in the Northern Ireland Executive's recently announced Programme for Government 2011-15 and associated economic strategy, the agrifood industry is currently one of the bright spots in the local economy, with significant potential for export-led growth. The sector currently has a value of over £3 billion per annum and sustains approximately 90,000 people in employment, which represents about 20% of total private sector employment in Northern Ireland. Growth of the sector will undoubtedly require innovation to develop more value-added products. If the industry is to compete in international markets, it must try to increase the number of value-added products that it sells, as opposed to commodity products.

AFBI's scientific work supports the sector in enhancing its competitiveness and helping to protect it from animal, plant health and environmental threats. We particularly welcome the setting up of the DETI/DARD Food Strategy Board and hope that it will help to shape the future of the R&D innovation agenda for the sector. We also support the work of MATRIX in helping to promote agrifood research and innovation and the Invest NI-funded development of an agrifood competence centre. That is not yet out of the traps, but it is in development.

AFBI's total revenue in 2010-11 was approximately £54 million. Approximately 25% of our income is derived from outside our granted aid from the Department, and we have been growing that non-DARD funding substantially since our formation. The institute primarily serves the local industry and DARD. However, we have also developed collaborative links with a number of institutes in various countries, including those as far away as China and India. Closer to home, we are working with Queen's University and the University of Ulster and discussing how we can increase the level of collaboration between AFBI and the two universities.

Examples of the types of work that we carry out for the Department of Agriculture and Rural Development in support of the agrifood sector include statutory testing for BSE, bovine tuberculosis, brucellosis and salmonella. We also carry out testing of veterinary drug residues, pesticide analysis of food and plant health testing. The provision of an effective local emergency response to threats to the food chain, animal and plant health, and the environment is an important function of AFBI. Examples of that type of work include the response to the 2001 foot-and-mouth disease outbreaks, when a local testing facility was set up in our veterinary sciences division, and that resulted in Northern Ireland gaining entry to export markets eight months ahead of Great Britain. Another example came in 2008, when the bluetongue virus was inadvertently introduced to a farm in north Antrim. AFBI investigated and developed scientific data that resulted in the European Commission changing its policy on animal movements. Other examples include the dioxin feed-contamination incident in 2008 and surveillance for avian and H1N1 pandemic influenza viruses. We are currently preparing for testing for the Smallenberg virus, which is the latest animal disease threat to emerge in Europe.

A large proportion of our statutory work is accredited to ISO 17025 standards, which is the international standard for testing laboratories. All our research projects are carried out to ISO 9001 standards.

The reason that I mentioned the emergency response was mainly to make the link with R&D. The ability of AFBI to carry out an effective emergency response is dependent on participation in R&D projects in, as it were, peacetime to develop the required state-of-the-art skills and technologies. AFBI adds value to DARD's AFBI-directed research programme by winning additional complimentary research funding from organisations such as the Department for Environment, Food and Rural Affairs (DEFRA); the Department of Agriculture, Food and the Marine in the Republic of Ireland; the European Union; the Food Standards Agency; AgriSearch, the local farmers levy body; the Biotechnology and Biological Sciences Research Council (BBSRC) — we are not directly eligible for BBSRC funding, but we are eligible as a subcontractor to an eligible organisation; a range of commercial companies; and DARD's industry-led research challenge fund.

I think that it is true to say that AFBI is less well known as a research organisation than the two local universities. However, we are a significant research contractor. As an example of research activity, AFBI has had 13 successful European Union framework and INTERREG applications, six unsuccessful applications and 10 pending applications since 2008. The total value to AFBI of confirmed and pending EU projects is £4·8 million since 2008. In line with the Executive's Programme for Government and the aims of the Barroso task force, AFBI is aiming to increase its drawdown of European R&D funding by placing additional staff in our R&D support office, developing links with other scientific institutes at home and abroad, and increasing the institute's profile in Brussels with assistance from Invest NI and the Executive's Brussels office. AFBI's R&D tends to be applied in nature and directed to solving practical problems faced by the industry and government policymakers. We also work closely with the College of Agriculture, Food and Rural Enterprise (CAFRE) to ensure that the results of our R&D are transferred to the agrifood industry. In fact, we have participated in almost 2,000 knowledge and technology transfer events since the formation of AFBI in April 2006.

The UK Department for Business, Innovation and Skills sixth annual survey of public sector research establishments (PSREs) found that they filed fewer patents than universities but had a higher income from licensing intellectual property (IP), despite employing fewer staff in commercialisation offices. In fact, AFBI's current royalty income stream from licensing IP is around £4 million per annum, albeit from a small number of products. One of the disadvantages of being an NDPB in the research innovation community is that AFBI is not eligible for several research and innovation support programmes such as the Higher Education Innovation Fund, which are open to universities, the BBSRC and other UK research councils, and the US-Ireland R&D Partnership Programme.

