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SUMMARY OF THE GLOBAL CONFERENCE ON AGRICULTURE, FOOD SECURITY AND CLIMATE CHANGE: 31 OCTOBER – 5 NOVEMBER 2010

The Global Conference on Agriculture, Food Security and Climate Change was held from 31 October to 5 November 2010 at the World Forum in The Hague, the Netherlands. The Conference was organized by the Dutch Ministry of Economic Affairs, Agriculture and Innovation in close cooperation with Ethiopia, Viet Nam, Mexico, New Zealand, Norway, the World Bank and the UN Food and Agriculture Organization (FAO).

The Global Conference on Agriculture, Food Security and Climate Change is intended as a follow-up to the Shared Vision Statement agreed at the Seventeenth Session of the Commission on Sustainable Development (CSD-17) in May 2009 and to further develop the agriculture, food security and climate change agenda.

In preparation for the Conference, the African Conference on Agriculture, Food Security and Climate Change, organized by the Government of Ethiopia and the African Union Commission, was held from 6-8 September 2010 in Addis Ababa, Ethiopia. The African Conference brought together high-level policy makers, practitioners, international organizations and members of the scientific community from all African countries and produced a final communiqué containing a set of key recommendations. The final communiqué was presented at this Conference.

More than 900 participants from 80 countries, including representatives from governments, non-governmental organizations (NGOs), international organizations, the research and scientific community, the private sector and media, attended the Conference, side events and Investment Fair. Sixty ministers and vice-ministers participated in the ministerial roundtables.

The outcome of the Conference was a Chair's Summary, containing a Roadmap for Action. The Roadmap for Action is intended as a stepping stone to further initiate and broaden partnerships and activities with engagement by all stakeholders,



HRH Princess Máxima of the Netherlands, UN Secretary-General's Special Advocate for Inclusive Finance for Development



L-R: Working Group Co-Chair Yemi Akinbami, African Union Commission, and Hans Hoogeveen, Director General, Dutch Ministry of Economic Affairs, Agriculture and Innovation

such as the private sector, governments, scientists, NGOs, civil society, farmers, indigenous peoples, women and youth.

A BRIEF HISTORY OF FOOD SECURITY, AGRICULTURE AND CLIMATE CHANGE EVENTS

WORLD FOOD SUMMIT: This Summit took place from 13-17 November 1996 in Rome, Italy. It was held in response to the continued existence of widespread under-nutrition and the growing concern about the capacity of agricultural production to meet future food needs. The 1996 Summit brought together close to 10,000 participants and resulted in the adoption of the Rome Declaration on World Food Security

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and the World Food Summit Plan of Action. The Summit also formulated the objective of achieving food security for all through an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing by half the number of undernourished people by 2015.

WORLD FOOD SUMMIT: FIVE YEARS LATER: This Summit took place in Rome, Italy, from 10-13 June 2002, and renewed the commitment made at the 1996 Summit. Delegates called on all States to reinforce their efforts and act as an international alliance against hunger.

FIRST FAO TECHNICAL CONSULTATION ON BIOENERGY AND FOOD SECURITY: Specialists from around the world gathered from 16-18 April 2007 at FAO headquarters in Rome, Italy, to discuss bioenergy



L-R: Working Group 1 Co-Chairs Alejandro Silva, Argentina, and Jamshed Merchant, Canada

production and the related opportunities and risks for food security and the environment. Participants agreed that if environmental and food security concerns are taken into account, governments can use bioenergy as a positive force for rural development.

SEMI-ANNUAL MEETING BETWEEN UN AGENCY HEADS

AND THE UN SECRETARY-GENERAL: During the semi-annual meeting between UN Secretary-General Ban Ki-moon and UN agency heads on 28-29 April 2008, Ban announced plans to develop a comprehensive strategy to address the global food crisis. A High-Level Task Force (HLTF) on the Global Food Security Crisis was created. The HLTF, which is chaired by Ban and includes the heads of the World Bank, the International Monetary Fund, the World Food Programme, FAO, the International Fund for Agricultural Development, and the World Trade Organization, developed an action plan for discussion at the 2008 High-Level Conference on World Food Security.

CSD-16: This meeting was held from 5-16 May 2008 in New York, US, to review the thematic cluster of agriculture, rural development, land, drought, desertification and Africa. Participants highlighted the connections between the session's thematic agenda and both the current food crisis and climate change. CSD-16 identified key drivers of increasing food prices, including: land degradation; high energy costs; climate

change; poor harvests; speculation in agricultural commodities; inequitable terms of trade; decline of investments in agricultural development; and increased production of biofuels from food crops.

ECOSOC'S SPECIAL MEETING ON THE GLOBAL FOOD CRISIS:

The UN Economic and Social Council (ECOSOC) held a Special Meeting on the Global Food Crisis from 20-22 May 2008 at UN Headquarters in New York, US. Participants agreed on short-term priorities, including immediate actions by donors and governments to allow farmers to meet production demands. They also identified medium- and long-term measures to tackle the food crisis, including a re-examination of the amount of official development assistance dedicated to agriculture.

HIGH-LEVEL CONFERENCE ON WORLD FOOD SECURITY: THE CHALLENGES OF CLIMATE CHANGE AND BIOENERGY:

From 3-5 June 2008, over 4,700 delegates from 183 countries met in Rome, Italy, for the High-Level Conference on World Food Security: the Challenges of Climate Change and Bioenergy. They reaffirmed the conclusions of the 1996 World Food Summit and the objective, confirmed by the World Food Summit: Five Years Later, of achieving food security for all, with an immediate aim of reducing by half the number of undernourished people by no later than 2015. They also reaffirmed their commitment to achieve the Millennium Development Goals (MDGs). The conference outcomes included a Declaration, which outlined priorities and proposed activities for immediate and short-term measures, medium- and long-term measures, and monitoring and review.

2008 G8 SUMMIT: Participants to the 2008 G8 Summit, held in Toyako, Japan from 25-27 June 2008, expressed concern regarding the food crisis and, in a Statement on Global Food Security, announced measures to address and act on the crisis' root causes. They agreed to work with the international community to form a global partnership on agriculture and food, involving all relevant actors, including developing country governments, the private sector, civil society, donors and international organizations.

HIGH-LEVEL MEETING ON FOOD SECURITY FOR ALL:

This meeting was held in Madrid, Spain, from 26-27 January 2009 to: accelerate progress in achieving the MDG on extreme poverty and hunger; address the effects of price fluctuations on vulnerable populations; and review progress achieved following the 2008 High-Level Conference on World Food Security. Participants from 126 countries noted their support of the HLTF on the Global Food Security Crisis and agreed on the importance of an inclusive and broad process of consultation on options leading to the establishment of a global partnership for agriculture, food security and nutrition.

CSD-17: At CSD-17, held in New York, United States, from 4-15 May 2009, a High-Level Segment and Ministerial Roundtables focused on the food crisis, a sustainable green revolution in Africa, and integrated management of land and



Kanayo Nwanze, President, International Fund for Agricultural Development



HRH Willem-Alexander, Prince of Orange



L-R: Kofi Annan, Chairman, Alliance for a Green Revolution in Africa, and HRH Princess Máxima of the Netherlands, UN Secretary-General's Special Advocate for Inclusive Finance for Development, at the plenary session.

water for sustainable agriculture and rural development. The resulting Shared Vision Statement emphasized: the urgency of appropriate national and international action and greater cooperation to bring about a paradigm shift and to realize a truly sustainable green revolution; the need to put sustainable development of agriculture on the international agenda and to put developing countries at the center of the agricultural and rural revival; and the need for political will, including for investments in agriculture, a supportive enabling environment, fair prices for produce, fuller integration of markets and greater international market access.

2009 G8 SUMMIT: At the G8 Summit held in L'Aquila, Italy, from 8-10 July 2009, leaders of the G8 and 34 States and international organizations and agencies approved a Joint Statement on Global Food Security ("L'Aquila Food Security Initiative"). The Statement welcomed commitments made by countries represented at L'Aquila towards mobilizing US\$20 billion over three years through a coordinated, comprehensive strategy focused on sustainable agricultural development, while keeping a strong commitment to ensure adequate emergency food aid assistance.

WORLD SUMMIT ON FOOD SECURITY: This Summit took place from 16-18 November 2009 at FAO Headquarters in Rome, Italy. The Summit brought together over 4,700 delegates from 180 countries, including 60 Heads of State and Government, as well as representatives of governments, UN agencies, intergovernmental organizations, NGOs, the private sector and the media. Delegates met throughout the Summit both for a High-Level Segment and for a series of four roundtables, and addressed: minimizing the negative impact of the food, economic and financial crises on world food security; implementation of the reform of global governance of food security; climate change adaptation and mitigation: challenges



Jozias van Aartsen, Mayor, The Hague

for agriculture and food security; and measures to enhance global food security, including rural development, smallholder farmers and trade considerations.

REPORT OF THE CONFERENCE

The Global Conference on Agriculture, Food Security and Climate Change convened on Sunday 31 October 2010 with an opening ceremony. From 1-5 November, plenary sessions were held, with keynote speakers first setting the scene for the discussions that were then held in working groups throughout the week, culminating in a closing plenary session on Friday afternoon. On Thursday, ministers and vice-ministers gathered in two parallel closed session Ministerial Roundtables.

