

# DÁIL ÉIREANN

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## AN COMHCHOISTE UM GHNÓTHAÍ EACHTRACHA AGUS TRÁDÁIL, AGUS COSAINT

## JOINT COMMITTEE ON FOREIGN AFFAIRS AND TRADE, AND DEFENCE

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*Dé Céadaoin, 14 Feabhra 2018*

*Wednesday, 14 February 2018*

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Tháinig an Comhchoiste le chéile ag 9.30 a.m.

The Joint Committee met at 9.30 a.m.

Comhaltaí a bhí i láthair / Members present:

Teachtaí Dála / Deputies	Seanadóirí / Senators
Noel Grealish,	Billy Lawless,
Maureen O'Sullivan.	Gabrielle McFadden.

I láthair / In attendance: Senator Rose Conway-Walsh.

Teachta / Deputy Brendan Smith sa Chathaoir / in the Chair.

## Overseas Development Aid: Teagasc

**Chairman:** We are meeting with Professor Gerry Boyle, director of Teagasc, and his colleague, Mr. Lance O'Brien, to both of whom I extend a warm welcome. We look forward to hearing their presentation on the role of Teagasc in maintaining and strengthening agricultural development and reducing hunger in under-developed countries. We will hear their opening statement before having a question and answer session with members of the joint committee.

I remind members of the long-standing parliamentary practice to the effect that they should not comment on, criticise or make charges against a person or body outside the Houses or an official, either by name or in such a way as to make him or her identifiable.

By virtue of section 17(2)(l) of the Defamation Act 2009, witnesses are protected by absolute privilege in respect of their evidence to the committee. However, if they are directed by the Chairman to cease giving evidence on a particular matter and continue to do so, they are entitled thereafter only to qualified privilege in respect of their evidence. They are directed that only evidence connected with the subject matter of these proceedings is to be given and asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person or an entity by name or in such a way as to make him, her or it identifiable.

I call on Professor Boyle to make his opening statement.

**Professor Gerry Boyle:** I express our appreciation to the Chairman and the joint committee for extending the invitation to us. I have given the committee a set of slides – I gather all members have received a hard copy - to which I propose to talk. However, I will not go into detail on each and every line of them.

Under the Agriculture (Research, Training and Advice) Act 1988, Teagasc has statutory responsibility for the provision of research, education and extension services for the agrifood sector. Traditionally Teagasc has had a somewhat sporadic involvement in development issues. Largely because there was a certain waning among international bodies in their interest in agriculture in the 1990s, we also wound down our involvement. From about 2010 onwards, with the Chairman's support when he was Minister for Agriculture, Food and the Marine and the support of his Department our involvement recommenced. Since then we have been supported by subsequent Ministers for Agriculture, Food and the Marine.

I do not need to emphasise to this committee the central importance of agriculture to many developing countries as a source of employment and livelihood, and an earner of scarce foreign exchange. Central to tackling poverty, which bedevils many of the Irish Aid countries, is the smallholder. Where does science and technology come into this picture? Clearly it is in the productivity aspect of smallholder production. We see science and technology, research and innovation as driving productivity, and productivity in the long run will drive living standards.

Food security and sustainability feature prominently on the global agenda and are now firmly embedded in the national policy agenda. Our overseas aid policy very much focuses on and prioritises the reduction in hunger as part of our adherence to the fulfilment of the sustainable development goals. There is a need to strengthen all these programmes particularly in agricultural development and associated environmental developments.

Our initial involvement with Irish Aid was simply because Irish Aid approached us and we

had very productive discussions with it. It does not have the expertise in these areas that we have. That was the basis of establishing a working relationship in the context of a whole-of-Government approach to dealing with a variety of global challenges.

Irish agricultural policy is now embedded, obviously, in EU policy but also at a wider international level with a focus very much on addressing what we now call the grand challenges that we are about to face. As I emphasised earlier, we see our work in development support as being very much part of a whole-of-Government approach. To that end we signed an initial memorandum of understanding with the Department of Foreign Affairs and Trade in February 2015 after working for a number of years with Irish Aid. Following a review, we entered into a new partnership in May 2017.