In summary, we believe that AFBI has the scientific expertise and facilities to carry out its core functions for the Agriculture Department and other Departments and agencies and to contribute significantly to further development of the knowledge-based bioeconomy of Northern Ireland, which we all seek to develop. AFBI can also play a major role in the Executive's aim of increasing the level of drawdown from European R&D funding — there is a target of £64 million to be drawn down over the next four years — and assisting in the general increase in the level of R&D and innovation in Northern Ireland. With that, my colleagues and I would be happy to answer your questions, as far as we can.

The Chairperson: Thank you very much, Professor Kennedy. The paper and this morning's presentation are very interesting. I am trying to understand AFBI. It is not an academic institution in the same sense as a university, but it is a research institute. That is an advantage and a disadvantage in respect of accessing the funding that higher education attracts. Is there any way that you can get round that? Do you get round it already? Can you act as a subcontractor or something like that?

Professor S Kennedy: In respect of UK research council funding, we can act as a subcontractor, although the subcontracts are normally for relatively small amounts of money. We are not eligible for the Higher Education Innovation Fund at the moment, but we hope that —

The Chairperson: Is that a UK fund?

Professor S Kennedy: It is primarily a Northern Ireland fund. We hope that we can gain recognition for that funding.

The Chairperson: Can I just stop you there? I do not mean to interrupt you, but is there any way that that could be done? It seems to me to be an obvious thing to permit.

Professor S Kennedy: We would like to discuss that with DETI and Invest NI. Your earlier remarks were absolutely right; I suppose we are an unusual beast in the sense that we are not a university. We provide a service primarily to government, but, at the same time, we want to maximise the use of our assets to stimulate and help protect the economy more widely.

In recent years, we have developed very good relationships with Invest NI, and it has come to recognise that AFBI has a role to play in supporting innovation in Northern Ireland, particularly in the agrifood sector. Invest has opened some of its programmes to us; for example, proof of concept. We have several grants from Invest NI to do that. It has been very supportive of visits to establish research

collaborations and so on, and we are also eligible for its wider grant programme. In the past few years, there has been very good recognition of the role that AFBI can play and support from Invest NI. We would like to develop that further.

The Chairperson: You are fairly complimentary about the work that Invest NI is doing to encourage research and development, and your relationship with it is a good and productive one. Is there any way that can be improved? I am not suggesting that you be critical of Invest Northern Ireland, but is there any way that it could be improved?

Professor S Kennedy: The issues that we have come up against are largely practical; for example, Invest NI has to operate within state-aid rules, Audit Office rules and so on. Practicalities, such as the amount of overheads that are eligible for inclusion in grants, are an issue for us. AFBI does not have a budget of its own as such, so we have to cover our costs. The rules around state aid and the complexity of the levels of overheads that can be funded through various grants are real, practical issues for us. We are working with the Department of Agriculture in particular, as our sponsor branch, to try to overcome some of these issues. We know what we have to do to draw down more money, but a lot of it comes down to practical issues such as overheads. The complexity of the application process for European funding can demotivate staff, so we need to think better about how we put in support mechanisms —

The Chairperson: Can we enlarge on that a little bit? It is an observation that you have made in your submission about the burdensome nature of EU applications; you referred to framework 7 in particular. Do you have any comment to make on that? Is there any way in which government could better assist with those applications? It is a common complaint; it is not a complaint that just comes from your good selves. It is a common complaint, particularly among the private sector and smaller businesses, that it is a labyrinthine process, very difficult to navigate and very difficult to arrive at a successful conclusion in a timely fashion. Do you have any comments on that?

Professor S Kennedy: My colleagues may want to come in and comment on this as well. Potentially having a one-stop shop in Northern Ireland to which, not just the universities and AFBI, but our small and medium-sized enterprises (SMEs) in particular, who also find it difficult to navigate the European R&D process, could come, may be worth considering. By "one-stop shop", I mean an organisation or a unit within an existing organisation that could carry out some of the intelligence, find out what calls are coming up and what is of particular interest to the European Commission, and get that information out to all the players, both the public sector research communities, including the university, and private sector companies that may be interested. It could carry out that market intelligence, find what is available and also provide support by guiding them through the process. That is a key to success basically.

The Chairperson: So, in that one-stop shop, you would need a team of experts in different fields to help you and to guide you through the difficult processes. Where would you put that one-stop shop? For example, would you put it in Invest Northern Ireland?

Professor S Kennedy: Invest has certainly done a lot of work on that. I am also mindful that we have a very active innovation community in the form of the Northern Ireland Science Park (NISP), and it should also be considered. In the science park, businesses tend to work very fast, and they are in touch with the private sector. In the public sector, we are sometimes a wee bit slower than we normally should be. Consideration should possibly be given to the NISP as a base for such a role.