This report first summarizes the plenary sessions and then the working group sessions. It also highlights the main points of the Chair's Summary.

OPENING CEREMONY

On Sunday, Chair Henk Bleker, Minister for Agriculture and Foreign Trade, the Netherlands, opened the Global Conference on Agriculture, Food Security and Climate Change, saying that one of the central challenges for global society is to achieve food and energy security, while maintaining biodiversity. Noting that agriculture is crucial for sustainable development and food security, in particular in Africa, he called for a shift to more resource-efficient and climate-smart agriculture that creates opportunities and incomes for farmers, and highlighted the need to, *inter alia*: stimulate investment in innovative agriculture; create conducive environments for entrepreneurship; enhance market access for developing countries; and improve access to finance, in particular for micro businesses. He noted the potential of the agriculture sector for mitigating climate change in developing and developed countries and called for a prominent role for the sector at the Sixteenth meeting of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP 16) in Cancún, Mexico at the end of this year.

Four eminent speakers then addressed the audience, highlighting key issues to be discussed during the week. Jozias van Aartsen, Mayor, The Hague, suggested that mitigating climate change is a way of achieving the goal of eradicating hunger and is a necessary prerequisite for preventing conflicts and achieving peaceful development, as food crises are often related to armed conflict.



Local musicians performed at the Conference

HRH Willem-Alexander, Prince of Orange, welcomed all participants in his capacity as the Chairman of the UN Secretary-General's Advisory Board on Water and Sanitation. The Prince underlined the linkages between water issues and food security, agriculture and the MDGs. He noted that the pressure on water resources caused by climate change demands that infrastructures built today be sound, as they will create patterns that bind societies in the years to come. He suggested that wastewater treatment be a priority, and called for intelligent water recovery reuse, as well as global use of accepted safety guidelines.

In a video message, HRH Prince Charles, Prince of Wales, emphasized the importance of resilient agricultural systems and the need for a holistic approach to food production, encompassing the economic, social and environmental dimensions. He gave examples of successes in rebuilding natural capital, such as through environmental restoration in China and payment for environmental services to promote



Andrew Steer, Special Envoy for Climate Change, World Bank

low-carbon development and tackle tropical deforestation. He stressed the importance of economic incentives for sustainable agriculture and the possibility of building synergies between agriculture production, food security, poverty reduction and climate change mitigation objectives.

Andrew Steer, Special Envoy for Climate Change, World Bank, called for increased investment and

financing for agriculture, and underlined the possibility of increasing financing flows to developing countries through carbon finance. He highlighted that forest investment projects are almost ready for inclusion in the carbon market, through reducing emissions from deforestation and forest degradation in developing countries, plus conservation (REDD+). He noted that there is little progress on the inclusion of agriculture and soils in carbon markets, and emphasized the need to ensure that the entire agriculture sector is ready for funding. He further noted that the agriculture sector must be ready for the opportunities that a global deal on climate could provide and stressed that at UNFCCC COP 16 in Cancún, parties need to agree on a work programme on agriculture, food security and climate change.

PLENARY SESSIONS

Keynote speakers first introduced the key themes of the Conference in plenary sessions on Monday morning and afternoon, and on Tuesday and Wednesday mornings, with participants then convening in working groups to discuss these themes. On Tuesday and Wednesday participants also heard reports from the working groups. On Thursday morning, after the keynote presentations by four eminent speakers, Chair Bleker presented the draft Roadmap for further discussion by the participants. On Friday afternoon, during the closing plenary, the Working Groups Co-Chairs shared their closing remarks on the results of the Conference, and the Chair's Summary was presented to the participants. Short reports on the Investment Fair were also presented in the plenary sessions from Tuesday to Thursday.

On Monday morning, Chair Henk Bleker underlined that current food, energy and financial crises require a paradigm shift to include agriculture as a solution. He outlined the outcome of this Conference as a roadmap with concrete actions linking agriculture-related investments, policies and measures to address food security and enable the transition to climate-smart growth.

Five keynote speeches introduced the key issues related to agriculture, food security and climate change. Rhoda Peace Tumusiime, African Union Commissioner for Rural Economy and Agriculture, presented recommendations by the African Conference on Agriculture, Food Security and Climate Change, held from 6-8 September in Addis Ababa, Ethiopia, which include: developed countries and other partners to support piloting and scaling up programmes in climate-smart agriculture and food security; countries to adopt, at UNFCCC COP 16, a decision for a programme of work on agriculture; and the international community to develop mechanisms to simplify access to carbon markets by smallholders and other stakeholders. She urged that these recommendations be considered as part of the roadmap resulting from this Conference.

Kanayo Nwanze, President, International Fund for Agricultural Development, urged participants to recognize that agriculture, food security and climate change are inseparable issues that often must be reconciled within a single family. He suggested that tools and approaches do exist and should be leveraged to launch an evergreen revolution. He shared three steps to support this revolution: engaging and supporting smallholders; scaling up approaches to reduce risks from climate change; and empowering local communities to blend traditional knowledge systems with modern technology, for example through partnerships with the private sector.

Louise Fresco, University of Amsterdam, the Netherlands, expressed concern about the climate change focus in agriculture, noted that short-term climate variability is a more immediate stressor for farmers and said that poor farmers need buffers to increase their resilience to this variability. She suggested that bringing back a sense of entrepreneurship to farming is one of the challenges to increasing agricultural productivity and that closing the agricultural cycles is the best contribution agriculture can make to climate change mitigation and adaptation. Fresco urged that the roadmap should address agriculture intensification, including through modernization of land use and development of new technologies for better food with less environmental impacts.

On Monday afternoon, Robert Watson, University of East Anglia, UK, suggested that improving infrastructure and management of food could eliminate post-harvest loss by



Rhoda Peace Tumusiime, African Union Commissioner for Rural Economy and Agriculture



Chair Henk Bleker, Minister for Agriculture and Foreign Trade, the Netherlands



Dennis Garrity, Director General, World Agroforestry Centre

30-40%. He articulated that agriculture, utilizing current technology and knowledge sharing, could address food scarcity in the face of climate change and that genetic modification is not required, although research should continue to develop seeds resilient to human-induced climate change.

Jeremy Hobbs, Executive Director, Oxfam International, outlined principles for addressing

the food, economic and financial, and climate crises, including: increased investment, particularly public investment, in smallholder farming; increased focus on adaptation for smallholder farmers; development of agro-ecological approaches and endogenous solutions which are based on resources available to farmers; resilience and capacity building to withstand climate change impacts; and recognition of resource constraints as climate change impacts increase.

On Tuesday morning, Working Group 1 Co-Chairs Jamshed Merchant, Canada, and Alejandro Silva, Argentina, reported on the group's outcomes from the previous day, quoting a participant who said “we need to take complex ideas and turn them into straightforward solutions.” They highlighted the importance of, *inter alia*: creating the right institutions, including for finance and markets; applying context specific and affordable technologies; and increasing productivity and optimization of resource use. Working Group 2 Co-Chairs Yemi Akinbami, African Union Commission, and Knut Øistad, Norway, reported on the group's outcomes from the previous day, including: successful country examples; the need to rethink approaches and strategies; and the importance of political support and community involvement.

Michael Jenkins, CEO, Forest Trends, reported that during the Investment Fair on Monday US\$1.5 million was committed by the Rockefeller Foundation for three new projects addressing climate change and agriculture in Africa.

Participants then heard four keynote presentations addressing policies to support climate smart-agriculture. Dennis Garrity, Director General, World Agroforestry Centre, showcased an example of climate-smart agriculture via farming under a full canopy of trees, providing solutions to food scarcity by intensifying agriculture systems and increasing drought resilience. He explained how certain trees, such as the African acacia, support existing production by providing fertilizer and fodder, while sequestering carbon from the atmosphere.

Martin Kropff, Wageningen University and Research Centre, the Netherlands, emphasized the need for more productive and eco-efficient agriculture systems and for a green agriculture revolution in Africa. He described challenges for agriculture as a solution to climate change, including: developing land-specific production systems;

reducing methane emissions from rice production while saving water; fixing carbon with grassland; and building low-emission animal production systems. In addressing adaptation issues, he noted that solutions such as drought-resistant plants already exist and underlined the important role of the breeding industry.

Ralph Ashton, Terrestrial Carbon Group, noted the need to optimize land use to meet multiple demands on land, such as for food and biofuels production, and introduced the Land 2050 Initiative, which he said is being developed to deliver solutions. He outlined actions to help manage land to meet these demands, such as: creating a political space to address the issue of multiple demands on land; working together to create an evidence base to synthesize existing knowledge and fill knowledge gaps; identifying countries to pilot initiatives; and including a Land 2050 Initiative in the roadmap.

Ben Tax, CEO, Rijk Zwaan, emphasized the role of the plant breeding industry for global food security, through the creation of high-yielding and environmentally-adapted food crop varieties. He also noted the risks posed by the patenting of genetic material to the capacity of the plant breeding industry to continue to innovate and competitively develop new varieties.