Like all State agencies and organs of the State, we do not have an unlimited budget and so our engagement needs to proceed in a sensible way, but a couple of principles underlie it. In our involvement, we adhere to our own statement of strategy, which very much emphasises the importance of global security as one of the grand challenges of our time. Our work is very much in line with Irish Aid. We work with Irish Aid. It sets out the policy agenda and we would like to think that along with our parent Department, we are supportive if its work in any way that we can.

We have been largely responsible for establishing the Irish Forum for International Agriculture Development, IFIAD. That is essentially a consortium of official bodies, Departments, agencies such as ours, and, most important, the community of NGOs involved in development aid. That provides us with a forum for exchanging ideas on policies and interventions. It allows us to explain to these NGOs in particular the kind of support we can provide to them in the context of public policy as enunciated by the Department.

In the past we would have been very much focused on delivering technical support in missions on the ground. While we still do a certain amount of that, our overriding focus on this occasion of our new engagement in this critical area has been on support for the development of public institutions that work in the field of research and development in the Irish Aid countries. We see ourselves as working to assist the development of the next generation of educators, farm extension workers, research scientists, entrepreneurs and policy makers in the countries concerned. We have a particular interest in focusing where we can on the development of long-term capacity building of universities, agricultural training colleges, vocational schools and so on, as well as Government Departments.

I know the Chairman is aware that Teagasc has a vast array of people with directly applicable expertise in this area. We also have a large cohort of retired staff who are very committed and interested. To their credit many of them at their own expense have got involved in various development projects. That is an extraordinary resource that we are anxious to cultivate along with Irish Aid.

We have a very successful postgraduate programme, known as the Walsh fellowships. I know the Chairman is aware of that from his time as Minister. Teagasc has the single largest cohort in Ireland of PhD students dealing with the agrifood sector. We have 240 students at the moment. We have commenced extending that scheme to students from developing countries in partnership with the countries concerned.

I will now outline the countries in which we are involved so far - these are very much initial steps incorporating relatively small-scale projects on which we hope to build. We have

an involvement in Mozambique on dairy and beef development. In Kenya we have looked at developing the capacity of the research and development system, and we have been involved in potato breeding. We are doing the same in Ethiopia. It is ironic given our own history that we have been very much involved in seed potato development. We are also advising on expanding the research and extension capability.

We have had a recent involvement in Vietnam in supporting it in developing its capability in the agrifood sector through economic modelling. It might not be well known that we have a very small involvement in Eritrea largely through the Vita NGO and latterly through Gorta self-help. There we have been looking at dairy and seed potato development as well as capacity. We are about to make a scoping visit to Colombia on foot of the suggestion made by the President to see whether we could provide technical assistance in the huge redevelopment transformation that is taking place there.

I will outline some of the outcomes so far. I draw the committee's attention to the establishment of the Irish Forum for International Agricultural Development which is a very important body because it represents the NGOs and official bodies involved in the development process. In the agriculture sector we are increasingly being seen as a favoured partner for Irish NGOs. We have developed a very strong relationship with Irish Aid which we see as driving the agenda. We come in behind it to support it. One of the outcomes is that we now regularly host visiting delegations from Irish Aid partner countries at our various sites throughout the country, depending on the interests of the delegation. We have also established formal relationships with our counterparts in many of Irish Aid's partner countries and in one very prominent non-partner country. Through our contacts, we have also developed excellent relationships with the so-called CG research infrastructure which Irish Aid now financially supports to a significant extent. We are involved with it in its research programmes. One of the lessons we have learned so far is that in many developing countries there is huge interest in the model we have developed in Ireland for the integration of research with extension and education. While we are still challenged in that respect in this country, this is very interesting. One of the characteristics I have noticed in virtually all of Irish Aid's partner countries I have visited is the severe disconnect between the research arm and the extension and education arm. Unfortunately, a lot of knowledge that could be used to benefit the smallholder is not transmitted very effectively for a load of cultural and sometimes financial reasons. The financial reasons are relatively easy to address. The cultural reasons are more difficult to address. As far as the future is concerned, we are firmly committed to engaging in this work. There are resource constraints, although no more than for any other organisation. Our signature on the second Irish Aid memorandum of understanding is testament to this commitment.

