



UK Parliamentary Inquiry into the Global Food Crisis

**The All Party Parliamentary Group on Agriculture and Food for Development
The Associate Parliamentary Food and Health Forum
The Parliament and Scientific Committee**

Minutes of the Food Security inquiry meeting on Wednesday 25 March 2009

Inquiry team members present: Alan Simpson MP (Chair), Hilary Armstrong, Baroness Byford, Mark Durkan MP, Philip Dunne MP, James Gray MP, Owen Jones, Earl Lindsay, the Countess of Mar, Baroness Miller of Chilthorne Domer, James Paice MP, Earl Selborne, Lord Soulsby of Swaffham Prior and Lord Rea.

First panel of witnesses: Dr Jacques Diouf, Head of the UN Food and Agriculture Organisation (UNFAO); Tom Arnold, CEO Concern Worldwide; and Dr Joachim von Braun, Director-General of the International Food Policy Research Institute (IFPRI)

Introduction

Alan Simpson welcomed members and witnesses to the meeting and invited Dr Jacques Diouf to make a brief statement before questions began.

Dr Jacques Diouf (JD) said he would like to emphasise one fact: that the food crisis is not over. We have had a period of high food prices and, while prices have fallen by 32% since June 2008, they are still 19% above the average price for 2006 and 27% above the average price for 2005. Retail prices in developing countries have not fallen from their high levels. We have had serious increases in the price of inputs such as fertiliser, which went up 176% between August 2007 and 2009, while seed prices went up 70% and animal feed prices are 75% higher. In consequence there was an increase of 75 million in the number of hungry people in 2007, with 40 million more in 2008 taking the total to 963 million, almost 1 billion hungry people – in contrast to the Millennium Development Goals. The UNFAO are very concerned that because of the financial and food crises affecting the world, and difficulties in access to markets, this situation is likely to get worse. The UNFAO are doing everything they can to ensure that the financial crisis does not overshadow the food crisis and that the latter remains high on the international political agenda.

Will the next food crisis require more than better management of distribution systems?

Alan Simpson (AS) said that the scenarios each of the witnesses had depicted in their statements to the inquiry team all suggest that the next food crisis is unavoidable. He asked if it is their assessment that we can manage our way through it by managing distribution systems, because the evidence on climate change suggests this is untenable and we must address other aspects of the problem.

Tom Arnold (TA) said that the food and energy price crisis last year put these issues back at the top of the agenda where they had not been since the 1970s. There is a danger now that the financial crisis will exacerbate these problems and push them off the top of the political agenda. Climate change and falling agricultural productivity could mean that food security must be taken more seriously at a political level. It's good that the inquiry team are focussing on it, as is Ireland, and there are signs that the new US administration takes food security seriously. Ultimately national governments must take food security seriously and be supported by the international community.

Dr Joachim von Braun (JvB) said the food crisis is solvable but it requires a long term commitment and significant investment. It also requires that current moves to reform regulation of financial systems include food markets because market failures, including export barriers and obstacles to free trade in food, as well as speculation in commodities futures markets, were serious factors in increasing prices last year. The central parts of a comprehensive agenda will be increased investment in innovation, research and development leading to increases in agricultural productivity, sound market and trade policies, and finally direct action for improved nutrition. The UK and UK Government can make a significant contribution – public investment in research and development at home will help overseas if the domestic science system is internationally connected. It was central to the green revolution in the 1970s, which drew on science from the US, UK and Japan. Large science systems in China and Brazil are not enough to tackle the food crisis by themselves, especially not in Africa. JvB referred to a meeting with Lincolnshire farmers and commended UK farmers for their innovative approach. He said a dual approach is needed, on the one hand focussing on research and development at home and on the other hand better support for innovation among small farmers abroad. Doubling research and development for small farmers will be the key to achieving the target of increasing agricultural productivity by at least 1% per annum.