On Wednesday morning, Working Group 1 Co-Chair Silva reported on Tuesday's discussions and highlighted: pursuing green growth through optimization of resources; building the right institutions; and developing accounting methodologies for comparing technologies and selecting best practices. Working Group 2 Co-Chair Akinbami then reported on Tuesday's outcomes and emphasized: systematic approaches to deal with climate change and address all elements of the ecosystems; the importance of sharing experiences between countries facing similar climate change challenges; and the need for synergy between government policies, research agendas and the agriculture sector to promote climate-smart agriculture.

Michael Jenkins reported that Tuesday's Investment Fair emphasized the need to move from a finance system focusing on fast profitability to one that combines longer term economic returns with shorter term environmental and social returns. He shared a commitment made by the Dutch Government to provide seed funding for the “Food for All” project.



Jeremy Hobbs, Executive Director, Oxfam International



Working Group 2 Co-Chair Yemi Akinbami, African Union Commission



Ben Tax, CEO, Rijk Zwaan, the Netherlands

Participants then heard four keynote presentations addressing financing of climate-smart agriculture. Warren Evans, Director, Environment Department, World Bank, presented the World Bank's climate finance instruments, suggesting that climate finance can help pay upfront costs of innovation and support development of policies and regulatory frameworks. He described the Pilot Programme for Climate Resilience that supports countries in making development planning climate-resilient. Evans showcased the BioCarbon Fund, which provides finance for carbon sequestration projects in countries that lack access to the carbon markets, highlighting restoration of pasturelands and forests. He urged agriculture ministries to participate in the climate debate and demonstrate the benefits of using climate finance.

Charlotte Streck, Director, Climate Focus, discussed the potential in linking agriculture and climate change, underlining that agriculture is the only emitting sector that has the ability to sequester carbon. She urged participants, despite the few synergies that have been realized within the climate change negotiations, to seize opportunities such as the pledge by developed countries during UNFCCC COP 15 in 2009 to provide US\$10 billion in fast-track financing. She encouraged participants not to miss the window of opportunity for new investments and partnerships where the concerns of food security and climate change mitigation and adaptation are met with integrated land planning policies and measures.

Stefan Baecke, Rabobank, described Rabo Food and Agri Real-assets Management (Rabo FARM), which works in partnership with farmers and farming operations to provide agricultural investment, particularly in infrastructure, focusing on Central and Eastern Europe. He outlined enabling factors for increasing investment, including: government effectiveness; regulatory quality; reduced political, economic and legal risks; and appropriate infrastructure. Baecke also highlighted Rabobank's Sustainability and Security of the Global Food Supply Chain report, which highlights the need for a sustainable global food chain.

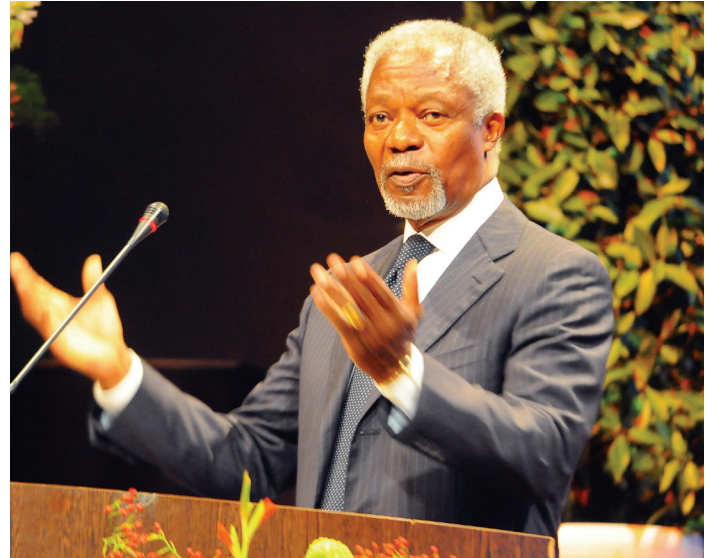
Don McCabe, Canadian Federation of Agriculture, emphasized the role of policies in shaping markets and providing economic incentives to farmers. He underscored the importance of research and extension, risk mitigation policies, and farmers' organizations.

An outline of the draft Roadmap was then circulated to participants and Chair Hans Hoogveen, Director General, Dutch Ministry of Economic Affairs, Agriculture and Innovation, clarified that the roadmap would be in the form of a Chair's summary and not a negotiated text.



Feike Sijbesma, CEO DSM, the Netherlands

On Thursday morning, four eminent keynote speakers addressed the plenary. HRH Princess Máxima of the Netherlands, UN Secretary-General's Special Advocate for Inclusive Finance for Development, emphasized that financial services underline and accelerate rural development, and underscored the importance of financial inclusion. She highlighted



Kofi Annan, Chairman, Alliance for a Green Revolution in Africa

that: small farmers and small and medium enterprises need access to a range of financial services; financial services will only be effective within a broader enabling environment; and initiatives need to be scalable and sustainable.

Kofi Annan, Chairman, Alliance for a Green Revolution in Africa, expressed optimism that Africa, which is hardest hit by climate change and food insecurity, can be part of a global solution to combat climate change, for example by transforming carbon sources to carbon sinks. He shared the work of the Alliance, which focuses on smallholder farmers and provides access to new crops and knowledge, reliable weather information, better land and water management programmes, and investment. He noted access to voluntary carbon markets could provide support that is essential to develop best practices, potentially providing double dividends to farmers.

Jeffrey Sachs, Director, Earth Institute, the United States, by video message, said urgent needs to be addressed are: financial means for impoverished farmers to purchase quality fertilizers and seeds to boost yields; improved local food production to increase quantity, quality and diversity of food; a second green revolution to address environmental problems; a dryland initiative, particularly for Africa, for food security in dry areas; additional multilateral funding streams for adaptation, as current efforts are "mostly a showgame"; REDD+ and other approaches, such as improving fertilizers and farm practices, to realize the mitigation potential of agriculture; better monitoring of agricultural landscapes, including biodiversity, climate change and food production; and a global agriculture research programme, for example by strengthening the Consultative Group on International Agricultural Research system.

Feike Sijbesma, CEO, DSM, said the three main drivers of his company's approach to sustainability are: global urbanization and increased consumption; climate change and energy; and people's health and wellbeing. He stressed the potential of biotechnology, particularly for waste utilization, to support a shift away from fossil fuel use, and the need for stronger private-public partnerships for knowledge and technology sharing.

Following the keynote speeches, the draft Roadmap was presented by Chair Bleker.

Michael Jenkins then reported on Wednesday's Investment Fair, which included discussions on whether large-scale commodity production can be turned from a leading cause of deforestation to a driver of sustainability. He also highlighted

commitments by the World Bank's BioCarbon Fund the Eco-Asset Management.

WORKING GROUPS

Participants convened in two parallel working group sessions throughout the week to discuss issues, challenges, opportunities, policy measures, tools and financing related to climate-smart agriculture and food security, and to provide suggestions on a roadmap for action to be developed. On Thursday, participants discussed a first draft Roadmap and, on Friday, a revised one.

Session 1: Framing the issues, challenges and opportunities in agriculture, food security and climate change and stocktaking of innovations: This session took place on Monday. The aim was to provide an overview of the current practice of climate-smart agriculture. It focused on strategies, challenges and best practices in relation to the contribution of agriculture to food security and its role in addressing climate issues.

In the morning, Working Group 1 heard two presentations on national best practices. Mark Gibbs, Department of Agriculture, Fisheries and Forestry, Australia, noted the expected rise in temperature and reduction in rainfall in the most populated areas of Australia, and the expected decline in agricultural production if no action is taken. He highlighted: policy reforms in support of sustainable farming, agriculture research and extension; the Carbon Farming Initiative to develop national and international markets for soil carbon; monitoring and reduction of methane emissions from the livestock sector; risks of competition for water and land between forestry plantations and agricultural production; and the Global Research Alliance on Agricultural Greenhouse Gases.

Anne Onyango, Ministry of Agriculture, Kenya, presented strategies and programmes for agriculture development and food security, including: a shift to commercial agriculture while maintaining sustainability; investments in water harvesting; provision of technical and financial support to orphans for crop production; market and trade policies; institutions for service delivery; low-cost credit for farmers; strengthened early warning systems; conservation agriculture and soil and water conservation policies; water storage systems; subsidies for access to seeds, animal breeds, fertilizers and agrochemicals; incentives for farmers to allocate 10% of farmland to forestry; and an afforestation and rural infrastructure youth programme.

