

## Review of CABI Global Summit: Food Security in a Climate of Change

### The Summit

To meet the urgent challenges involved in securing the world's future food supplies, 200 senior representatives from governments, development agencies, NGOs and businesses from over 40 countries met in London on October 20<sup>th</sup> 2009 to share and discuss the latest thinking and debate ways forward.

Four informative and thought-provoking sessions considered food-security issues related to (1) hunger and poverty; (2) climate change; (3) trade and markets; and (4) information and communication technologies. Panels of experts gave short presentations, followed by debates with questions from other delegates.

### Overview: themes dominating the discussions

The stakes are high: one billion people regularly go to bed hungry, while 18,000 a day die from malnutrition. This is happening now. And the not-so-distant future holds yet more challenges: we will have 9 billion people to feed by 2050, and even by 2030 the world will demand 50% more food, 50% more energy and 30% more water than now. This could create a "perfect storm" of shortages, according to the UK government's chief scientist Professor John Beddington, driven by population growth, greater urbanisation, and the "rightful goal to alleviate poverty".

Climate change also threatens food security, bringing droughts, floods, storms and other crop-damaging weather. In the tropics, where most food-insecure people live, *any* increase in temperature will reduce yields of the vital staple crops rice, maize and wheat. As CABI's Dr Lynsey Norgrove warned, a 5°C rise will cut these yields by 50% by 2080, even without factoring in the losses due to pests, diseases and weeds which are also predicted.

Yet many experts were optimistic that we can achieve food security for all – if we take the right actions and make the right choices for agriculture now. Do we choose crops for food, livestock feed, fibre or biofuel? "Food security is possible; feed security may become a problem; fuel security from biomass is an illusion" summed up Professor Rudy Rabbinge of the CGIAR's Science Council. And, as Professor Bob Watson, from the UK's Department for Food, Environment and Rural Affairs concluded: "Global food security is achievable, but business-as-usual policies, practices and technologies will not work".

Most encouraging was the fact that many practical solutions were forwarded repeatedly by different speakers – showing there is broad agreement on what we need to focus on.

"Losing less, as well as growing more" was a major theme. As Dr Julie Flood from CABI explained, we lose 30-40% of our potential food to crop pests and disease; this figure rises to 50-60% when we include losses after harvest, and during transport and storage. Various speakers reiterated the need to slash the waste of food in developed countries, and tackle pests and diseases in developing countries.

Water shortages also emerged as a hot topic, as these will limit the expansion of irrigation – which has so far been a major success factor in the Green Revolution's yield increases. "No water, no rice" was a stark reminder from Dr Lewis Ziska of the United States Department of Agriculture. Speakers suggested solutions like water storage, small dams, drip irrigation and practices to better manage the water held in soil.

Messages about environmental sustainability underlined many presentations, especially the need to protect the resources and ecosystem functions on which agriculture depends. Mohammed Rafiq of the Rainforest Alliance summed up the issue well, saying that in our drive for ever-higher yields, "we are continuously cutting the branch on which we are sitting". Among options forwarded were payments to farmers for environmental services (including

carbon sequestration), ecosystem management, and “environment-friendly” certification for farmers’ produce.

Options for increasing productivity were understandably much discussed during the Summit. Examples included better crop- and soil-management techniques and developing high-yielding and drought-tolerant crop varieties (using biotechnology and wild relatives of crops).

Yet, scientific and technical solutions were certainly not the only answer, as shown by many of the experts who repeatedly stressed the benefits of a range of other options. These covered better infrastructure, including roads to get farmers’ produce to market and to get fertilizer and improved seed to farmers; better institutions, including research and extension services; better finance options for small-scale farmers, including microcredit; better policies to support farmers and encourage value-adding post-harvest processing; and better markets, including fewer regional and international trade barriers - to name just a few.

Capacity building, training, and institution building were all cited as vital to achieving food security in many of the presentations.

It was also noteworthy that in every session throughout the day, speakers stressed the huge opportunities that the mobile phone revolution offers. Examples range from farmers receiving market information, so that they can get the best prices for their produce, to finding buyers, and negotiating and selling by phone. Getting practical advice to farmers on crop production and pests/diseases via mobile phones also shows great promise.