JD said meeting the challenge of food security is possible if we reverse the policies of the last twenty years when the share of agriculture in ODA went from 17% in 1980 to 3% in 2006. Fortunately the World Bank has changed its policy since then and is now increasing investment in agriculture. The hungry people are in developing countries. We have to invest in small-holder agriculture. At present only 4% of arable land is irrigated in sub-Saharan Africa, 96% depends on rainfall. In Asia 38% of arable land is irrigated. People in Africa are dying because of drought. Rural roads are crucial - food aid can be parachuted in, but this is not possible for agricultural inputs and products. 60% of agricultural production for some products in Africa is still lost because of inadequate storage facilities. Tackling this issue needs to be coupled with better access to inputs such as seeds and fertiliser. Knowledge transfer is essential – better seed varieties can increase production. We need to invest in research and development to feed 9 billion people by 2050. We need \$30 billion per year to invest in small farmers agriculture in developing countries. This can be compared with support for farmers in the developed world of \$360 billion and \$1003 billion invested in the arms industry. We need to ensure farmers in developing and developed countries receive an income comparable to other sectors if we want them to remain in farming. Food quality, food safety and fighting pests are all important, but investment in infrastructure to facilitate access to markets is essential.

Support for MNCs or small farmers

James Gray (JG) said that, broadly, there appear to be two philosophical approaches to feeding 9 billion people by 2050. One is that we should find ways to encourage small farmers in developing countries to provide more food for themselves, coupled with improvements to infrastructure and storage facilities. The counter-argument is that that approach will be insufficient and we should use GM and modern technologies and encourage multi-national companies to move into developing countries to help them become net food exporters. JG asked whether there is an argument that we should encourage Monsanto, for example, to invest in sub-Saharan Africa.

JD said he favoured a middle way. Some technology is available now at low cost as a result of past public investment which has had proven results, for example, hybrid rice is important in a commodity which is feeding 2.2 billion people. We can start by using better seed varieties, but we must also improve infrastructure, storage facilities and water use. Africa needs help in these sectors because their existing infrastructure is insufficient to make the agricultural sector more successful. We must also transfer knowledge to African farmers. The value of GMOs is being debated within the EU, but there may be other technologies that could be used now, such as conservation agriculture with zero tillage.

JG asked if we should encourage multi-national companies to do the job or support small farmers in Africa. **JD** said the UNFAO thinks there should be public and private investment; without public investment in infrastructure we will not get long term private investment. Private investment does raise other issues – as we have seen in Madagascar – that need to be addressed carefully.

TA said we should use to a greater extent the technologies we already have and get them to small farmers in Africa. Longer term, especially because of climate change, the use of new technologies and GMOs will have to be very strongly considered; but that will require a legal and political climate that allows them to be implemented, as well as scientific support.

JvB said that in the last twenty years productivity growth in East Asia where farms are on average less than 1 hectare was the same as productivity growth in Latin America where the average size of farms is 60 hectares. Productivity growth and small farming is not incompatible. It depends on other factors. Both small farmers and large farmers can be inefficient. Big players should certainly be part of the solution, bringing investment in technology, but the size of the farm is not the issue. 50% of the world's hungry live on small farms. China, India and Brazil all increased agricultural production by 3-4% last year, while it declined in the rest of the world.

Livestock farming

Lord Cameron (EC) referred to an article in the RGS magazine about a fall in growth in livestock farming in China and India. He said livestock farming uses more land per nutritional value than arable crops, can lead to overgrazing and a reduction in soil quality. He asked the witnesses to comment on this given the culture of Africa which tends to be focussed on livestock.

JD acknowledged that livestock farming does increase demand for cereals as feed and the UNFAO is aware of the impact of livestock on climate change. These are real issues that need to be addressed. We need to look at ways to improve livestock management, recognising that it is a historical fact and we cannot make people become vegetarians. Perhaps we should also seek to ensure more protein is derived from aqua-culture as fish is a lower cost and healthier source of protein.

JvB said livestock farming is very important for many poor people and it employs a large number of women in developing countries. We should seek to make it more efficient – especially the dairy sector. We need to address the climate change agenda with incentives for improved management and reduced green house gas emissions from animal production. We also need to increase water use efficiency in livestock farming. The utilisation of animal by-products will become more important as we re-think the use of nitrogen fertilisers and climate change.

International summits and integration of policy on food, nutrition and HIV/AIDs

Mark Durkan referred to the forthcoming G20 and G8 meetings and asked the witnesses to comment on the absolute “dos and don’ts” for world leaders in terms of factoring in food and nutrition as they re-think international systems for financial regulation and world institutions. He also asked them to comment on what policies or institutions are working most effectively. He referred to Concern Worldwide’s integration of their approach to food, nutrition and HIV/AIDS and asked how this could be done successfully at Government level.

International scientific collaboration and knowledge transfer

Earl Selborne (JS) referred to the collaboration between agricultural research institutes and universities in the UK and abroad and asked to what extent we are making best use of research and development in this country to help address food insecurity. Are we using opportunities to transfer technologies and what should DFID be doing?