In the ensuing discussion, the presenters clarified that subsidies programmes in Australia and Kenya have focused on mineral fertilizers but that organic fertilizers will also be targeted. Responding to a question on the risk of increasing nitrous oxide emissions in the Carbon Farming Initiative, Gibbs clarified that the programme targets different soil types and climates in Australia. The African Union Commission emphasized that climate change has direct effects on food production and livelihoods in Africa as 95% of agricultural lands are under rain-fed systems. The Network of Farmers' and Agricultural Producers' Organisations of West Africa noted the need to link agriculture and climate change discussions to World Trade Organization commitments, and to facilitate farmers' access to funding mechanisms. Onyango stressed the need to consider the whole production chain to avoid post-harvest losses for farmers. She described: a control system to ensure sale of quality seeds to farmers; a coordination unit integrating various research institutions; and an extension coordination mechanism linking private sector production



Cecilia Nordin Van Gansberghe, Sweden

and farmers' needs. Regarding trade-offs between agriculture productivity and mitigation, she said the primary focus is on food security. Burundi called for considering farmers as business people and for encouraging peasant farmers to enhance production. Ethiopia emphasized the need to use appropriate technologies particularly at the grassroots level.

In Working Group 2, participants listened to two presentations on national best practices. Sergey Kiselev, Lomonosov Moscow State University, Russian Federation, presented challenges and opportunities in agriculture and forest management in the Russian Federation. He described climate change impacts on his country, highlighting that these are mostly favorable, such as warmer winters, earlier springs and later autumns, enabling increase in agriculture-suitable land and durability of vegetation; but include some unfavorable impacts, such as increased frequency of dangerous weather events and anomalies, decline in water resources and degradation of soil fertility. He gave the example of wheat production and highlighted that despite increased dangerous weather events, the 2010 harvest is expected to be higher than during previous droughts, partly due to the increased share of winter wheat, which is more drought-resistant. He also identified lessons learned, including the need for: joint efforts between federal and local governments, businesses and NGOs; special climate change adaptation programmes; and increased funding for agriculture measures.

Luis Muñozcano, Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, Mexico, shared successful climate change mitigation and adaptation strategies, such as development of an insurance system to respond to increasing varied and uncommon weather phenomena. He explained that this insurance system blends mechanisms that transfer weather risk to insurance companies and provide direct support for areas that are uninsured and affected by extreme weather events. Muñozcano also emphasized the importance of finding ways to support small farmers and lowest-income populations using existing instruments.

In the ensuing discussion, participants commented on: efforts to ensure growth in agricultural livestock in light of serious climate problems; the required level of state investment in the agriculture sector; efforts to improve access by farmers to new technologies and best practices; possible contribution of the agriculture and agro-food sector to food security and climate change solutions; incentives for engaging local communities in agriculture programmes; and mechanisms for integrating water and agriculture policies.

Session 2: Practical and replicable models from the regions: lessons learned from successful current practices:

This session took place on Monday afternoon. Its aim was to highlight best practices on land, water and disaster management providing a background for subsequent discussions on how the agriculture sector is dealing with the challenges of climate change.

In Working Group 1, participants heard three presentations. Idrissa Semde, Ministry of Agriculture, Waterworks and Water Resources, Burkina Faso, presented climate change adaptation efforts in his country, including: restoration of degraded lands through specific planting techniques; water retention schemes and small-scale irrigation that allow cultivation outside normal growing seasons; use of organic fertilizers; production of season-adapted seeds; and an early warning system for pest management. He said that the main principles for implementing adaptation measures are decentralization, participation of local population, and response to sustainable development research. He also noted that an insurance system for agriculture and animal husbandry is being planned.

Carlo Galli, Nestlé, underscored the role of the global food industry in the food security debate noting, *inter alia*, the high dependence of urban populations on global foods and the financial capacity of the industry to invest in productivity and sustainability of the resource supply. He also highlighted water scarcity and water use issues in agriculture, namely: productivity of rain-fed agriculture; more efficient irrigation through new technology; water pricing; and the virtual water trade.

Jerzy Kozyra, State Research Institute, Poland, presented the Rural Development Programme of his country, which contains measures that have had positive adaptation and mitigation effects, including: requirements for proper crop storage and crop rotation; prohibition of burning crop residues and using heavy equipment in wet conditions; and incentives for the maintenance of grasslands.

Responding to questions, Semde said the techniques he presented can be replicated in other countries and regions. Lesotho shared experience with a type of kitchen garden known as a “Keyhole Garden” as a way to cope with droughts. Samoa described a toolbox with 20 best practices for mitigation, suggesting this could be included as a tool in the roadmap. Participants also emphasized other aspects to be reflected in the roadmap, including: alternative finance sources for agriculture; the importance of coherent agriculture and food security policies at the global level; the need to address trade policies; the importance of smallholders and local markets; assistance for farmers to become entrepreneurs; appropriate and affordable technology; investment needs for climate-smart agriculture; holistic approaches to water conservation and rain-fed agriculture; the need to link climate change discussions to sustainable development; collaborative research; and extension to reach farmers. Participants expressed different views on whether the focus in the roadmap should be on adaptation or both mitigation and adaptation.

In Working Group 2, participants heard three presentations. Carlos Pagador, National Water Authority, Peru, described a successful water management system, which: requires users to apply and pay before delivery; engages users with regional and national water authorities; and ensures that distribution is transparent and measurable. He said the system has increased water irrigation efficiency by 40% through monitoring water use and improving the understanding of the characteristics of



Eduardo Alvarado Corrales, Ministry of Environmental, Rural and Marine Affairs, Spain

the canals and irrigation systems, and noted that in the future, it will collect water use data for specific crops.

Eduardo Alvarado Corrales, Ministry of the Environment and Rural and Marine Affairs, Spain, discussed water- and drought-related issues in Spain’s agriculture sector. He explained that Spain has implemented special plans to address droughts, such as a drought status map showing drought spots and occurrences divided into normal, pre-alert, alert and emergency cases, which determines the nature and timing of intervention taken.

Girma Balcha, Ministry of Agriculture and Rural Development, Ethiopia, presented a community-based watershed management initiative for conserving biodiversity, ensuring food security and helping smallholders adapt to climate change. He explained that these practices can be expanded within Ethiopia, but require additional financial and capacity-building support.

In the subsequent discussion, Iran noted the need to coordinate different sectors for effective planning and implementation of watershed management projects and suggested that this issue be included in the roadmap for action. In response, Balcha said his government has established watershed teams comprising disciplines such as livestock, agriculture and home economics. Madagascar outlined efforts to reduce methane emissions from rice production and animal husbandry, using the alternate wet/dry irrigation system. Responding to questions, Alvarado noted that the ability to respond successfully to emergencies lies in the capacity to plan ahead, engage multiple stakeholders and take step-by-step actions to utilize water resources sustainably.

Egypt described efforts to address food security sustainably, through intensification of agriculture and the use of modern irrigation systems. Balcha said this country is addressing the problem of periodic droughts with watershed management, food security and other conservation methods, such as small-scale irrigation. Pagador highlighted the need to not only improve infrastructure but also management, *inter alia* through appropriate economic analysis. The UN



Michael Jenkins, Forest Trends



Louise Fresco, University of Amsterdam, the Netherlands

Food and Agriculture Organization (FAO) underlined the need to manage and increase agricultural productivity.

Session 3: Policy support measures: successes and challenges in adaptation for resilience and mitigation for lower greenhouse gas emissions: This session took place on Tuesday morning. The aim was to discuss policy support measures for agricultural innovation. Presenters focused on sharing successes and challenges in adaptation for resilience as well as mitigation strategies to benefit food security, signaling the importance of developing a supportive policy regime to scale up replicable models of climate-smart agriculture.

In the morning, Working Group 1 heard two presentations of national best practices. Reinaldo Ruiz, University of Talca, Chile, shared his country's Integrated Water Management Strategy, saying it improves efficiency through increased knowledge of water use, coordination among institutions, and financial savings through economies of scale; and achieves higher support of communities and less conflict by engaging all stakeholders. He said the Strategy's objectives are to: build an institutional framework; reduce pressure on water resources from production sectors; strengthen the role of users; include environmental considerations; and improve information exchange.

Erica Maganga, Ministry of Agriculture and Food Security, Malawi, presented practices for climate-smart agriculture to increase productivity, including: development of short-maturing and drought-tolerant maize and rice crops; post-harvest management to reduce crop losses; integrated soil fertility management; water harvesting and integrated watershed management; risk management through macro and micro insurance; and extension to smallholders through "lead farmers."

In the ensuing discussion, participants suggested several considerations to be reflected in the roadmap, including: strengthening training efforts for information sharing between the agriculture, environment and climate change sectors; monitoring agricultural landscapes; giving consideration to community and farmers' rights; developing mechanisms for environmental screening of best practices to support national strategies to address climate change; and mobilizing funds for upscaling successful experiences in developing countries.

Working Group 2 also heard two more presentations on national best practices. Purushottam Mainali, Ministry of Agriculture and Co-operatives, Nepal, presented the policies and programmes adopted in Nepal to engage local and international stakeholders to help promote food security, reverse environmental degradation and eliminate poverty. He outlined programmes on community-managed small irrigation, seed and vegetable production, community-based

dairy production, leasehold forestry and community forestry, and underlined that these show progress toward climate-smart agriculture.