**Chairman:** I thank Professor Boyle for his excellent presentation. It is heartening to hear about the commitment of Teagasc and its increasing role in trying to assist people in the most underdeveloped countries. We are carrying out a review of Irish Aid and one of the areas in which we will be making a recommendation to the Government is agricultural development. We will be asking the Government to intensify its engagement with Irish agribusiness companies to ensure best practice in Ireland and to continue the good work being done with Teagasc in that area. Some of us were in Malawi and Mozambique in November. It was heartening to visit the international potato centre to see the breeding of potatoes and from where that knowledge had been transferred. There was a hunger for knowledge of crop husbandry, particularly among the female population. Those involved in the international potato centre told us that when they were trying to impart knowledge and get out more information on diseases and crop husbandry, they held classes in fields which they hoped women rather than men would attend

because generally the men were less attentive. They could rely on the women to be attentive and take in the knowledge being given in the class which was held in a field and knew that as a result there would be a better return. We saw it first-hand in the breeding of potatoes. It is now a big ingredient of much of their diet and heartening to know that it came from our own country.

Like any State organisation, Teagasc has particular challenges; therefore, it is a very welcome development that it is devoting some of its resources to work overseas. It is an add-on to Irish Aid and foreign policy. Professor Boyle mentioned the Irish Forum for International Agricultural Development which Teagasc has established. Is there anything similar being done by its sister organisations internationally, with a focus on the transfer of knowledge and co-operation with the least developed countries? During the years there has been a lot of collaboration with some of the counterparts of Teagasc in northern Europe, including Scandinavia. Is there potential in that respect?

Professor Boyle has mentioned that in the 2000s there was not the interest in the agrifood sector that there should have been. In 2009 or 2010 Ireland was one of the countries that sought it. We held one of the first plenary meetings on the sector by Ministers of the OECD. Perhaps there is potential, internationally, to combine resources.

It was heartening to hear Professor Boyle talk about recently retired people giving of their time and resources. We discussed the issue with officials of the Department and some of the NGOs. There is huge knowledge and expertise in this country among individuals who are relatively young and retired. If that resource could be utilised, it would be extremely beneficial. During our visit to Malawi and Mozambique it was very heartening to see how effective and beneficial the relatively simple procedure of transferring knowledge was to communities. Knowledge in the areas of irrigation and crop husbandry made a difference to them.

I will take questions from committee members and ask Professor Boyle to respond to them.

**Deputy Maureen O’Sullivan:** It is good to see Professor Boyle again. I concur totally with what the Chairman said about the visit. I had an opportunity to visit other African countries where I saw more examples of what the Chairman has spoken about. One of the things that came across in Malawi was the idea of one-pot food. In that way the community is able to ensure everything going into the pot has nutritional value for children and young people.

I have a question about research. Is Teagasc part of any research project to study the links between biodiverse farming systems and nutritional outcomes? Is it involved in research into various seed systems? In both situations it concerns how local knowledge is used. One of the NGOs spoke about the use of local instead of external fertilisers. That brings me to another issue I have been following in another country - the export of frozen chickens to countries in Africa that had thriving local poultry production. The European Union has to take some of the blame in that regard. Is Teagasc seeing any example of the undermining of what is being done locally to satisfy an international market?

What Professor Boyle has said about retired people is great. There is no doubt that because of the work Teagasc is doing, there is an interest in other countries in its expertise and knowledge and want to get it involved. I have been meeting the Nepalese community in Ireland and know that it is keen to have a connection made with Teagasc because of the extent of its knowledge. It is about linking up. Some of the countries in which Teagasc is involved have a considerable coastline. Some of their ministries are responsible for both agriculture and fishing. One area in which there is potential for growth is the production of seaweed. Perhaps I

am taking Professor Boyle out of his area of expertise, but sometimes there is not enough of the joining of the dots when a community could be using both the agriculture sector and the fishing sector for a livelihood.

**Senator Gabrielle McFadden:** One of my questions has already been asked. Professor Boyle referred to small projects in different countries. Teagasc does wonderful work in building relationships and partnerships, which we are well aware of, but will Professor Boyle tell us about what the small projects involve on the ground on a day-to-day basis?