Animals as a source of energy in developing countries

Lord Soulsby asked the witnesses to comment on the important role animals have in provision of energy for small farmers in Africa and the Far East in the absence of machines.

Referring to the G20 and G8 meetings, **TA** said we need a sense of prioritisation and urgency for the food security issue at a national level. At the international level we need more effective cooperation to provide a real global partnership between governments and civil society. Integration of food, nutrition and work on HIV/AIDs is essential. Productivity increases at small farmer level with social protection will provide the solution to the food crisis. This requires more emphasis on nutrition, especially for pregnant women and children under the age of two. Any commitment to deal with food insecurity has to be long term and entail development of the “soft infrastructure” of development including support for education, farmers’ organisations and women’s groups.

JvB said animal traction still plays a very important part in South Asia and parts of Africa but this is changing fast. He recently visited the Punjab where small farmers with farms of 1-2 hectares are now using rented combine harvesters. UK scientists and the IFPRI have excellent relationships, for example in the work to prevent bird ‘flu, as do the IFPRI’s sister centres of the Consultative Group for International Agricultural Research (CGIAR). More needs to happen and it can happen. DFID support for international agricultural research systems is much appreciated. It has a lead role in financing and intellectually, but again more needs to be done. 9 billion people will eat more like 12 billion in 2050 by today’s standards and merely feeding a world population of 9 billion with as much hunger as today would be a poor ambition. Good nutrition is essential for healthy human development and UK science investment here and abroad can help. Food security, hunger and the need for investment in agriculture have been sidelined for the next G20 and G8 meetings and this needs to change. We cannot focus on finance and banking systems without looking at commodity trading and futures trading. A new financial regulatory system needs to be comprehensive with all the institutions where capital is invested and utilised under a regulatory umbrella which ensures that markets work in a crisis. The governance architecture for food, agriculture, and nutrition needs to change at global level, so it includes not just UN agencies but also civil society agencies and the corporate sector. Their objective needs to be to deliver global public goods that otherwise are not addressed such as food security, nutrition, food safety, and health.

Population growth and the consequences of small farms failing

The Countess of Mar (MM) asked if the 9 billion figure for the size of the global population in 2050 was well established by research; if it is likely to remain valid despite famine, plague, etc; and whether it is right that the population should keep growing at the present rate. She also asked what happens to primary production when smallholder farmers’ farms are no longer sustainable – are they lost to cultivation as in Zimbabwe?

Soil fertility

Lord Rea (NR) expressed concern about the continuing fertility of the earth’s soil. We want it to produce increasing amounts of food so we need to ensure it is productive, but are we sure that we can produce more food without depleting the earth’s soil of essential trace elements, nitrogen, etc? He suggested human waste should be used more effectively to help tackle this issue.

JD said farmers with insufficient incomes do abandon land for other activities to support their families. We can address this by helping them to increase their productivity and by providing a more supportive environment by improving access to inputs and markets where they can sell their products. In many African and Asian countries good government policies have led a three fold increase in food production so it is possible. International private investment can also help. High increases in prices for inputs – such as the 176% increase in the price of fertiliser between August 2007 and 2009 – have a long lasting impact. The UNFAO estimates that the impact of these prices increases will be felt for ten years. A number of countries have

the potential to produce primary products but they need investment. Better agricultural practices help. For example, conservation agriculture techniques will result in better land use and a better biological balance in the soil. Sustainable agricultural systems address soil management issues.

JvB said we are living in a post-Malthusian age (we went through the S-curve in the late 1990s). Expert population predictions are pretty reliable – we expect the global population to be between 8.5 and 9 billion unless there is a global catastrophe – an unknown, unknown. An example is climate change with very high risks at low probability: for example the International Panel on Climate Change predicts a probability of a 20% risk that there will be an increase of 8 degrees centigrade in the world's temperature by 2050. High prices for food, fertiliser, water and land need to be addressed in new ways so that small farmers' property rights are protected. Technological and institutional innovations are necessary.

TA said there are limits to how you can slow population growth, but we know that the education of girls and economic growth together can lead to lower population growth. At present, large families are a long-term insurance policy for many poor families.

DFID's priorities

Philip Dunne asked what priority is given to agriculture by DFID and whether it has people on the ground to tackle the problems being discussed.