Amadou Souley, National Council on the Environment for Sustainable Development, Niger, presented on integrated food security and climate resilience through the Pilot Programme on Climate Resilience (PPCR). He outlined his country's legal framework for responding to food insecurity and climate change, such as strategies for rural development and poverty reduction, and an action plan for climate variability, as well as the institutional framework, which includes various ministries and national technical commissions. He explained that the PPCR uses a participatory approach and applies a strategy of using knowledge to overcome obstacles. He underlined that Niger has the relevant know-how, particularly at community level, and appealed to partners to help reinforce Niger's PPCR to make the country a "living laboratory" in assessing how to face the food security challenge.



Reinaldo Ruiz, University of Talca, Chile

In the subsequent discussion, participants focused on identifying specific actions that can be included in the roadmap. The Netherlands suggested that livestock-raising operations play a key role in climate change mitigation and achieving food security. Burundi cautioned that biodiversity issues must be considered when measuring the success of community-managed seed projects. France underscored the importance of animal husbandry and pastoralism for temperate areas and highlighted the need for: a favorable institutional framework for agriculture development, such as a market policy to restrain price volatility; measures to ensure wide dissemination of innovations; mechanisms to mobilize local stakeholders; and efforts to integrate climate change into country programmes and policies.

Session 4: Tools and technologies to support climate change mitigation and adaptation measures: This session took place on Tuesday afternoon, focusing on the tools and techniques that support climate change mitigation and adaptation measures.

Working Group 1 heard three more presentations on national best practices. Arsen Proko, Ministry of Environment, Forestry and Water Administration, Albania, presented on his country's national forest reform, which transfers 60% of national forests to local governments to promote



Purushottam Mainali, Ministry of Agriculture & Co-operatives, Nepal

sustainable community forestry and reduce illegal logging and deforestation. He introduced the Albania Forestry Policy and the Natural Resources Development Project, which: create an institutional and legal framework, protected areas, a forest inventory, and communal carbon sequestration projects; strengthen communal forest and natural resource management; and improve watershed governance. He also identified future challenges, including: decentralizing forest administration; enhancing extension services; and organizing natural resources management at the watershed level.

Chang-Gil Kim, Korea Rural Economic Institute, Republic of Korea, presented his country's green growth strategy, that aims to complement environmental conservation and economic growth, and includes a shift to sustainable and low-carbon agriculture that considers the "3Rs": reduce, recycle and reuse. He said important elements of the strategy are: switching from maximum to optimum agricultural production; integrating agricultural and environmental policies; paying for low-carbon agriculture; introducing resource circulation; supporting organic agriculture and food production; disseminating green technologies; developing carbon footprint systems; and introducing green finance, such as preferential interest rates and financial support for clean technologies.

Paramjit Singh Minhas, Indian Council of Agricultural Research, highlighted climate change impacts on Indian agriculture and fisheries, and outlined national initiatives on climate-resilient agriculture focusing on strategic research, technology demonstration and capacity building.

In the subsequent discussion on concrete ideas for tools and technologies to be considered for the roadmap, Thailand stressed the need to clarify whether the roadmap will address the global, national or household level of food security, and suggested taking a broad approach that encompasses access to food, food quality and stability. Iran emphasized participatory watershed management and participatory plant breeding. Spain stressed the integration of policies. The Secretariat of the UN Convention to Combat Desertification (UNCCD) noted similarities between the roadmap and ongoing collaborative work by UN agencies on land issues. Egypt suggested including consideration of "vulnerability" with a focus on the most vulnerable groups, and requested including fish production. Azerbaijan urged to consider adaptation, investment and rational use of resources. Rwanda suggested making policies understandable to farmers and reviewing institutions, as these often do not provide adequate solutions to farmers. Samoa noted the importance of production of energy tree crops and Nigeria appealed for more funds for climate change specific research. Monsanto encouraged considering comprehensive lifecycle assessments that cover water use



Chang-Gil Kim, Korea Rural Economic Institute

and biodiversity aspects in addition to greenhouse gas. Bioversity International underscored the importance of interspecific and intraspecific genetic diversity.

On the roadmap, France said that principles for the roadmap should be agreed on, and suggested for example an integrated approach to food security and recognition of diversity of agriculture. Indonesia said the roadmap should include long-term commitments from governments.

In Working Group 2, three presentations were heard. Riad Balaghi, National Institute for Agricultural Research, Morocco, shared experiences on adapting agriculture to climate change and identified technologies for agriculture and water management. He described the Green Morocco Plan launched by the government to improve sustainable agricultural production, not just for the poorest, but to improve lifestyles in the entire country. Balaghi underlined that technology, backed by research and development, is key to the success of the Plan, and that it has two pillars: addressing high-value exports; and addressing rural poverty in low productivity areas.

Julie Collins, Ministry of Agriculture and Forestry, New Zealand, presented on policy responses to livestock systems and climate change and described the OVERSEER tool as an example of an interactive programme for farmers. She explained that this programme was developed to: promote understanding of the links between farm-based management and key environmental concerns and support farm managers to understand these links; and promote improved productivity and reduced emissions.

Coillard Hamusimbi, National Farmers' Union, Zambia, described conservation agriculture in Zambia as a practical example of climate-smart agriculture. He explained that the first step is usually conservation farming with graduation to conservation agriculture and said it involves, *inter alia*,



Julie Collins, Ministry of Agriculture and Forestry, New Zealand



Paramjit Singh Minhas, Indian Council of Agricultural Research



Knut Øistad, Deputy Director-General, Department of Forestry and Resource Policy, Ministry of Agriculture and Food, Norway

minimum tillage and timely agronomic practices.

Hamusimbi gave the example of the introduction of Apple-ring acacia trees on farms, highlighting that this: improves maize production and productivity; enables farmers to reduce organic fertilizer

use; and contributes to climate change mitigation through environmental conservation.

FAO noted that the introduction of trees in agriculture lands should complement the use of fertilizers rather than replace it. Responding to a question about the cost of the OVERSEER tool, Collins said the model is not too costly, but emphasized that a good database and ongoing research are key to its effectiveness. The World Agroforestry Centre highlighted the significant role of trees in livestock raising, noting that this will be key to poverty alleviation. Burundi and Morocco highlighted the need to discuss mechanisms for transferring and replicating best practice examples.

Participants discussed issues on policies and strategies and identified: promoting sustainable and climate-resilient agriculture that enables food and nutrition security; supporting producers' organizations to disseminate good practices to farmers; ensuring security of land holdings; addressing the economics of agriculture, such as improved income and productivity; providing social protection schemes, such as insurance, to give a safety net to the most vulnerable groups; considering ecosystems and biodiversity; and developing tools for effective management of resources and waste reduction.

On tools and technologies for implementing climate-smart agriculture, participants identified: technologies that help meet the immediate needs of farmers, while addressing climate change effects; insurance schemes; public-private partnerships; a global index facility to promote agriculture risk mitigation; good practice guidelines for climate change adaptation, linking best practices with technologies; education; biodiversity-intensive agriculture systems; the Comprehensive Africa Agriculture Development Programme; tools that provide farmer incentives; improved post-harvest storage mechanisms and increased financing; and tools to make the entire agriculture system climate-resilient.

Session 5: The world of climate-smart agriculture:

This working group session took place on Wednesday morning. The aim was to explore the world of financing climate-smart agriculture by sharing experiences on how to access available funds and lessons learned from the voluntary and compliance market. Participants also made comments on and suggestions for the roadmap.

In Working Group 1, two presentations were made. Knut Øistad, Ministry of Agriculture and Food, Norway, presented on Norway's International Climate and Forest Initiative, highlighting its main objectives as: including REDD+ under

the UNFCCC; coordinating REDD+ initiatives including aligning multilateral efforts; demonstrating how REDD+ can work in practice through partnerships for action; cooperating with civil society organizations to use their knowledge on forests and livelihoods; and improving this knowledge by supporting projects on the ground. He emphasized that REDD+ is an important instrument for the agriculture sector as well. Responding to questions, he said countries can access REDD+ Partnership funds through multilateral donors and that the Partnership is an interim programme until REDD+ is included under the UNFCCC.

Ulziibold Yadamsuren, Index Based Livestock Insurance Project, Mongolia, said the basic principle of this Project is that farmers take care of frequent small loss events, the insurance industry covers less frequent high-loss risks, and governments intervene only in the case of extreme loss events. He offered policy lessons for the roadmap for action, including: making insurance part of national agricultural policies; creating public-private partnerships; using index insurance to overcome adverse selection and moral hazards; leaving choices for farmers through voluntary participation; and building a global infrastructure for climate risk insurance.

Regarding the roadmap, Sudan emphasized early warning systems, regional cooperation, research dissemination and capacity building. The UN Forum on Forests (UNFF) stressed that financing must be leveraged at the landscape level and the UN Environment Programme highlighted the importance of sustainable consumption and production. Sao Tome and Principe requested consideration of the challenges for small island states. Tanzania said the roadmap should be a short, focused document. Ethiopia requested inclusion of the recommendations of the African Conference on Agriculture, Food Security and Climate Change. Belgium said the European Union's (EU) position is to support a decision on



Ulziibold Yadamsuren, Project Director, Index Based Livestock Insurance Project, Mongolia

agriculture at UNFCCC COP 16, and that, for food security and climate change, an integrated approach is needed which, in addition to agriculture, should include nutrition, health, employment and research, among others. France suggested a number of points presented in his country's position paper, including: policy inter-linkages; mainstreaming climate change; and boosting research and diversification of finance sources.