**Professor Gerry Boyle:** My colleague Dr. Lance O'Brien, who leads this programme, may come in on this too.

First, in relation to some of the Chairman's questions, he remarked on the counterpart organisations in Europe that might be involved in these areas. There are several organisations that counterpart Teagasc, for instance, in France it is the Institut National de la Recherche Agronomique, INRA. It does not have an extension or education arm, but it does have a very clear remit in relation to development work and does a huge amount of research on this. It is not directly part of our remit but it is very much complementary to what we do. INRA, along with the University of Wageningen, which is a famous university in the area of development work, would be two of the biggest players. As the Chairman noted, the Scandinavian countries also have their own engagement. We are involved, with the University of Wageningen, in a very interesting project in Ethiopia. It is very important to train the next generation. During the 1960s, Ireland's agricultural development benefited greatly at a technical level from the Kellogg Foundation. Many Irish scientists and people who went on to lead agribusiness, work in universities and so on, were trained through the Kellogg Foundation in the early 1960s and that benefited subsequent generations. That is where we see our role now, for example in training up young PhD students. In collaboration with the University of Wageningen, we trained three people in the area of potatoes, not only in the technical side of potatoes but also, very importantly, in the social context such as the systems of potato cultivation and forth. Of the three, two have graduated and one will graduate shortly. Hopefully they will go back into their own communities and train the next generation. There is a long-term pay off in upgrading expertise.

The Chairman also raised an issue that we feel is very important. Extension and advice is all about learning, it is a form of education. We see significant parallels in the farmer field schools that are successful in many African countries. It is a concept promoted strongly by the World Bank. It is very similar to our own discussion group model that we have here in Ireland. We think they are successful because, for instance, when one introduces a new variety into a farming community, farmers are very cautious people. For farmers in developing countries, it can often be a matter of life and death. A new variety might have fantastic credentials in terms of yield but it could have risks associated with it. Farmers have to be very sure that in supplanting the old variety, they are not creating problems for themselves with a bad year from a bad harvest, for instance. They want to discuss the potential implications of, for example, introducing a new variety with their peers. Farmer field school is a hugely important component in transmitting knowledge.

Some of the specific points raised by Deputy Maureen O'Sullivan are important. Some of her questions and comments related to nutrition. We are at one side of the equation, on the production side, and we are conscious that there is a whole other agenda around access to quality resources, which is critically important. Something I often use as an example is how when we would measure the agricultural outputs in the dairy sector ten or 15 years ago, we would have talked about litres of milk produced, but now we refer to milk solids, which is the current

metric. Increasingly, particularly in countries which suffer food security challenges, we need to talk about nutritional value, and nutritional measures such as calorific content. We are coming to that understanding ourselves. There are different varieties which have quite different outcomes in a productivity measure relative to a nutritional measure. That is why a product such as dairy is hugely important. It is such a nutritional product for many of these communities that one can see the importance in a development context of focusing on the thing that is the real problem, namely the need to improve nutritional levels, and that in programme design one focuses on the correct metric.

Deputy O’Sullivan referred to the importance of biodiverse farming systems and their relationship to nutrition. That is not something that we have formally researched. While we do some work on nutrition, most of our work is focused inside the farm gate. We have done some very interesting work on the impact of biodiversity on the yields of crops and of grass in particular. There is a very strong relationship and the more diverse the varieties and cultivation systems, the more improved and variable the yield. I imagine that would extend equally to nutritional metrics. We have all learned the importance of local knowledge. The model of the development worker as the preacher was scotched a long time ago. One could argue that we had that traditionally in Ireland in the agricultural context, where the expert had all the knowledge and their role was to pass it on to the recipient. We know that is a flawed model. It never works. A colleague defines it very well, and says that a transmission of knowledge is like a game of tennis; one has to connect, and it is a two-way process.

On the use of local fertilisers, it is something I would certainly endorse. Chemical fertilisers and their judicious use have transformed agriculture; they have transformed Irish agriculture but we know there are environmental implications. There are also cost implications, access is a significant issue in many countries. We also know, and have learned a great deal from our research on the importance of using organic fertilisers efficiently. In our own system, in recent years, in many intensive agricultural systems, the consumption of chemical fertilisers has declined and farmers are making far better use of organic fertilisers. Our research has demonstrated, for instance, how time of application and mode of application are critical to enhancing efficiency. That type of knowledge is transferable. We strongly advocate the judicious use of organic manures and so on.