The Chairperson: Do you have any comment on Horizon 2020 and what you might expect from that? Hopefully, it will be much better than framework programme 7, with less bureaucracy and fewer of the difficulties that have been adverted to.

Professor S Kennedy: The very fact that the Committee is discussing R&D and innovation today indicates the importance that the Executive place on R&D and innovation. This Committee's role will raise the profile of that. I believe that all Departments are inputting into the Barroso task force, and that helps to raise the profile. We know where we need to go with the strategy, but it really boils down to the practical details of how we draw down funding. Compare that with the situation in the Republic

of Ireland, where Enterprise Ireland, I understand, provides support to SMEs and public sector organisations in drawing down European funding and has been very successful in doing so. We could potentially study how it has been done elsewhere.

The Chairperson: That is a good example of the successful application of, for want of a better term, a one-stop-shop type of help to industry and perhaps even to the universities.

Professor S Kennedy: We also need to recognise that, in Horizon 2020, the R&D funding that is potentially available is somewhere in the order of £80 billion, which clearly makes any Northern Ireland Executive research funding appear small. All Departments, when developing our research agenda, have to be mindful of the bigger European agenda out there and make sure that the R&D that we want to promote internally fits in with the European research agenda.

Dr Mike Camlin (Agri-Food and Biosciences Institute): You mentioned Enterprise Ireland. Over the years, our scientific colleagues in the Republic have had a much closer understanding of the systems in Europe because of their closeness to the Departments and because of the Departments' closeness to the European systems. That needs to be worked on a little bit harder here to put us in the position where our networking is better and where we can get into Europe and find out how the thing works. We could look at mentoring from scientists who have been successful and bring them into the bodies that we are talking about to help those who are making applications. That is all quite important.

Mr Joel Ferguson (Agri-Food and Biosciences Institute): In the Republic, they benefit from having a body of national contact points that are very closely integrated into Europe through the funding programmes and through the different thematic areas, whereas, here, we basically share with the other regions in the UK, and that obviously dilutes the amount contact that we have with them. There are some good examples of organisations in Europe and locally that have helped draw down certain types of European funding. Locally, we have NI-CO, which, as a company owned by Invest Northern Ireland, basically focuses on the international development funding. That is a good example of a company that is set up to focus on the administrative burden of making applications, make that easier for the experts and support the project management once a project has got off the ground.

There are other examples in other parts of Europe of similar types of organisations that have been established to make the bids and manage the projects once they have been established. It takes away that learning curve that everyone new coming to European applications has to undertake when they are starting to pull together a bid and then when they have to deliver that project. There are good examples that are worth having a look at.

Mr Moutray: Thank you for presenting to us this morning. Reference has been made to the administrative burden on the private sector. How does the administrative burden impact on AFBI and the resources that you have?

Professor S Kennedy: It impacts on us as well. I suppose we have the advantage in that a number of our scientists have good experience in applying for R&D projects, not only in Europe but in a variety of areas, whereas businesses, particularly SMEs, are busy trying to keep their head above water and make a profit at the end of the year. That is their daily business, and, for many of them, to actually lift their heads from the daily challenges to consider R&D is a big issue in itself. When you add in the administrative burden, I think it makes it impossible for a lot of them. They really do need support, probably more so than the likes of AFBI.

Ms J McCann: Thank you very much for your presentation. It is very interesting that you offer some practical examples of where it is working in other places. From what we are hearing from other people who have presented to us, and as you mentioned in your opening remarks, the development of the agrifood sector will provide a huge boost to the economy here in terms of the export-led growth that is needed in that sector. I want to concentrate on an area, notwithstanding the European funding and the difficulties. You did say that it is a huge amount of money, and we need that sort of expertise to be delivered to our SMEs and the people who want to draw that down, because otherwise we are not going to get it. The match funding is another difficulty. In terms of the commercialisation of the R&D, you go from having a good idea and a sense of how we can grow and develop the sector through export growth

and international markets. We are hearing from the other organisations that there seems to be a bit of a difficulty in taking that practical step to turn an idea into something that is viable and could be marketed. Are there ways in which you think that part of it could be improved?

Professor S Kennedy: I mentioned AFBI's royalty stream, which came from a small number of animal vaccines. The initial work predated AFBI and was carried out in DARD's science service a number of years ago, but then it was linked with commercial companies — the companies involved in that case were multinational companies — and they developed the product to a commercial product and took it through the licensing process required to place a product on the market. They also look after the marketing side of that. AFBI, as part of the agreement with them, takes in a royalty stream. That particular model has worked very well. A model that we are currently investigating is the possibility of AFBI forming a joint venture with a commercial company to take forward another piece of technology. We have a proposal with the Department of Agriculture and Rural Development, and hopefully that will receive DARD and Department of Finance and Personnel (DFP) approval. That is a very exciting example of how the public sector can work very closely with the private sector to bring the results of R&D right through the commercialisation phase to result in products on the market.