In Working Group 2 two presentations were also made. A.G. Kawamura, California Department of Food and Agriculture, United States, described California's Agricultural Vision, which is being developed to enhance and improve food supply predictability. He highlighted the importance of infrastructure, including for harvest processing, storage and transportation, marketing, and for dealing with invasive species and diseases. Noting that there are many feeding programmes in California, such as school lunches, food stamps and prisoner feeding, Kawamura noted the potential of aligning the agriculture system with such feeding programmes.



Michael Lesnick, Senior Partner,
Meridian Institute

Wangu Mutua, Swedish Cooperative Centre-Vi Agroforestry, Kenya, presented the Kenya Agriculture Carbon Project. She explained that the project produces carbon credits and provides immediate benefits to farmers, such as: increased productivity; livelihoods and food security; and protection from drought. She elaborated

that key to the programme is improving the livelihoods of the farmers, such that the carbon credits are a bonus rather than the focus of the programme. In the subsequent discussion, participants commented on how to leverage positive results from small-scale projects into lessons and mechanisms for wider dissemination in large-scale projects. Responding to comments, Mutua said the ultimate objective of the agricultural carbon finance project is that communities will eventually be in charge of running it. She also noted that to evaluate the outcome of the project, the increase in productivity is used to estimate the amount of carbon sequestered, underlining that the basis for this is that as carbon in soil increases, so does soil productivity.

Session 6: Innovative ways of financing climate smart agriculture: This session took place on Wednesday afternoon. Its focus was on mobilizing investment from all sources for a transformational change towards climate-smart agriculture. Participants also made suggestions for the roadmap.

In Working Group 1, three presenters shared experiences from the private sector and civil society organizations. Bernard Giraud, Danone, presented his company's carbon emission reduction and offset objectives and highlighted the OCEANIUM mangrove restoration project in Senegal, which generates carbon credits and benefits local communities through tree planting. He also introduced the Livelihoods Funds, which will start at the end of 2010 for a period of 10 years.

Michael Lesnick, Meridian Institute, highlighted some topics from the Option Assessment & Dialogue: Climate Change & Agriculture report, that the Institute will publish in 2011, including: ways to handle adaptation and mitigation relationships in the agriculture sector; appropriate measurements for adaptation; dissemination of lessons learned and successful practices in agriculture; and trade as an underlying issue for agriculture.



Erica Maganga, Ministry of Agriculture and Food Security, Malawi

Juergen Voegelé, Director, Agriculture and Rural Development Department, World Bank, presented a film on ecosystem restoration projects and stressed that these projects were possible because farmers received long-term land use rights on restored lands.

Participants then addressed the roadmap. Peru underlined the importance of ecosystem restoration for improved water distribution and of investments in irrigation infrastructure. Rwanda described soil protection programmes with water harvesting and hillside irrigation, and said capacity building at the local level and linking production to markets are key. The United States emphasized the role of companies in innovative financing. Egypt underlined the importance of scaling up successful programmes and of guaranteeing people's ownership of the process. UNFF said this conference should embrace the landscape restoration concept. Bolivia said the roadmap should highlight the obligations of developed countries under the UNFCCC. Nigeria stressed the need for global governance in climate change and agriculture. Nicaragua read a common statement with Bolivia, Ecuador, Cuba and Venezuela on the roadmap, emphasizing the need to build on existing agreements under the UNFCCC. Algeria highlighted the need to work at large scale. XMINY Solidariteitsfonds, the Netherlands, said emission reductions could be achieved by relying on local and seasonal food, and by halting land clearing for biofuel production.

In Working Group 2, three presentations were heard. Arne Cartridge, Yara International, described initiatives on climate-compatible agricultural growth, and outlined some internal carbon reduction measures, technologies and tools, such as: improved fertilizers that increase mitigation potential and biomass production; and a low-carbon guarantee for fertilizers available to farmers and companies seeking to reduce their carbon footprint.

Nic Opperman, Agri SA, South Africa, described the promotion of conservation agriculture in South Africa, through programmes and policies such as: the No-Till Club in KwaZulu-Natal; farmer participatory approaches implemented by the Agricultural Research Council; the Conservation Agriculture Academy; provincial initiatives such as demonstration plots and local task forces; and the Black Economic Empowerment in Agriculture programme. He identified lessons learned, including the need for: a central point for information storage; promotion of conservation agriculture; enthusiasm among conservation agriculture practitioners; and multi-stakeholder platforms and networks.

Michael Kairimba, Kilimo Trust, Uganda, identified the "missing middle" as smallholder farmers and agribusiness processors, who cannot access microfinance and also do not have sufficient collateral to access macrofinance. He said loan guarantees, grants, and investment capital are mechanisms to build economies of scale within the East African region. Kairimba explained that the Kilimo Trust aims, in cooperation with NGOs, to: increase access to capital for producers and processors; support scaling up of innovative financial mechanisms; broker inclusive financial markets; and support public and private sector collaboration.



Ralph Ashton, Terrestrial
Carbon Group

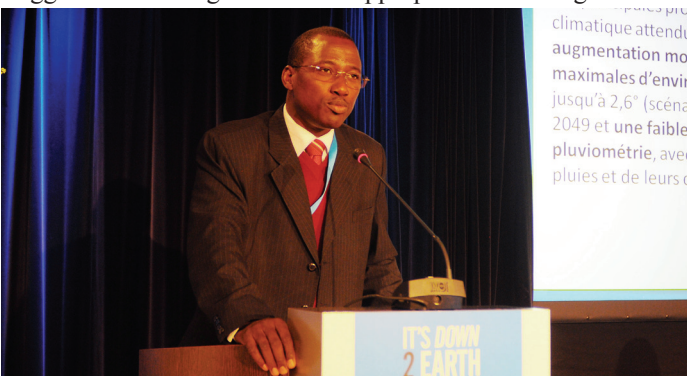
In the subsequent discussion, the UN Standing Committee on Nutrition (UNSCN) said nutrition security, together with mechanisms for mainstreaming nutrition and health in climate change mitigation and adaptation plans, should be considered in the roadmap and the corresponding financial mechanisms. Mauritania noted the inherent risk in agriculture, particularly considering the negative impacts of climate change and that many farmers are subsistence farmers. He questioned the willingness of banks to give loans to farmers and the ability of farmers to pay the interest on the loans, and underlined the importance of public finance. In response, Kairimba acknowledged that debt financing will not be suitable for all farmers and stressed that there are other options such as grants and equity investment but that debt financing is appropriate for large-scale operations.

The Netherlands Development Organization underlined the importance of creating ways for the private and finance sectors to support increased productivity, income and purchasing power of small-scale farmers. The Eastern African Farmers Federation reflected on the need for banks and financial institutions to focus more on domestic and regional markets and food security, rather than targeting production for the export market. The Institute for Agriculture and Trade Policy highlighted the importance of addressing the issue of speculation in carbon markets and its impact on agriculture commodities.

Draft Roadmap for Action: Participants discussed the first draft Roadmap for Action in working group sessions on Thursday and a revised draft Roadmap on Friday morning.

On Thursday morning, Working Group Co-Chair Akinbamijo asked participants to discuss the draft Roadmap, noting that the objective is to obtain consensus and achieve ownership by all conference participants. The United States noted that the tone of the document and the Co-Chair's remarks are inconsistent with his delegation's understanding of the status of the document, saying it is not a negotiated document but a chair's summary, and that it will be very difficult to achieve consensus. Joined by Indonesia and Morocco, he expressed concerns on the status of the document's annex entitled "The Hague Action Plan." The United States also called for greater emphasis on the responsibility of governments for policies, technologies and finance and for a stronger role for the private sector. Indonesia welcomed the emphasis on integrating agriculture and climate change, and urged that technologies for climate-smart agriculture be content-specific and affordable to smallholder farmers.

Iran said the document should create a background for the participation of all stakeholders globally, and suggested including: transfer of appropriate technologies to



Amadou Souley, National Council on the Environment for Sustainable Development, Niger

developing countries; improved market access; consideration of vulnerable groups; and fair distribution of financial resources. The International Union for Conservation of Nature (IUCN) suggested adding specific reference to sustainable ecosystem management, and said more recognition of women's role in agriculture and food security and their empowerment is needed. Sweden suggested refocusing the document to give due importance to food security in addition to climate-smart agriculture and echoed the need for women's empowerment.

Living Lands stressed that there is no one-size-fits-all solution and said emphasis should be on successful national initiatives that require further financial support, and highlighted the importance of local collaboration to overcome knowledge, policy and other institutional constraints. The Common Fund for Commodities called for highlighting the need to help farmers develop entrepreneurial skills, increase their productivity and assess markets. Egypt proposed reference to adverse trade policies and their negative impacts on agriculture and food security, particularly for developing countries. He also said the goal of the Roadmap should be more "human-centered" and called for greater emphasis on mitigating negative impacts on the most vulnerable groups than on achieving low-carbon emissions growth. The Technical Centre for Agriculture and Rural Cooperation suggested reference to the need to engage media to raise public awareness and involve the public in efforts to achieve sustainable agriculture and food security. India suggested including reference to identifying the most vulnerable areas in different countries and developing contingency plans for extension.