I do not really have any comment on the frozen chicken trade, unless my colleague does, which I doubt. It is not our area but I can see the dilemma. Many of these trade-offs arise in this area.

Deputy O’Sullivan referred to contact she has had with the Nepalese community. We would be delighted to talk to them.

Again, we do not have a remit on coastlines, unfortunately. It is something that might be taken up with our sister organisation, Bord Iascaigh Mhara. One thing one can notice about these communities is that they are fantastically entrepreneurial. They do not engage in any one activity, there is a whole portfolio of activities. They do not segregate activity in the way that we have to, from an organisational perspective. As the Deputy noted, it is not just the food value but also the potential use of seaweed for fertiliser, animal feed and so on.

Senator Gabrielle McFadden asked a question in replying to which I could delay the committee at great length. However, what may be pertinent for it are some examples of small projects. One that comes to mind immediately, apart from the potato project, is a project in which we are engaged on a small scale in Eritrea. Its Minister for Agriculture visited Teagasc

a couple of years ago. He is an interesting man who is committed to promoting the interests of the smallholder, at whom Eritrea has a policy directed, under which the government has a scheme under which it donates to families a young heifer that is about to calf. The deal is that the family have to donate the second calf to another family and so on. We have worked with it to help in that regard. The biggest problem which is common across interventions, particularly in agricultural projects, is that because of the lack of knowledge, while there is the will to give the cow, there is no information on how it is to be fed, managed and maintained. That is where we come in. We work with a small number of families to help and advise them on the nutrition of the animal and the growing of the fodder needed, etc. What is really heartening is that people are very quick to learn. I remember meeting one family with eight children. Not alone did the cow provide sufficient milk for the family but, for the first time, there was also a small surplus which the family could sell and then buy other necessities. We are trying to expand that model.

Amazingly, there are always entrepreneurial individuals to be found in these countries. Individuals involved in the private sector see opportunities to aggregate in the collection of milk, for example, and start a small processing activity. We hope to help projects and to that end have been in touch with Irish companies that have been hugely generous. We spoke to the chief executive officer of Dairymaster, Dr. Edmond Harty. It is willing to support the provision of infrastructure for the collection of milk which is a huge challenge in the countries mentioned because of transport difficulties. It might lead to small-scale yoghurt or cheese enterprise developments. The smallest intervention can make a difference.

Dr. O'Brien might like to comment on the international organisations.

**Dr. Lance O'Brien:** We have relations with a range of research organisations around Europe. It occurs within the context of European framework programmes, the current one being Horizon 2020, the framework programme for research and innovation, through which we are part of a large number of collaborations on research programmes. Professor Boyle has mentioned some of the organisations with which we work, including the University of Wageningen in the Netherlands. I also refer to extending the work done within Europe internationally because research is an international activity. Findings of research carried out in Ireland are applicable elsewhere. They may have to be modified slightly, but fundamentally they are applicable elsewhere. We are talking to the Centre de Coopération Internationale en Recherche Agronomique pour le Développement, CIRAD, in France; the University of Wageningen in the Netherlands; Luonnonvarakeskus, LUKE, in Finland, and Scotland's Rural College, SRUC, which is very similar to us about extending the relationships we have with them in a European context. I hope we can work with them in the future in international settings also. Our big relationship internationally is with the Consultative Group on International Agricultural Research, CGIAR, which is based in Montpellier in France but which also has relationships with research centres in many other countries, particularly in Africa where it is the major global research organisation. We have strong relations and work with it on a number of projects.

We also have close relations with national research and extension organisations, some of which have been mentioned. That is our main focus. We work with them in capacity building through long-term PhD programmes or short-term through visits and working with staff here in Ireland. A number of staff from such organisations have spent time in Teagasc learning particular techniques of research or extension. Our hope is that from the relationships built we will be able to engage in collaborative research programmes in the future. We hope capacity building will enable our partners to apply for international research funding and work with international organisations such as Teagasc.