Ms J McCann: In terms of developing the SME sector in what you are doing, you are talking about more collaboration and Departments working together. You mentioned a one-stop shop, but have you any ideas on how we can develop that to work more strategically in order to draw down the European funding that is there and also to ensure that we have a marketable product at the end of it?

Professor S Kennedy: The public sector at all levels should recognise that R&D and innovation are not luxuries to be added on to the day job. There is a tendency for policy makers in particular to be concerned about the issues in their in-tray on any particular day. That is correct: there is the day job essentially. However, we need to integrate R&D and innovation into the day job of the public sector at all levels so that they are not seen as optional extras. They have to become embedded in our work.

We talk about developing a knowledge-based bioeconomy. By that, we mean that we cannot compete with cheaper-labour countries on wage levels alone. We can succeed and develop our economy only through the knowledge and intellectual capacity of our people, which is considerable. We need to recognise across all Civil Service Departments and the public sector that the only future for Northern Ireland is through developing that knowledge and intellectual capital and placing R&D and innovation at the centre of the agenda of every Department, not at just the top but down through all official levels. Maybe that is not a very detailed answer, but that is an important issue.

The other issue is that we have a clunky bureaucracy in Northern Ireland and are very cautious and risk-averse in the public sector. We need to look at that culture and realise that, if we are to compete internationally, we maybe need to become not a little more reckless in our approach to risk but to take a more enlightened approach to it and not allow our concern about the Public Accounts Committee and the Northern Ireland Audit Office's requirements to police public spending to stifle innovation and stop us taking any chances in investing and developing our economy.

Ms J McCann: OK, thank you.

Mrs Overend: Thank you very much for a very interesting presentation. I take what you say about research and development in that we do not have to know the answers before we start. That is what we tend to do and play it safe. Do you feel it would be beneficial to promote more the work that you can do? You talked about promoting innovation in Departments, but is there more we could do to promote research and innovation throughout the private sector as well, and how could we could that? Obviously, you want to reach out to the private sector as well.

Professor S Kennedy: Yes, it is, absolutely. AFBI has considerable contacts with private sector companies. The Invest NI voucher scheme has been very useful for SMEs, and we have worked with a number of companies through that. However, a lot needs to be done. Potentially, we could have a conference in Northern Ireland, bringing in the public sector and SMEs, to hear from the SMEs what practical issues they have and why they do not become engaged in R&D and innovation and to look at their needs. It is a very difficult question to answer.

Mrs Overend: It is. Do you think they would come to a conference? Most of them are just getting on with their work. It is very difficult to engage with them.

Professor S Kennedy: It is. Obviously, the smaller number of big companies realise that they need R&D and innovation to survive and grow but that smaller level is the issue.

Mrs Overend: Are there other organisations in the UK that are similar to AFBI that you could learn from, or are you ahead of the game?

Professor S Kennedy: There are no probably no organisations in the UK directly comparable with AFBI with regard to the range of work we do. We carry out statutory work for government with R&D specialist advice, diagnostics and surveillance work. We are aware of many organisations in the UK. We have been in touch with the Moredun Research Institute in Scotland, for example, and we have looked very carefully at its business model. We have also looked at the Scottish Agricultural College. We are trying to learn from them and see how they can innovate. There are some common lessons. They need to have very good basic internal management processes, particularly around finance, in place. They also have very strong links with the industry.

Again, in the overall culture, the whole of government support has to be aimed at fostering innovation and allowing public sector bodies, such as ourselves, more freedom to carry out more work for the private sector. I mentioned the joint venture that we proposed, which is just a small example, but we hope it will be a pathfinder that will indicate to government that public sector bodies such as AFBI can leverage the considerable asset that they have for the benefit of the wider economy.

Dr Camlin: I will take up the point that Seamus made about statutory work. One of AFBI's strengths is its good contacts with the industry, from producers right across the food sector. The other thing is that we have a solid body of science that is there for statutory support to DARD, which leads on to special advice and putting out R&D to the industry. There is a strength there in that our scientists all have good contacts with the different industry sectors. If we can build on that, there is a chance of the sectors becoming more enlightened about the need for R&D and for them to support R&D and further it. The solid science that we have, because of our statutory work, gives us a considerable advantage in this whole thing.

Mrs Overend: Absolutely.

