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3-5 December
Johannesburg | South Africa
The 3rd Global Conference
ON AGRICULTURE, FOOD AND NUTRITION SECURITY AND CLIMATE CHANGE



Co-Chairs Summary

I. Introduction

The 3rd Global Conference on Agriculture, Food Security and Climate Change was held on 3-5 December 2013 at Emperors Palace, Johannesburg, South Africa. The Conference brought together government representatives, practitioners, scientists, representatives from civil society and the private sector who focused on action for climate-smart agriculture to build resilience to climate change, through science, finance and policy interventions, during the 3rd Global Conference on Agriculture, Food and Nutrition Security and Climate Change from 3 to 5 December 2013 in Johannesburg, South Africa. The Conference was organized by the governments of the Republic of South Africa, the Netherlands, in collaboration with other partners, including FAO and the World Bank. The 3rd Global Conference in South Africa provided the platform for government representatives; practitioners; scientists; farmers; organized agriculture; civil society; the private sector; and NGOs to discuss and share experiences on best practices and successes, to deliberate the challenges and threats to food and nutrition security under the impact of climate change, and to identify options for interventions. The Conference was attended by 300 participants from 46 countries.

II. Background

The first Global Conference on Agriculture, Food Security, and Climate Change was held in The Hague, the Netherlands from 31st October to 5th November 2010. The Conference, organized by the government of the Netherlands in close cooperation with the governments of Ethiopia, Mexico, New Zealand, Norway, and Viet Nam, together with FAO and the World Bank, was the first global conference of its kind to bring together the agendas of agriculture, food security and climate change. Participants hailed from 80 countries including 60 government ministers, as well as representatives of international and regional organizations, civil society, the private sector, farmer's organizations and the scientific community. The meeting at The Hague, the Netherlands, was informed by a preparatory meeting focusing on Africa that was organized by the African Union Commission and the government of Ethiopia in September 2010. The Conference sought to mobilize action for achieving climate-smart agriculture



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as a means to enhance sustainable productivity and incomes, resilience to climate change and carbon sequestration. The Conference produced a Roadmap for Action on Agriculture, Food Security and Climate Change. The Conference emphasized the need for scaled-up action and called upon partners to implement and further develop the roadmap, individually and collectively within a broad informal set of partnerships between all stakeholders. <http://afconference.com/the-first-conference/135-final-roadmap-for-action>

In September 2012, *the second Global Conference on Agriculture, Food Security and Climate Change* was held in Viet Nam, where agriculture ministers called for utilization of climate-smart agricultural practices to sustainably increase agricultural productivity and build resilience to environmental pressures while simultaneously assisting farmers to adapt to climate change, while reducing greenhouse gas (GHG) emissions. The objectives of the conference were to share leadership perspectives, explore challenges, and grasp new opportunities for climate-smart agriculture. Discussions focused on learning from country strategies, financing climate-smart agriculture, and agriculture within the UN climate negotiations. The Conference took stock of developments over the previous years, including proposals for implementation. It set new and more concrete priorities for action while demonstrating early action on climate-smart agriculture as a driver for green growth. The Conference identified what needs to happen for agriculture, forestry, fisheries, related land use, and water management to deliver on increased productivity, reduced GHG emissions, increased carbon sequestration, environmental sustainability, better livelihoods and food security. It also showcased issues and shared knowledge on replicable good practices in climate resilient, low-emissions agriculture, livestock, fisheries, forestry and watershed management and demonstrated the potential for scaling up in a sustainable manner. More information can be found at: http://www.afconference.com/images/3_7Sep/Docs/co-chairs_summary_report_final.pdf

The 3rd Global Conference in South-Africa, 'Grow Smart Together Today', built on the outcomes of several related conferences and events which have taken place since the first conference in The Hague. <http://afconference.agric.za>



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The agenda was built around the following key program areas:

1. Challenges to food and nutrition security in the face of climate change;
2. Realities: best practices for improving food production in the era of climate change, focusing specifically on: a) livestock production; b) crop production; c) natural resources management; and d) innovative economic and trade systems;
3. Interventions: Understanding the necessities of science, finance and policy to facilitate action in building resilience to climate change: with a specific focus on: a) generating evidence for interventions; b) financing climate change interventions; c) policy in directing and supporting interventions;
4. Addressing the constraints to agricultural productivity and food security in the era of climate change.

Objectives

The key objectives of the 3rd Global Conference on Agriculture, Food Security and Climate Change were to:

- Share knowledge, information and good practices among public, private and civil society stakeholders;
- Promote the mainstreaming and up-scaling of climate-smart agriculture within the broader development goals;
- Facilitate the implementation of concrete actions linking agriculture-related investments, policies, and measures with the transition to climate-smart agriculture;
- Build global partnerships for resilience of agriculture, forestry and fisheries to climate change;
- Promote the application of scientific solutions, information and policies conducive for increased and sustainable agricultural production yields, productivity and sustainable development;
- Explore and share knowledge and responses of agriculture to climate change with emphasis on climate-smart agriculture; low carbon emission farming practices; conservation and new technological approaches conducive to productivity, adaptation and mitigation; and



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- Promote the establishment of an Alliance on CSA.