**Senator Billy Lawless:** I come from an agricultural background. I am interested to hear about the diversity about which Professor Boyle spoke, especially in relation to the potato, given the experience here during the Famine. Most conflicts throughout the world today cause displacement and hunger among refugees and global change.

The delegates have given excellent answers. I congratulate all of them for the work they have done and the example they give. It is important that Ireland and Teagasc give example to the rest of the world. We are living in a funny world, especially in Europe with right-wing parties and anti-immigrant and anti-refugee movements, the rise of which is worrying.

**Deputy Maureen O'Sullivan:** I refer to the work being done with partner countries. In that regard, there is an increasing role for Teagasc. The delegates mentioned capacity building. What does Teagasc need to answer all of the requests received and expand the valuable work being done with smallholders in African countries and now Colombia also? Is there a capacity or financial issue?

**Professor Gerry Boyle:** There are always capacity issues in whatever agenda we have to address, but we are able to manage requests for assistance. We are in the relatively early stages of awareness of how we can help. The biggest draw on our capacity is when there is a requirement for on-the-ground technical support. While it is necessary at times, we can provide far more information that will be useful in the longer term in ways that do not impose the same capacity requirements. There is no huge additional cost to Teagasc in getting involved in supervising PhD students which is part of what we do and which can fit into our programme very well. There is also no great cost involved for Teagasc in hosting professionals and persons who want to improve their knowledge in the areas of research, extension and education. It is hugely valuable. However, we do need to identify technical experts in projects, of which there could be a huge range. That is where we typically draw on our retired colleagues. We have a huge network in that regard. It may be unusual for an organisation such as ours not to seek additional resources, but we are proceeding in an efficient way. Much of the activity is complementary to what we do.

Dr. O'Brien is an extraordinary individual who is overburdened. I am sure he would like to have a couple of assistants. We often under-appreciate the value of institutional knowledge we have built up in Ireland. The Department of Agriculture, Food and the Marine, for example, is renowned internationally for its traceability systems which are central to food quality and quality control. The transfer of that knowledge which does not cost a huge amount in the provision of additional resources can be of huge value. To give an example, we visited Vietnam which is probably the most prosperous of the Irish Aid partner countries. However, it has huge problems in the area of food quality. In my assessment, what it needs to do more than anything else is upgrade the training of university personnel. We can do that through collaborations with our universities. There is an awful lot we can do without having to expend a huge amount of additional resources. Of course, there will be some cost, but I would not overstate that point. I might come back to the Chairman after a couple of years with a different view.

**Deputy Maureen O'Sullivan:** The joint project between Teagasc and Bord Iascaigh Mhara would be useful for a coastal community. I refer to the attempt to marry agriculture, fishing and seaweed production, for productivity and nutritional value. The witnesses might think about that.

**Chairman:** I thank Professor Boyle. We might also involve the Marine Institute. It was established about 20 years ago, and it is a very sophisticated research centre. It could help to

explore all of that. As Professor Boyle suggested, it could tie in with the work of Bord Iascaigh Mhara.

It is fantastic to hear that Teagasc has 240 PhD students. Every time I read the Teagasc monthly magazine, I read about so many people with different roles in the organisation, predominantly very young people with masters degrees or PhDs. It sends out a great message about the sector and the quality of person working in the witnesses' organisation before going on to work in private business.

As time goes by and he develops the organisation, does Professor Boyle find that his experience in international development influences his policy outlook on Ireland? He referred in his opening remarks to the sustainable development goals. There is not much awareness of those in society in general. Within the cohort of people in the advisory and teaching areas, and the whole agrifood sector, is there any increasing awareness of the import of the sustainable development goals, and of all of us doing our part to advance them?

**Professor Gerry Boyle:** Some of the points the Chairman raises are very interesting, indeed profound in many respects. Certainly we can learn a huge amount from working with the countries we have been involved in. My colleagues would testify to this as well. It is not a one-way street by any means. If we approach the challenge of improving the livelihoods of smallholders and improving productivity with the attitude that we know best, we will not get anywhere. There are many practices from which we can learn. It reinforces the importance of certain fundamentals. For me, for example, it has reinforced the view that in Ireland, State investment in research and development has to have an impact on the ground. When I go to a country like Ethiopia or Eritrea, I can see the consequences of that not happening. What I learn from that is that we need to make sure we are not making similar mistakes. The consequences are very different.