Morocco lamented that not all countries are accurately reflected, suggesting: assessment of country vulnerability; development of a logical order of actions; identification of water as a scarce resource; expansion of genetic resources to address climate change risks; dissemination of risk management tools to farmers; and increased agriculture research. The Philippines highlighted efforts in other processes such as the Commission on Sustainable Development. The UNSCN called for a comprehensive definition of food security that encompasses food access and nutrition security, and for coherence of global processes with the Committee's policies.

Discussions in the afternoon continued with the Netherlands calling for: attention to biodiversity and ecosystem conservation, and restoration of degraded lands; improving the socio-economic situation of farmers in developing countries; more sustainable production of biomass; closed nutrition cycles; and, supported by New Zealand and Biodiversity International, a greater role for research and extension services in the sustainable development of agriculture. New Zealand said more emphasis should be given to the role of governments in setting incentives.



Jan McAlpine, Director, UN Forum on Forests Secretariat

France suggested mentioning: favorable institutional frameworks for agricultural development and investment; market policies as part of enabling policies; family-holding agriculture; and the Kyoto Protocol and the Clean



Harald Jahn, European Investment Bank

Development Mechanism as part of the enabling environment for investment. Burundi, supported by Sudan and Belgium, said the Roadmap should give specific consideration to the problems of post-conflict countries. He suggested adding a calendar to the Roadmap, to measure commitments and progress of implementation. The United Kingdom said: the draft captures the main issues discussed; the inconsistencies with the stated

objective of being a Chair's summary should be easily resolved; and the purpose of the annex should be clarified. He suggested expanding on the role of different actors, particularly farmers. Monsanto suggested: defining sustainable agriculture based on a life-cycle analysis; and that carbon gains through yield increases achieved by farmers in a sustainable way be considered as carbon credits.

Chair Hoogeveen noted concerns about the nature of the Roadmap and use of the word "we" in the document. He clarified that the Roadmap is not a negotiated document to which people will be asked to commit, that the Secretariat will revise the document based on participants' suggestions, and will, for example, replace the word "we" with "the Conference" or some similar word.

The Avalon Foundation said the Roadmap should include reference to the need to adhere to agro-ecological principles, as well as awareness-raising among consumers about a "multi-value shopping bag" containing, *inter alia*, climate-smart agriculture, food security and biodiversity protection. The African Union Commission requested: referring to the need for additional and predictable finance; giving prominence to the needs of Africa; and including the Convention on Biological Diversity (CBD) and the UNCCD among the processes listed in the Roadmap.

The EU suggested: defining climate-smart agriculture; clarifying that agriculture intensification be sustainable; and extending research to include livestock management. Sudan echoed Burundi in lamenting that although the Roadmap objectives are clear, there is a lack of deadlines and clarity regarding who will pay for what. Belgium requested that the

Roadmap: stress women's contribution; support national-level initiatives; and increase access to land to include water and other natural resources.

Biodiversity International re-emphasized the need for financial support for management, use and conservation of agricultural biodiversity as insurance against climate change, referencing the framework of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). He also suggested that although many mechanisms are known to contribute to climate-smart agriculture, a lot remains unknown, therefore requiring support for additional research.

The Institute for Agriculture and Trade Policy, on behalf of a group of civil society organizations, rejected the Roadmap, emphasizing, *inter alia*, that adaptation, and not mitigation, should be the main topic of the Conference, and that small farmers should not be made responsible for reducing emissions.

The European Investment Bank highlighted the importance of savings, suggested that finance should be scaled up for both public and private research, and said domestic and international finance be considered for agriculture. The World Society for the Protection of Animals (WSPA) stressed consideration of human and animal health in addition to plant health, and underscored the need for sustainable consumption and not just production. The College of the Atlantic suggested that farmer organizations are important for information and research extension, not just for finance, and that attention should be given to the diversity of multilateral finance mechanisms at the intersection of agriculture and climate change.

On Friday morning, Chair Hoogeveen said that the Roadmap is intended to be a living document that will include an information mechanism to support input from key stakeholders.

Indonesia suggested including reference to the ITPGRFA, the main forum on genetic sources. CABI suggested adding that knowledge and measures to control pests and diseases as consequences of climate change exist but need to be consolidated.

The UNSCN called for making reference to nutrition and nutrition security. The African Union Commission urged: referring to wastewater instead of "water that is wasted"; addressing more explicitly the provision of finance, in particular for Africa; and adding that the Roadmap should support and contribute to the CBD and the UNCCD in addition to the Committee on World Food Security, the UNFCCC and the Rio+20 process. Guyana suggested reference be made to resilience building and low-carbon growth, and asked for clarification on how the new and additional finance linked to the Copenhagen fast-track finance would be treated in the Roadmap.

The Netherlands re-iterated including: biodiversity and ecosystem conservation and services; land use planning; restoration of degraded lands; and sustainability of consumption and production of food, feed, fiber and energy. France requested inclusion of text on the sustainability of agriculture markets. He also suggested specifying that the Annex is a list of relevant experiences and case studies.



David Gustafson, Monsanto Company, United States



Arsen Proko, Ministry of Environment, Forestry and Water Administration, Albania

Morocco said the Roadmap should recognize that climate change impacts on countries will differ and therefore solutions will differ among countries.

Ecoagriculture Partners said the issues of landscape-based approaches and agro-forestry should be addressed separately in the text and encouraged collaborative research partnerships between agriculture, forests and water management. Iran stressed the need to prioritize adoption and transfer of appropriate technologies to arid and semi-arid zones. Azerbaijan suggested adding reference to international, regional and national registers of pests and diseases including control measures. People of the Earth requested reflecting the role of private sector and industry in making transparent supply chains. IUCN reiterated the need to stress the role of women. Sri Lanka suggested increased emphasis on market operations. Madagascar signaled issues relating to sea current changes that should be identified in the section on livestock and fisheries.

The United Kingdom encouraged completing the Annex, for example by adding weblinks to clarify if a specific project is fixed or if additional participation is invited. The College of the Atlantic called for stronger focus on the threats rather than the challenges posed by climate change to agriculture. WSPA called for reference to animal welfare. Belgium highlighted the role of women, the need for differentiated approaches according to country situations, and the importance of national policies.

CHAIR'S SUMMARY

The outcome of the Conference is presented in the Chair's Summary, organized under seven headings: Introduction; Understanding the Challenges; Understanding of the Solutions; Urgent Need for Action; A Roadmap for Action; Forging Partnerships for Climate-Smart Agriculture; and The Way Forward. A list of agriculture and climate change-related activities, and partners involved in them, is included as an Annex.

The Chair's Summary states that the Conference has: showcased issues and shared knowledge on replicable good practices in climate resilient, low-emissions agriculture, livestock, fisheries, forestry and watershed management; demonstrated the potential for scaling up in a sustainable manner; and used innovative approaches to bring together private and public sector finance for investments in climate-smart agricultural systems.

It further states that the Roadmap for Action has: started to identify and initiate concrete ongoing and new actions linking agriculture-related investments, policies and measures to the transition to low-emission, climate resilient growth and human development; and helped in a non-exhaustive way to develop a path forward to climate-smart agriculture.

In the Roadmap for Action, the Chair's Summary identifies approaches and actions needed in the areas of policies and strategies, and of tools and technologies for climate-smart agriculture.

On *Policies and strategies for climate-smart agriculture*, the Roadmap identifies:

- coordination, synergy and integration between sectoral development plans, coherence of global processes, enabling policies; and
- the role of the private sector.

On *Tools and technologies for climate-smart agriculture*, the Roadmap identifies:

- sustainable agricultural intensification;
- landscape based approaches and agroforestry;
- agriculture and forests;
- water conservation and harvesting;
- pest and disease control;
- soil and nutrient management;
- crops;
- livestock and fisheries;
- genetic resources;
- harvesting, processing and supply chains;
- input and waste management;
- risk management;
- research, education and extension services;
- engaging the public, media and facilitating multi-stakeholder dialogue;
- knowledge sharing, improved access to information and technology transfer; and
- scaling up of replicable models.

The Chair's Summary further states that regarding financing for transformational change, a holistic, diversified and inclusive approach is needed combining public, private, development and climate finance. Regarding public finance, it states that: scaling up the level of investment in agriculture and rural development, as well as the quality of expenditure, are important; and that the focus should be on investing in the policies, tools and technologies outlined in the Roadmap. Regarding private investment, it highlights the importance of: enabling environments for responsible private sector



L-R: Hans Hoogeveen, Director General, Dutch Ministry of Economic Affairs, Agriculture and Innovation; Warren Evans, Director, Environment Department, World Bank; Charlotte Streck, Director, Climate Focus; Stefan Baecke, Rabobank; and Don McCabe, Ontario Federation of Agriculture.

investment, both small-scale and large-scale, including partnerships with philanthropic organizations and foundations; learning from the range of pilot climate funds currently under implementation; and participating in programme design.