Mr Ferguson: I want to make a couple of points in support of what Seamus said. In specific programmes, some work well and, in others, there is room to improve or to help us. With regard to the likes of the competence centre initiative with Invest Northern Ireland, we are working on two: one with the agrifood sector and the other with the renewable energy sector. Those are both very good forums and structures for bringing together the industry and getting it to take a lead to drive forward early stage R&D in their areas. They are also very good forums for listening to the industry and hearing what it needs in R&D support. So, from our perspective, they are both very important initiatives and we hope to see them get off the ground soon.

There are a couple of other programmes as well. On the commercialisation side of things, we are trying to find partners to take forward commercial opportunities. In the past, in some cases, we have had to look internationally for commercial partners to license technologies because locally we have not had the relationships or the companies have not been here. The likes of the CONNECT programme at the science park is doing a lot of work to try to bring together entrepreneurs and build teams around opportunities. For us, the venture that we are looking at now, which Seamus referred to, is very much something that has been born out of the CONNECT programme and the contacts that that has helped to build.

Invest NI ran a pilot programme in the US for the life and health sciences sector, in which AFBI participated. Essentially, consultants in the US helped to make commercial links. AFBI also participated in a trade mission to the east coast of the US. As a result, it created relationships and made contacts that opened up a lot of doors. That kind of programme is very helpful. On the back of

that, we are now looking to put a person in the Northern Ireland Bureau in Washington to help develop those contacts further.

I have one last point, which is about HEIF. Research spend in AFBI probably amounts to something like £10 million a year overall. Other public sector organisations, such as the Health Department, also have a substantial research spend. When you add those together, we are probably up there with the universities in our total amount of spend. The universities, the Department for Employment and Learning (DEL) and the Department of Enterprise, Trade and Investment (DETI) see the importance of HEIF to help bridge the gap between R&D and commercialisation and innovation, and that gap is well filled by HEIF. However, as Seamus said, that is an area where AFBI and other areas, such as health, are not supported. So, there is definitely room for some kind of review to see whether that kind of support can be provided to organisations such as ours.

Professor John Davis (Agri-Food and Biosciences Institute): From the research provider's perspective, one of the difficulties that we face is that the level of R&D appreciation and activity in the private sector in Northern Ireland is quite thin. We have only a few relatively large companies, such as Bombardier and Norbrook, which actively engage in R&D. That creates difficulties in that we lack critical mass of R&D in the private sector. Taking the wider view, we need to attract more research and development-intensive companies into Northern Ireland's private sector. To my mind, the relative lack of activity in R&D is holding back productivity. We are a relatively low-productivity region. We need to close the productivity gap with the rest of the UK.

I do not have answers to this issue. R&D tax credits may be one option that could be considered. The Economic Research Institute of Northern Ireland did a study on this some time ago. It is a slow-burning fuse; it can improve the R&D intensity, but it may be 10 years before that can be converted into new economic activity, fresh employment and additional employment. So, there is a structural problem in R&D in Northern Ireland that has to be addressed strategically. The culture needs to change.

Mr McKay: I apologise for being late for the presentation. The debate is interesting. Agrifood is always quoted as one of the green shoots in this difficult economic time locally. We need to look at R&D to ensure that we are ahead of the curve going forward. As Professor Davis said, it is about culture — we are a risk-averse people. Risks that are taken have to be accounted for through the Civil Service, etc, and investing in R&D is viewed as a possible waste of money. We need to address that cultural view, which people in parts of the economy still hold. It is an interesting debate, and we need to be more forward-looking in the way that other leaders in this field are in the international economy.

Are you finding that, as other sectors of the economy take a dip into R&D, people with certain skill sets are looking towards taking their skills to agrifood and maybe tourism? Has that been of benefit to the agrifood sector? How does that fit in with R&D?

Professor S Kennedy: The availability of skills in the industry as a whole is becoming a constraint. Particularly in food production, food technologists are thin on the ground. CAFRE's courses are full. Queen's University's agrifood courses are full, and that is the same throughout the British Isles. Agrifood has come into a good position as a career prospect for school leavers and so on. We are definitely reaching the stage — I hear this from companies in the sector — of finding it difficult to recruit people with appropriate skills.

Mr McKay: Are there many skill sets in other sectors that are directly applicable to agrifood? For example, when we visited the college in Newtownards, staff there said that there were people who had worked in construction for years, are now out of work but have skill sets that would slot perfectly into the renewables sector. Is there any equivalent to that?

Professor S Kennedy: The diversification of agriculture into renewable energy is a good example. That is definitely a case where the engineering and technical skills of people in the construction industry could be diverted, although the renewable energy industry is still relatively undeveloped at this stage. However, it has enormous potential.