TA said DFID has been paying increasing attention to agriculture in recent years and now it is being looked at within a wider White Paper process. He would like more focus on smallholder agriculture, but is happy to await the outcome of the White Paper process. However, capacity to implement good policies is needed as well as good policies.

JvB said the UK Government and DFID were associated with the neglect of agriculture and food issues in the 1990s, along with many others. It was a political mistake which is haunting many nations today. A strong effort is now needed to scale up the focus on agriculture in Africa, but there is a serious skills constraint. You cannot quickly mobilise if you don't have technical skills. In fragile states like Afghanistan agricultural experts need to be many more, rather than outweighed by military experts. The IFPRI is getting many requests by nations who now recognise the food crisis is a pervasive phenomenon. UK engagement at multi-lateral level is important and excellent but we also need more agricultural and nutrition investment on the ground in strong partnerships with national governments.

Second panel of witnesses: **Matthew Wyatt, International Fund for Agricultural Development; Camilla Toulmin, Director International Institute for Environment and Development; William Otim-Nape, African Innovations Institute; and Guy Poulter, Natural Resource Institute, University of Greenwich.**

Alan Simpson thanked the first panel of witnesses for their evidence and invited the second panel of witnesses to identify one or two of the most important points they would like the inquiry team to absorb.

Matthew Wyatt (MW) The political will to address these issues is vital. The G8 is committed to a global partnership on agriculture and reversing the decline in aid to agriculture. It is very important that they live up to these commitments and also that they achieve a Post-Kyoto agreement on climate change. We need smallholder farmers to remain on the agenda. We need to reverse the decline in public and private investment in agriculture, especially in Africa. The commitment of African governments to invest 10% of their public expenditure in agriculture is encouraging, but most countries are spending well below that level. This decline in investment is understandable because in the past prices were low and therefore so were the returns on investment. We know how to make good investments in smallholder farmers and scale up this investment. IFAD members are increasing their contributions to IFAD significantly, so IFAD is expanding, but a step change in investment in agriculture is needed..

We must invest in small holder farmers' and in their organisations. Small holders can also help in the fight against climate change. For example, zero tillage can reduce carbon emissions. IFAD are involved in some useful projects, for example biogas digester investment in China with very good benefits in terms of reduced deforestation, and hence reduced CO₂ emission.

Camilla Toulmin (CM) The climate change/agricultural production interface is crucial. It is vital that we recognise the inter-connectedness of these issues. If we do not get a good climate change deal at Copenhagen agriculture will be very hard hit – especially in many parts of China, India and Africa (though the agriculture sectors in Canada and Russia may be better off). Identifying ways in which carbon finance can build more resilient systems in Africa is important. Land in many parts of the world is becoming increasingly valuable but rights are often not documented or secure. The biofuels boom and interest from Sovereign Wealth Funds is leading to increasing pressure on land deemed to be “empty” where local peoples’ patterns of living are not valued by governments. We need to think hard about rights for smallholder farmers, hunters and gatherers. Inward investment could produce valuable gains if it is framed in the right way and makes good links with local people. The question is, can it be used in a way that does not disadvantage many of the poorest people in developing countries? On research, DFID needs to recognise good work is done at the interface between high science and local knowledge, what works locally. We should not think of local people simply as recipients. The UK could work jointly with the Chinese on this. They are increasingly thinking about how they could help African agricultural sectors apply best practice to Africa.

William Otim-Nape (WO) Funding for the agriculture sector has been falling over the last decade and this has had a significant impact on agricultural productivity. We need to reverse this. When funding is low, the return on investment is low. Funding should be targeted on areas where it can have the greatest impact on agricultural productivity. A lot has been said about productivity. This is important, but it is not enough. If there are no markets the effort to increase productivity will not be sustained. Small farmers must be supported by better access to markets. Climate change is a serious phenomenon and is having a significant impact in Africa. For example, a sensible farmer with 200 hectares of rice lost the entire crop because the rains came late, ended earlier than usual and his valley tank could not fill up with water, so he could not irrigate his rice crop. Further, in Uganda, March is normally the season for planting crops but the rains came during the dry season (December and January) and then stopped. The dry season continued in February and March which otherwise should have been rainy season when farmers should be planting. Because March was dry, the farmers did not know what to do and were confused. Farmers in Africa need advice about how to adapt to climate change. In order to deal with the global surge in food prices, the international community (collectively as global, regional bodies and national governments) should establish and maintain commodity buffer stocks. The stock of commodities stored would act as a buffer against scarcity and price volatility; and in turn would stabilise overall food security. This is not a new idea – they have been used throughout human history – and they would help to stabilise food prices.