Partnerships also figured strongly during the Summit. Food security issues are complex and wide-ranging, and all stakeholders need to be part of the solution, so collaboration and cooperation are key.

Last, and definitely not least, almost every speaker highlighted the need for investment. This included investment to overcome the chronic underfunding of agriculture over the last few decades, the need to invest greater proportions of national budgets in agriculture, and to put more into research and development. Particular stress was also laid on investment in education, extension and knowledge-sharing, and sound and enabling policies. All these are vital if we are to achieve food security.

### **Session 1. Food security - helping to achieve Millennium Development Goal 1: Eradicate Extreme Poverty & Hunger**

Speakers in this session forwarded a broad range of ways to tackle poverty and hunger. Dr Julie Flood stressed the need for social “safety nets”, microcredit for farmers, and strategic grain reserves (especially as current world reserves are only enough for 90 days), and the need to strengthen in-country institutions and infrastructure. Improved seed will improve productivity, but it is also vital to reduce the huge losses of food to pests and diseases, which amount to “wasted labour, wasted inputs, wasted energy, and wasted water”.

Control costs can also be high, according to Dr Dennis Rangi of CABI: “On maize, the larger grain borer costs the government of Tanzania close to \$90 million a year”. But he identified a number of “quick wins” to tackle such losses: better knowledge-sharing, quarantine, storage, education about and diagnosis of pests and diseases, and early warning/surveillance.

“Good news is coming out of African agriculture” said Dr Akinwumi Adesina of the Alliance for a Green Revolution in Africa. He attributed higher yields in part to the use of locally adapted, high-yielding seed and fertilizers, policy support to smallholders, and support and training to village agro-dealers.

His Excellency Joaquim Chissano, former President of Mozambique, called for a value-chain approach: an integrated approach spanning tillage, input supply, post-harvest processing, marketing, trade, credit and financial institutions, and dissemination of best agricultural

practices through extension networks. “This integrated approach has proven to be critical to alleviating poverty and hunger in Africa”, he said.

Dr Richard Tingem Munang from UNEP reminded us that we must also manage our ecosystems sustainably for a food-secure world. This requires political commitment, investment, incentives for the poor, and information. He identified the need to reorganise food markets, provide safety nets for the poor, promote second generation biofuels and agricultural research, improve land tenure, build farmers’ capacity, and empower women – as they are often the managers of natural resources.

Speakers also stressed the goal of agriculture becoming more of a business – moving beyond subsistence, and the need for partnerships: public and private, and national and international.

### **Session 2. Climate change – the influence on food security**

By 2030, just 20 years from now, the world will face a “perfect storm” of energy, water and food security, according to Prof. John Beddington. Climate change will threaten food security still further: CO<sub>2</sub> levels and temperatures are rising even more rapidly than predicted, and we don’t know how things like rainfall, monsoons, and river flows will be affected. “It may be worse than we think - but really we don’t know”, he said.

Crop scientists do know that the USA’s major crops will not flower or produce grain at temperatures in the mid to high 30s Centigrade, warned Dr Lewis Ziska of USDA. We need to disseminate heat- and drought-tolerant varieties, and use the genetic diversity in crops’ wild relatives and in older cultivars, to breed crops more able to adapt to change.

Climate change will also alter the spread of choking weeds like kudzu, and nematode worms that damage crop roots and yields – and we have to be alert for that. Dr Lynsey Norgrove recommended making better weather forecasts and pest-outbreak predictions available to farmers, and using mobile phones and the internet to spread these messages quickly. We should also promote integrated pest management to farmers, she said, targeting the pests that are likely to increase.

Other adaptation strategies are to develop a basket of informed farming options, and to diversify cropping systems. We also need to transfer knowledge and techniques between regions with similar climates. Both adaptation and mitigation must start now, and investment in research, education and technology is essential.

A “drastic rethink of all production systems” is needed, stated Dr Norgrove. We may have to make tough choices between food, fuel and biodiversity. Decisions on biofuels must be strategic, and based not on policy incentives and hype, but on hard data on resource use, carbon footprints, profitability, and whether they will complement or compete with food crops.