Professor Davis: We are doing some research on the constraints of the current skill sets available to the agrifood sector, particular the food processing sector, and to see to what extent the skills available match the development needs of food processing companies, particularly in penetrating the very sophisticated European market that we have on our doorstep, which presents significant opportunities for adding value to basic farm commodities. I will hold my fire because we do not know the exact findings. However, the results should be available later this year.

Mr McKay: In relation to the export and international markets and our level of R&D development, are there many countries in the same boat as us with regard to our approach to R&D, or are most of our competitors ahead at the curve? I am trying to think ahead about the danger of being left behind if we do not address this cultural averseness to R&D.

Professor Davis: Quite a lot of research is taking place on the links between R&D and innovation and productivity. The big message is that there has been a withdrawal of public sector support for R&D with regard to agrifood in the Western World in the past 20 years, and that has tended to be linked to lower productivity growth. So, that underscores the importance of maintaining the level of R&D to support productivity growth and diversification in the industry.

Mr Frew: You link R&D with productivity, especially in the agrifood sector. Import bans have been lifted Europe-wide and all round the world, including America. How big a challenge is the lifting of import bans to Northern Ireland? We can also see the BRIC countries on the horizon, and Brazil is probably the most prominent with regard to meat imports. How big a challenge is that for agrifood companies, and how can advancing R&D help to combat that and help us compete against those massive importers?

Professor Davis: You are right: it does intensify the global competitiveness. The penetration of the European market by South American supplies, for example, is a big challenge for the local industry. It underscores the importance of us becoming more competitive. We cannot sit back; we have to respond to that. We are R&D providers, and we think that R&D is rather important. However, there is lots of literature to suggest that the effort to improve the competitiveness of the local sector is highly dependent on the knowledge that comes from the R&D sector, provided it is transmitted into the industry in an accessible and relevant way.

Professor S Kennedy: I am not an expert in the economics of it, but I think that it is generally considered less of a threat than it might have been five or 10 years ago because of the development of markets in Asia and even in South America and Brazil. Those markets will take a lot of the product that might formerly have been imported to Europe from South America, for example. Brazil is consuming a lot more of its own beef production, and it is opening markets in Asia. I will not say that it is not a threat, as John has said, but it may be less of a threat than it used to be.

The basic point is that we need to innovate. If we look at the dairy sector, we see that global milk production has increased substantially over the past year, and it is predicted to increase even more. New Zealand is producing vast quantities. If Northern Ireland is to compete, we have to go for innovation and value-added products, because I do not think that we can compete simply on a commodity basis.

Dr Camlin: My colleague made the exact point that I was going to make. It is not about commodities; it is about value-added and the research input into value-added. Making that work is the way in which the industry here will be competitive. Commodities will not work for a little place such as Northern Ireland.

The Chairperson: But if you have high-quality commodities, which I think we have, it helps to add value.

Dr Camlin: Yes, absolutely.

The Chairperson: You need research and development to stimulate innovation and create added value. Is that really what you are saying?

Dr Camlin: Yes. What we are really saying, as Seamus just said, is that we will not compete with other places on milk and meat as bare commodities on the supermarket shelf. Where we will compete is if we can add value to those commodities, make them innovative and add value to the whole process. R&D can do that.

Mr Frew: We have a really good product to sell. The fact that they eat grass is the first thing. We have linked R&D to production. How big a link is there between R&D and food security, and how big a concern do you have about it? Is there a link, and should we be concerned about it?

Professor S Kennedy: There is definitely a risk. We talked earlier about the increasing markets for food throughout the world. We know that the population is projected to increase to nine billion by 2050; that is only a median estimate, so it could be higher or lower. Climate change comes into it. Parts of the world will not be able to produce as much food as they have in the past. Food security definitely becomes a big issue, and innovation very much has to play into that.

Professor Davis: Absolutely. The other dimension of food security is to intensify in a sustainable way. We must produce more food but in an environmentally neutral fashion.

Professor S Kennedy: The indications from the CAP reform are that sustainability and the environment are still very high on the European agenda. Therefore, as John said, we have to produce more value-added products but do it in a sustainable manner. All that requires R&D and innovation.

Mr Frew: I have another wee question, because you have hit on a point about the CAP reform and the research and development side of it. I can understand why the environmental measures in the new CAP have been implanted, but what I hear from the environmentalist lobby is that they will have the opposite effect and could create monoculture rather than crop diversification. How big a concern does AFBI have about the new CAP?

Professor S Kennedy: On your first comment: the European Commission appears to be approaching it from the point of view that one size fits all. We look around Northern Ireland and see that the farming community's environmental stewardship is excellent. You only have to look at the hedgerows and green fields to see that. We have certain issues with water pollution, but those are being tackled.

Maybe John could respond to your question.