Guy Poulter (GP) The starting point must be smallholder farmers in sub-Saharan Africa because this is where we are now. We should not rule in or out any particular technologies for addressing food insecurity. Policies and analyses are important, but they should not become a substitute for action on the ground. What has gone wrong in recent years is that there has been an absence of understanding that we must support smallholder farmers and that this is a long-term investment. The donor community turned away from agriculture and there is now a 10-15 year deficit in investment. It is great that agriculture's role in food security is now fully recognised, but we need to recognise too that a 25 year agenda for support is required. The starting point for this will be building the institutional capacity in Africa – such as research institutes and extension services. The goal, agreed by the ACU, is a 6% increase in agricultural productivity in Africa. African organisations must work on their problems and find solutions themselves, but the UK has a role both as a source of funding and knowledge. Up until the 1980s, the UK had one of the most significant pools of expertise on small holder farming in Africa but due to neglect by successive governments much of this has been lost. A

critical mass just about remains and this needs to be carefully nurtured if the quality of UK aid for food security in Africa is to be maintained.

Diversion of aid due to corruption

Earl Selborne (JS) quoted two sentences from WO's statement: "The British Government and international community should greatly increase development aid and other investments in these sectors." "Millions of dollars earmarked for food security programs in Africa and other developing countries have ended in the pockets or bank accounts of corrupt donor and government officials, thus denying the intended beneficiaries the much needed food and related benefits." **JS** asked if this is the case, who is most likely to break this vicious circle?

Local ownership of issues versus international influence

Lord Cameron (EC) said the inquiry team had been advised of the importance of leaders at the G20 and G8 meetings focussing on food security and the importance of knowledge transfer, but the importance of national and local ownership of policy has also been made clear. He asked how can the UK change or influence the fact that a host of African countries are investing only a small proportion of their income on agriculture.

Flower exports, biofuels and African capacity for development

Tony Baldry (TB) asked for advice on three issues. Should he be in favour of cut flowers from Africa or against; should he be in favour of biofuel production in Africa or against; and how can the UK support local capacity in Africa for development? He referred to the case of Sierra Leone, which used to be a net exporter of rice, but now imports it. When he had asked for a business plan and an estimate of the investment required to support local rice production, he was told there was no-one locally who could produce it.

Successful investments

Lord Rea referred to WO's advice that donors should fund projects that would generate a good return and he asked for examples of successful and unsuccessful projects in Uganda.

CT said Hilary Benn was asked about cut flowers imported from Kenya and he said we should buy them because their total carbon footprint is lower than that of flowers grown in greenhouses in the Netherlands. However, there are other questions about the use of scarce land and water that arise. The biofuels issue has to be considered case by case. It is nonsensical to use good agricultural land in America to grow maize for fuel, but sugar cane from Brazil is a good source of energy. In some areas biofuels provide energy to communities that will never be linked to central energy supplies.

MW said that 90% of IFAD's investment is made via national governments so they are concerned that governments' systems work properly. No system is perfect, but this should not be an excuse for giving up and it is possible to minimise the risks. IFAD works with governments that have sufficient capacity, but where systems are not strong enough it uses its own procurement systems. African governments are increasing investment in agriculture and some have hit the 10% target, but it can be very difficult. For example, in Haiti 90% of spending goes on the cities because they have serious problems and there is a great deal of unrest there. Higher agricultural prices may encourage further African investment. **MW** agreed with **CT** that cut flowers from Africa should be supported and biofuel production had to be assessed on a case by case basis. He cited the example of sweet sorghum, which produces food, feed plus stalks for biofuel, and jatropha, which can be grown on marginal land, as examples of "good" biofuels.