### **Session 3. Trade & markets – the impact on food security**

Session 3 began with Mr Sindiso Ndema Ngwenya, Secretary General of COMESA (the Common Market for Eastern and Southern Africa) explaining how successful regional integration has been among its 19 member countries. From 2000 to 2008, the region has seen, trade increase fivefold (from US\$3 billion to US\$15 billion), and the number of countries receiving food aid more than halve.

Key to these successes have been the creation of COMESA’s Free Trade Area and Customs Union, the harmonizing of SPS standards, the formation of the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA), and the development of partnerships with farmers’ unions, research networks, private-sector commodity associations and development partners.

COMESA is also making great strides in implementing the Comprehensive Africa Agriculture Development Programme (CAADP), advocating for countries to assign 10% of national budgets to agriculture. All of this aims to boost food production and people’s purchasing power.

Professor Bob Watson then took the stage to explain the important role that changes in consumer choice will play in cutting greenhouse gas emissions caused by livestock and the demand for out-of-season produce. He also noted that food miles analysis needs to be much more sophisticated, as fruit grown in heated greenhouses may have a bigger carbon footprint than fruit flown in from Kenya, for example.

Trade has benefited poor people, and can benefit them further, but we need to eliminate OECD production subsidies, stop tariffs escalating on processed products, and recognize the special needs of the least developed countries, by allowing non-reciprocal market access. However, as Prof. Watson also stressed, national institutions and infrastructure need to be in place if developing countries are to benefit from international trade.

The demand for radical change on farms, in supply chains and in consumer behaviour was also reiterated Mohammed Rafiq, from the Rainforest Alliance. Alliance certification brings access to international markets, and this is a powerful incentive for farmers to use sustainable practices and safeguard local resources like soil, water and biodiversity. Mr Rafiq also reminded us that the poor also need to be at the table as informed negotiators.

Complying with SPS regulations, in order to access high-value international markets, is a daunting task, “but all is not doom” was a positive message from Dr Lum Keng-Yeang of CABI. Exciting regional initiatives (like the ASEAN Regional Diagnostic Network, for example) will help countries identify pests and prepare the pest lists needed to begin trade negotiations. SPS challenges can be tackled, through harmonization, capacity building, regional networks, global standards, and pooling information and expertise. And, as Dr Andrew Bennett, the Session chair summed up: “Bugs don’t need passports ... to collaborate is the only way in which we’re going to be able to handle them.”

#### **Session 4. Information and Communication Technologies (ICTs) in agricultural development**

Early in this session Dr Albino Maggio from COST noted that, of the 1 billion hungry, 50% are smallholder farmers. So we need to reach them with information. This point was then stressed again by Mr Theophilus Mlaki of the Tanzania Commission for Science and Technology when he said “Development is about people not things”, and “making people more knowledgeable is the best way of developing people.”

The view was also echoed by Dr Stephen Rudgard of FAO, but he was also careful to note that technology has great potential for allowing us to share agricultural knowledge, information and research results, through initiatives like e-agriculture and CIARD. As Dr Elizabeth Dodsworth of CABI said, we need to think just how far we’ve gone with ICTs in the last 10 years – and then imagine what will happen in the next 10.

Mobile phone uptake in Africa and India is one example, as it not only offers real hope for widespread access to agricultural information, but also makes possible new applications related to credit, health and money-transfers. We can envisage in rural areas a web of simple, specific, and practice-based information spread through SMS. Dr Rudgard also warned, however, that while much innovation is happening very few people are measuring real impact.

The Sri Lankan telecentre experience presented by Dr Harsha Liyanage (Sarvodaya ICT4D Movement) has been shown to have had impact, not least the leveraging of private-sector finance worth five times the initial investment. Telecentres and travelling mobile-phone services, like those offered by people cycling around the countryside with handsets, can become financially self-sustaining. So this trend is likely to accelerate.

Speakers made clear that development of relevant and validated content is key. But local participation and partnerships are essential too – especially in translating important messages, which can be used directly by farmers, into local languages. This will ensure that the rural poor are not disadvantaged by language and communication difficulties.