Professor Davis: Do you mean that the issue is the greening of pillar 1?

Mr Frew: Yes, the greening of pillar 1 and the environmentalist-type policy in it. We might not necessarily agree with the measures, but we understand why they have been put in. The point I am making is that even the environmentalist lobby in Northern Ireland is saying that we should be very concerned because the measures could well have the opposite effect to greening because they are so stringent and restrictive. The three-crop diversification rule, ecological areas, and how we even measure that as a paying agency could move farming away from food production and, I suppose, arable production. If you are made to grow three crops at various scales, the producer will just say, "This is not worth it." That could create a monoculture of suckler cows — dairy, rather than a broad mix.

Professor Davis: Yes; I take your point. I think that there are difficulties with that, considering the relatively small-scale farming that we have in Northern Ireland. There is a lot of debate going on, and I do not know exactly how this will all turn out. I think there is a possibility that there will be some regionalisation to take account of the structure of farming in different regions. It is really designed to try to get away from a monoculture of large cereal-growing areas where landscapes can become completely dominated by single crops.

Mr Frew: Maize.

Professor Davis: Here in Northern Ireland, a farmer may be growing 10 acres of barley to feed some cattle. He is not going to want to diversify that; it is just not practical. There is a lot of debate going on in the Commission about how that will work out in practice.

The Chairperson: You will realise, gentlemen, that Mr Frew is Chair of the Agriculture Committee. *[Laughter.]* We talked a lot about Europe, and we talked a little bit about the USA. Could we be doing more in relation to the USA? This morning, we have seen reports about the US relaxing bans on imports and so on. Leaving aside agrifood as such — I know this is a wee bit outside your remit — is there more we could be doing on other exports and encouraging research and development so that we can increase our exports to the United States? Maybe that is beyond your remit.

Professor S Kennedy: I think the answer is yes. I know of a small example from County Armagh, where a small company is shipping apple juice to the United States to test the market. Obviously, there is a vast market in the United States of 250 million people but they have a very well-developed agriculture industry themselves so, if we are to compete, I think we have to go back to the clean, green, wholesome image of Northern Ireland produce and sell it on that basis, plus value-added.

The Chairperson: You seem to have a working relationship with the science park. Is it a fairly close one?

Professor S Kennedy: It is a very close one. AFBI, with the two local universities and commercial companies, sponsors the annual £25K awards. We have found that process very beneficial to our own scientists because, formerly, our scientists might have done R&D, produced scientific papers, and left it at that. Participation in that competition has given them very good training in how to actually bring R&D to the next stage of innovation, commercialisation, and producing a business plan. We have very good links with the science park in that direction. As I said earlier, we are very impressed with the innovative community there, and we think that culture can add value to AFBI's R&D activities.

The Chairperson: We were there last week; it was very interesting and very impressive.

Professor Davis, you mentioned renewable energy. Does that form part of the research that you are doing in AFBI?

Professor Davis: We have a renewable energy centre at our facility in Hillsborough.

The Chairperson: How significant is that in relation to your overall work?

Professor S Kennedy: It is very significant. We have had a programme on producing biomass for many years. Mike knows the details of that. We have been working on how to grow willow in the most efficient manner; how to protect against diseases; and how to grow miscanthus. We have also been experimenting with some other plants, such as elephant grass.

In the past few years, we have succeeded in obtaining money from the Secretary of State's scheme to develop a renewable energy centre at Hillsborough. We have a system for combusting the willow and other biomass products. There is a district heating loop around the farm, in some of the main farm buildings. Over the past two years, we have produced a lot of practical data on the energy inputs, the energy outputs, the costs of the inputs and the costs of the outputs. That information is very relevant to farmers in Northern Ireland who are interested in going down the renewable energy route.

We also have an anaerobic digester, which, first, looked at the economics of digesting slurry, and which is now looking at the economics of digesting slurry and grass together. We will extend that to other crops.

The Chairperson: That is a combination.

Professor S Kennedy: Yes. We have published a lot of the figures, and they are available on our website. We found different results in Germany, for example. That emphasises the importance of carrying out the research locally, in respect of our own products that are available for digestion and the climatic situation.

We have also looked at the quality of the digestate as a fertiliser and shown that the availability of the main nutrients in the digestate is better than in the raw manure. It is a demonstration project for the industry, and it is producing a lot of very important data.

The Chairperson: If that was commercially viable, it could transform local economies, I would have thought.

Professor S Kennedy: Absolutely. With the recent changes in the renewables obligation certificates, it makes the whole process a lot more attractive to farmers.