WO said corruption is an issue for all the players. We should monitor how investment is used. Transparency International has created a global mechanism for monitoring, reporting and exposing corruption. However experience has shown that exposing corruption is not enough. Allegations of corruption should be investigated and where they are proven, those involved should be brought to account because millions are being wasted through corruption. The international community should put in place an International code of conduct against corruption

and implement a system to monitor and identify the corrupt. An International Anti-corruption Court is needed to try the corrupt. Heavy punishments (such as sanctions, life imprisonment, confiscation of assets and/or a ban on participation in the international economy) should be given to those proved guilty of corruption. If the international community can reduce this vice, it would release significant funds for investment. National governments and regional traders should be more vigilant on this issue. Sunflowers and maize are two examples of good investment in Uganda. Uganda realised that increasing sunflower production could help to reduce imports of vegetable cooking oils. Investment in knowledge transfer and processing led to a large and booming business in northern Uganda. One private company introduced new hybrid seeds and farmers were lining up to buy them – because farmers respond when there is a good market. Uganda also did a lot of research into maize seeds, leading to the development of new hybrid seeds, with the result it is now an important product in Uganda. African countries should consider biofuel production. Some countries in sub-Saharan Africa have a low foreign exchange earnings capacity. A lot of money is spent on important petroleum products such as petrol and diesel. If these countries were to produce some biofuel and substitute even a small fraction of the petroleum products, they could save some hard currency to invest in other areas. Competition with food crops could be managed and Governments should be able to minimise the negative impacts on food production, for example by growing biofuels on marginal agricultural land.

GP said that in Ghana in the 1970s the economy had been in a mess when Sierra Leone had good capacity. The reverse is now true and this demonstrated that the rule of law and good governance are essential for sustainable capacity development. Rice varieties appropriate to the particular conditions of West Africa have been developed and are being grown in several countries in the region. These would be suitable for Sierra Leone and so the potential is there. In partnership with local farmers and NGO's such as Concern, the Natural Resources Institute is actively working on projects in the country where there are some very good developments. There is also a pan-African capacity building programme working in Sierra Leone called SCARDA (Supporting Capacity for Agricultural Research and Development in Africa) and this is having an impact. But we also need Parliamentarians in African countries who understand the need for long term investment in agriculture and the infrastructure to support it, including education and roads, and are prepared to lobby for it. International Development Agencies must also have it in their hearts as well as their heads that long term agricultural research is essential if poverty reduction and food security targets are to be met

Corruption and “democracy”

James Paice (JP) referred to the link between corruption and “democracy” in Africa and suggested that Sudan had illustrated the powerlessness of international courts. He asked how far the world can intervene in countries like this. He also asked about the relative importance of trade and domestic markets in Africa, wondering whether while cut flowers provide employment and the carbon case is strong, the land should be used to grow food. He suggested many advocates of free-trade overestimate the beneficial impact of it. He had visited a large farming organisation in Zambia where products were exported to Britain, but the farmer had to give his workers a glucose drink in the morning so they were fit to work because they were not fed properly. JP asked whether Africans should be aiming at greater self-sufficiency or engagement in trade with the developed world.

Knowledge transfer

AS suggested the issue of cut flowers indicates a “northern” agenda. The issue of water use is also important, but farmers can be defeated by climate change. He asked if we have to accept that we are no longer the custodians of our food past and food futures. How good are we at passing knowledge across national and cultural frontiers?

GP said a couple of years ago the collective wisdom was that we had enough food globally and the issue was therefore access to food at a household level. In the last year that has changed with uncertainty about future global food security and concern that money alone may not guarantee access to food. Despite this, GP supports the concept that the future for

helping smallholder farmers out of poverty is production of crops under fair-trade conditions and support to bring their products to market, even if they are export markets.

OW said the developed world is not powerless in the face of corruption. Sudan is an extreme example. The international court – despite its weaknesses – has had an impact on world leaders. Now they know that there is a chance they could end up in the international court. There are great positives associated with the international court. Trade has been very important, but smallholder farmers need cash and if they do not have it and cannot store their crops, it will have a big impact on the food security of their households.

MW said that where conflict exists and governance is poor long-term investment is much more difficult, but you can succeed even in difficult areas like southern Sudan, if agricultural investment is supported by investment in conflict management. We need to double the global supply of food by 2050 – which means raising agricultural productivity growth. The world's 500 million smallholder farmers have tremendous potential to increase their productivity. In India smallholder farmers are more productive than larger farms. Vietnam's small holders have enabled it to move from being a net importer of rice to the world's second largest exporter. China has doubled productivity over ten years with smallholder farmers and taken 400 million people out of poverty; Brazil also achieved the same growth in productivity, mainly through large farms, but with less impact on poverty.

CT referred to the Foresight project on food security, for which she provides expert advice, and suggested the inquiry team should look at their papers. She said we must address climate change and the consequences of oil being more expensive and more expensive to burn. She thinks this will lead policy-makers towards local solutions.

AS thanked all the witnesses for their very helpful evidence and ended the meeting.

CLC, March 2009