For the Way Forward, the Chair's Summary affirms that: Ministers, gathered in the Ministerial Roundtable sessions,



Ignacio Rivera Rodriguez, Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, Mexico

highlighted the success of the Conference and recognized that for the first time, the linkages between agriculture, food security and climate change were explored and understood; the Roadmap underlines the need for action now and in the future, and the strong hope to mobilize more actions and partnerships building on this

momentum; and the Roadmap should be further developed and implemented, individually and collectively within a broad partnership between countries and stakeholders.

CLOSING PLENARY

Working Group 1 Co-Chair Merchant said the Conference created a common understanding about the reality of the issues of agriculture, food security and climate change, and stressed that the next step was for participants to ensure that they continue reflecting on the discussions, consider how they can address the problems and take immediate action. Working Group 1 Co-Chair Silva noted that the Conference had produced a Roadmap for Action that is dynamic and flexible. He said the message he has received from the Conference is that countries and other stakeholders are willing to collaborate to address the problems, and that agriculture is the solution to achieve food security, reduce poverty and keep the environment safe for future generations.

Working Group 2 Co-Chair Akinbamijo shared his hope that the momentum built through the intense exchange of ideas will be sustained, as participants use the Roadmap as a living document to coordinate their efforts to address the challenge of developing strategies for agriculture, food security and climate change. He commended participants for taking on these challenges, especially on behalf of the world's most vulnerable communities, sharing an African proverb: "If the house is leaking, look out for the one sleeping on the wet ground."

Ignacio Rivera Rodriguez, Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, Mexico, suggested that climate change is an opportunity to change the way societies produce, consume and develop, emphasizing that actions by governments must be accompanied by strong actions by all levels of society. He described climate change efforts in his country, including: for mitigation, conversion to conservation crops and an investment programme in biodigestors; and for adaptation, a national center for genetic resources and a programme to protect low-income producers against extreme weather events.

Chair Bleker, in his closing remarks, underlined that the Roadmap for Action is a living document that must be supported by action at the national level and emphasized the key messages from the keynote presentations are that: an integrated approach is the key; failure is not an option; agriculture is central for achieving the "triple-win"; climate change in Africa can be tackled only through investment in agriculture; there is a need for a sense of entrepreneurship in farming; finance is not the end but the beginning; and Africa can be part of the solution to climate change. He said the ministerial roundtables have produced a sign of optimism that agriculture, food security and climate change challenges can be explored in an integrated way, and announced that in 2012, a follow-up conference will be hosted by Viet Nam.

He closed the Conference at 16.25.

UPCOMING MEETINGS

11th Asian Maize Conference: The 11th Asian Maize Conference will address climate change effects and meeting maize demand for Asia. **dates:** 7-11 November 2010 **location:** Guangxi, P.R. China **contact:** P/H. Zaidi **e-mail:** phzaidi@cgiar.org **www:** <http://www.cimmyt.org/en/component/content/article/426-conferences/762-the-11th-asian-maize-conference>

Third International Conference on Drylands, Deserts and Desertification: The meeting is co-sponsored by numerous organizations including the UN Educational, Scientific and Cultural Organization (UNESCO). **dates:** 8-11 November 2010 **location:** Sede Boqer Campus, Israel **contact:** Dorit Korine **phone:** 972 8 659 6781 **fax:** 972 8 659 6722 **e-mail:** desertification@bgu.ac.il **www:** <http://www.entersymposium.com/ddd/site/>

First World Conference on Terraced Landscapes: This conference aims to bring together international scholars and indigenous peoples with a common goal of promoting better understanding of terraced landscapes worldwide. **dates:** 11-15 November 2010 **location:** Mengzi (Yunnan), China **contact:** Song Yu **phone:** +1 347 960 8381 **e-mail:** wtf520@sina.com **www:** <http://www.1stwtfc-honghe.net/English/About/About.html>

Sixteenth session of the Conference of the Parties to the UNFCCC (UNFCCC COP 16) and Sixth Meeting of the Parties to the Kyoto Protocol COP/MOP 6: These meetings will be held in Cancún, Mexico and the 33rd meetings of the Subsidiary Body for Implementation (SBI) and Subsidiary Body for Scientific and Technological Advice (SBSTA) will also convene at this time. **dates:** 29 November - 10 December 2010 **location:** Cancún, Mexico **contact:** UNFCCC Secretariat **phone:** +49 228 815 1000 **fax:** +49 228 815 1999 **email:** secretariat@unfccc.int **www:** http://unfccc.int/meetings/unfccc_calendar/items/2655.php

Agriculture and Rural Development Day 2010 (ARDD): This event will be held alongside UNFCCC COP 16 and will be organized by a number of organizations, including the Consultative Group on International Agricultural Research (CGIAR). **date:** 4 December 2010 **location:** Cancún, Mexico **contact:** ARDD Secretariat **e-mail:** info@agricultureday.org **www:** <http://www.agricultureday.org>

World Climate Summit: The UN Global Compact and the UN Environment Programme Finance Initiative (UNEP FI) will convene business, finance and government leaders to discuss how to accelerate and collaborate on economic solutions to climate change. **dates:** 4-5 December 2010

location: Cancún, Mexico **contact:** World Climate Ltd. **phone:** +45 33 88 5150 **e-mail:** jens@wclimate.com **www:** http://www.wclimate.com/World_Climate_Summit/HOME.html

Forest Day 4: This event will be held alongside UNFCCC COP 16 and will be organized by a number of organizations, including the Center for International Forestry Research (CIFOR), a member of CGIAR. **dates:** 5 December 2010

location: Cancún, Mexico **www:** <http://www.cifor.cgiar.org/Events/ForestDay4/>

Joint UN Food and Agriculture Organization (FAO)/UN Development Programme/UNEP Meeting on “Regions and Biodiversity in a Context of Climate Change”: **dates:** 14-16 December 2010 **location:** Brest (Bretagne), France **contact:** FAO **e-mail:** Climate-change@fao.org **www:** <http://www.fao.org/climatechange/49362/en/>

First Intersessional Meeting for UNCSA: As called for at the first PrepCom of the UN Conference on Sustainable Development (UNCSA, also called Rio+20), the first of three intersessional meetings will be 10-11 January 2011. **dates:** 10-11 January 2011 **location:** New York, United States **www:** <http://www.uncsa2012.org/>

Ninth session of the UN Forum on Forests (UNFF9): The theme for UNFF 9 is ‘Forests for people, livelihoods and poverty eradication’ and the Forum is expected to complete discussions on approaches for implementing sustainable forest management. **dates:** 24 January - 4 February 2011 **location:** New York, United States **contact:** UNFF Secretariat **phone:** +1 212 963 3401 **fax:** +1 917 367 3186 **e-mail:** unff@un.org **www:** <http://www.un.org/esa/forests/>

International symposium on ecosystem and landscape-level approaches to sustainability: This event aims at advancing the understanding and application of ecosystem and landscape-level approaches to sustainable land use and management. **dates:** 22-26 March 2011 **location:** Burgos, Spain **phone:** +34 983 304 181 **fax:** +34 983 308 671 **e-mail:** info@globalforum2011.net **www:** <http://www.globalforum2011.net>

International Conference on Climate Change, Agri-food, Fisheries and Ecosystems – Reinventing Research, Innovation, and Policy Agendas for Environmentally-and Socially-Balanced Growth: This event aims at advancing the

understanding and application of ecosystem and landscape-level approaches to sustainable land use and management.

Dates: 19-21 May 2011 **location:** Agadir, Morocco **www:** <http://www.ecoagriculture.org/events.php?id=154>

Thirteenth session of the Commission on Genetic Resources for Food and Agriculture (CGRFA 13): CGRFA 13 includes a Special Event on Climate Change. **dates:** 16-22 July 2011 **location:** Rome, Italy **www:** <http://www.fao.org/nr/cgrfa/cgrfa-home/en/>

Tenth session of the Conference of the Parties to the UN Convention to Combat Desertification (UNCCD COP 10): This meeting is expected to convene from 10-21 October 2011 in Changwon City, Gyeongnam Province, Republic of Korea. **dates:** 10-21 October 2011 **location:** Korea, Republic of **contact:** UNCCD Secretariat **phone:** 49 228 815 2800 **fax:** 49 228 815 2898 **e-mail:** secretariat@unccd.int **www:** <http://www.unccd.int/>

GLOSSARY

CBD	Convention on Biological Diversity
CSD	Commission on Sustainable Development
HLTF	High-level Task Force
FAO	Food and Agriculture Organization of the United Nations
ITPGRFA	International Treaty for Plant Genetic Resources for Food and Agriculture
IUCN	The International Union for Conservation of Nature
MDGs	Millennium Development Goals
NGO	non-governmental organization
PPCR	Pilot Programme on Climate Resilience
REDD+	reducing emissions from deforestation and forest degradation in developing countries, plus conservation
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNSCN	United Nations Standing Committee on Nutrition
WSPA	The World Society for the Protection of Animals



Participants listening to Kofi Annan's speech