Dr Camlin: I want to mention one of the interesting areas in which we have been very successful recently. In an INTERREG proposal, we have been successful with a proposal for bioremediation. We are using municipal waste and farm waste to feed into the agriculture sector to feed the willow biomass, and that completes the loop. We are, in fact, adding municipal waste to willow and back into renewable energy. That is another useful area we are working with. We also have links with the east coast of the US in that area. It is quite an interesting and exciting area for us, and it links the agriculture sector with the municipal end.

The Chairperson: It is quite exciting.

Mr Frew: I will follow up on that. I know that this area is something that the farming community can diversify into, and there will be a lot of positives with it. However, is there a concern that we could shift the emphasis from food production to fuel?

Dr Camlin: Food versus fuel; it is quite a debate.

Mr Frew: In some areas, there could be potential for an imbalance. Is that something that concerns you?

Dr Camlin: Look at what is happening in the States: so much corn is being grown for energy rather than for food. It is something that has to be kept in balance; you are absolutely right. We have not got an enormous amount of land available to us in Northern Ireland, so growing willows on high-quality land that could be used for other things might not be the right thing to do. We have to be very careful about that; I think you are right.

The Chairperson: If you are dealing with agricultural waste —

Mr Frew: Chicken litter.

The Chairperson: If you are using waste from agricultural production, it gets round the problem that Mr Frew identified.

Dr Camlin: We have problems with municipal waste and farm waste. If we can help deal with those problems, maybe there is an answer to that. I agree that we have to keep the food versus fuel balance in mind.

Mrs Overend: I thought that was very interesting. When plans are submitted for schemes such as anaerobic digestion, people are very set against them. Surely, because you are linked with government, your research could be fed back for its use. Will you work towards Government Departments using more renewables, using the results of your research to find good ways of using renewables and try to change the public's perception and convince them that renewables are a good way to go and that anaerobic digestion systems, etc, are acceptable?

Professor S Kennedy: That is true. We give our data to DARD, which is very interested in using it for policy development. As well as that, we have a considerable number of visitors to the renewable energy centre and the anaerobic digester. There is no smell or nuisance from it; it is a very clean technology.

Mrs Overend: I appreciate that you are talking to DARD, but it is really important to talk to the other Departments and educate them about what you are doing. Everybody can say, "There are the farmers, at it again" —

Mr Frew: Do you mean the DOE?

Mrs Overend: Every Department. Departments could have a link with the agriculture sector to create energy. The emphasis needs to be on getting that information out to all Departments.

Professor S Kennedy: I agree; there is probably more that we could do along those lines.

Mrs Overend: Thank you very much.

The Chairperson: Mrs Overend makes a very good point: this is something for the Government to take on board, not simply one Department. I suppose that is a self-evident proposition.

There was a point Mr Ferguson raised about centres of competence. What does that mean? Those are not established yet, are they?

Mr Ferguson: They are in the process of being established. Invest NI, after looking at other regions in Europe, has identified that as a model for bringing together industry and companies, large and small, to work together in specific areas. The basic model is that Invest NI would provide a substantial amount of funding over a fairly substantial period of up to five years for the centres to carry out early-stage R&D. The model is that the companies get together, work together and identify the research that they want to carry out, so it is very much industry led.

AFBI, Queen's and the University of Ulster worked together in the early stages with the companies to bring them together to get a centre formed on agrifood. We are working very closely with the QUESTOR Centre at Queen's and with the University of Ulster to do the same thing in renewable energies. Essentially, there are bodies of companies that are working with Invest NI to get those centres up and running. They are at the stage where they are preparing business cases and plans for Invest NI to consider and, hopefully, approve for funding.

The Chairperson: You talked about attracting or securing in the region of £14 million per annum, outside DARD grant-in-aid. Are those moneys raised through commercial work with private companies?

Professor S Kennedy: It is done through a range of work, essentially commercial work for private companies. There is also some government funding, and we are including our European funding. It is all our income outside the set grant-in-aid.

The Chairperson: I am just trying to figure out how much is coming from the pure private sector as opposed to any other government or semi-government organisations.

Professor S Kennedy: Probably about £4 million.

The Chairperson: The rest is made up of European funding and some indirect government funding?

Professor S Kennedy: Yes, and we have a royalty stream, which I referred to earlier, that comes from private companies. That is about £4 million.

The Chairperson: Is that in addition to the £4 million that you identified?

Professor S Kennedy: It is in addition to the commercial contracts that we carry out for commercial companies.

The Chairperson: Are the royalties included in that £14 million?

Professor S Kennedy: They are.

The Chairperson: OK. I think that that is everything. Thank you very much. It was a very interesting and very useful presentation and discussion.

Professor S Kennedy: Thank you very much.

The Chairperson: Thank you for coming. If there are any further questions, may we write to you?

Professor S Kennedy: Certainly. If there is any more information that you would like, please contact us.

The Chairperson: Thank you very much.