We have a lot to learn. In regard to the sustainable development goals, there is one thing I have learned from my observations, particularly around the challenge of climate change, the related challenges associated with the scarcity of fossil fuels and the consequences for water resources. One thing that immediately affects a visitor to Ethiopia is that climate change is happening. It is visible. One is struck by that, and by the interaction between climate change and the land tenure system, which is a political determination. It is visibly evident. People are aware of what is happening to their environment. Often they are not equipped to deal with it and respond to it. They need support.

In Ireland, it is difficult to create the same awareness that it is a global challenge. Maybe it is not manifested to the same extent because of the nature of the Irish climate, which is highly volatile. That is probably one reason. I was struck by that when I visited Ethiopia, and equally when I visited northern Finland, where one sees the impact in a different way. We probably have not yet absorbed the significance and importance of the sustainable development goals, particularly where the profound impact of climate change is concerned. We will need to do so in a relatively short time. We need to adapt, and one can see those countries adapting in their own very challenging ways.

The other thing that immediately strikes a visitor to these countries, which I know the committee members have visited, is the sheer force of population pressure. I was struck by that in Ethiopia, in particular. One sees it on the highways, certainly around the large towns and cities. The motorists do not have precedence because there are so many people. They all have to be fed. One sees the constant human traffic. A committee member referred to women. Women

seemed to do most of the work, as far as I could see. They procure the firewood and fodder. They are constantly moving, day in, day out. One of the consequences of focusing in on productivity, better ways of managing animals and so on, will be to lessen the burden of work on women in particular.

**Chairman:** I thank both Professor Boyle and Dr. O'Brien for their presentation. As I said at the outset, it is gratifying to know about Teagasc's work to date, and the witnesses' commitment to increasing that work. I also recognise the fact, which I raised with the Secretary General of the Department, that the private sector and agribusiness are playing their part. We have been assured of that. I am glad that the witnesses mention Mr. Edmond Harty and his colleagues in Dairymaster as an example of those helping out----

**Professor Gerry Boyle:** I am conscious that I mentioned one out of many.

**Chairman:** Yes, I understand.

**Professor Gerry Boyle:** We are aware, of course, that there are several such firms. Irish Potato Marketing, IPM, are our partners. It markets our seed potatoes. We are most proud of the cara variety, of course. It is grown in Kenya now. Although we do not always get credit. It was mentioned as a British variety. Our colleagues are very upset.

**Chairman:** That is due to the weather.

**Professor Gerry Boyle:** I refer to Irish Potato Marketing, and I note that there are several others. I refer to Devenish Nutrition. We come in contact with that firm a lot. One of the themes that is now emerging is the importance of the State working with the private sector. It is in the private sector's interests to work with the State, particularly in some countries where the importation of dairy products requires the companies to produce products domestically, and they lack the capacity to do that. An example of this is Vietnam. We can learn a lot from the private sector. In particular, it has significant training needs.

I would like to thank Chairman. It is a fantastic fillip to my colleagues that work in this area that the committee receives them and demonstrates interest in what they are doing. I very much appreciate that. I will pass on the committee's good wishes to them.

**Chairman:** I thank Professor Boyle. I hope that his presentation creates a greater awareness among the public at large. Indeed, it might give a fillip to some of the major Irish companies to do even more in that respect. A lot of those companies are internationally based. However, many of them were significantly aided by the State, directly and through the work of his organisation. It would be great if they were able to put more back into those less developed countries. It would be a great message to send out. The importance of the work being done by Professor Boyle and his colleagues, including the people out in the field, is such that I suggest we would like to receive a presentation from him on an annual basis to update us on what Teagasc's projects are achieving and on the goals Teagasc is setting for itself. That would help us to get the message out to the wider agrifood sector and to those involved in research and teaching about the contributions that could be made by other public and private organisations. In thanking Professor Boyle and Dr. O'Brien again, I would like to send a unanimous message from all the members of this committee that we appreciate the work of those who are literally in the fields and, as we have heard, the retired people who give voluntarily of their time and provide private resources to make themselves available.

The joint committee went into private session at 10.31 a.m. and adjourned at 10.52 a.m. *sine die*.