III. Key messages

The main messages emanating from the Conference are summarized below.

Participants acknowledged the challenges and exchanged best practices to address the challenges to food and nutrition security in the face of climate change, looking to realities and possible interventions in livestock production; crop production; natural resources management including forestry & fisheries and innovative economic and trade systems. Below are summaries of outputs from the plenary sessions and subsequent break away sessions. Participants deliberated on the necessities of science, finance and policy to facilitate action in building resilience to climate change. The conference discussions included generating evidence for interventions, financing climate change interventions and the need for policy, and creating an enabling environment, in directing and supporting interventions and the constraints to agricultural productivity and food security in the era of climate change.

1. Challenges to food and nutrition security in the face of climate change

It is foreseen that the developing world will need to be the area of focus for increasing agricultural yields and productivity. It is understood that without appropriate intervention, global agricultural production yields will not meet population demands by 2050. To address the challenges ahead, the aim should be at:

- Greater involvement of women and youth with a special emphasis on educating, empowerment, family planning impacting on population growth;
- Transformation of information into knowledge, which can only take place by catering for all stakeholders, especially farmers and those that work the land;
- Exploration of innovative approaches, such as integration of indigenous/traditional knowledge, experience and expertise with science and technology;
- Building on existing approaches to sustainable agricultural production;
- Adopting systems approaches on a much greater scale, based on agroecological zones;
- Promoting an integrated climate smart approach, to encourage greater financial support and funding;



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- Increasing food production and nutritious food through sustainable management of the agricultural natural resources including soil, land cover and water;
- Combating soil degradation and denudation and promoting increased plant cover and grazing potential, to achieve more sustainable production;
- Optimizing inputs, increasing efficiency and reducing waste;
- Building resilience and disaster risk reduction;
- Mainstreaming “climate smartness” in agricultural development.

2. Realities: Best practices for improving food production in the era of climate change

Four parallel break away groups shared knowledge, information and good practices among public, private and civil society stakeholders. Across the four parallel groups participants spoke to involvement of all stakeholders and actors, and partnerships on CSA.

Involvement of the private sector, civil society, research institutions, governments and NGO's will be essential to feed 9 billion people by 2050. There is broad willingness to cooperate and to work together for the common good, but in order for this to succeed, balanced involvement of all relevant stakeholder groups, and a shared and focused vision are essential, therefore:

- Efforts of multiple stakeholders need to be coordinated across disciplines and local boundaries on a more visionary, regional landscape scale;
- Women and youth need to be actively involved, as they play an essential role in agricultural transformation;
- Specifically the position of women farmers must be strengthened, as the majority of smallholder farmers in developing countries are female and they form the basis for all development;
- The rich experiences of senior members of local communities should be utilized, mentoring new and young farmers to acquire knowledge.

No single country, organization or industry can do research and implementation thereof on its own. Based on this, further discussions elaborated on partnerships on CSA, with the following contributions:

- Coordinating CSA efforts;



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- Putting smallholder farmers, small scale enterprises and agribusinesses at the forefront of CSA, among others through Private Public Partnerships;
- Supporting and expanding public-private sector adaptation collaboration;
- Delivering convergence, synergy and win-win partnerships;
- Working towards a common goal of combating climate change, sustainable improvement of food security and livelihoods, combined with the implementation of incentives;
- Identifying relevant organizations and platforms that can convey the policy messages to politicians, who can formulate changes at the national and international level.

The breakaway groups focused specifically on the following four thematic areas:

a) Best practices in livestock production

All major livestock producing countries and the different livestock industries and related stakeholders should recognize the threatening effects of climate change and actively support mitigation strategies, inter alia, this can be done through:

- Making knowledge available to the farmers in a useful manner;
- Putting farmers at the centre of all initiatives to appreciate and adopt sustainable practices;
- Optimizing the use of inputs, particularly livestock, increasing efficiency and reducing food losses and waste and utilize education as a tool to address population growth;
- Ensuring that pastoral livestock agriculture is given as much attention as crop production, as there are an estimated 100 million people are involved in Africa alone.

b) Best practices in Crop production

Not only will climate change cause tremendous economic losses for crop producers, it will most likely cause wide scale human health problems or even undermine development efforts. Therefore it is necessary to:

- Obtain and share knowledge to mitigate the impacts of climate change and create more resilient farming operations across production landscapes and political boundaries;
- Prioritize adaptation practices on the basis of production, resilience and mitigation goals;



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- Bridge the gap between climate change related science and policy;
- Support and expand public-private sector adaptation through collaboration;
- Mobilize senior citizens as mentors to help new and young farmers to acquire knowledge;
- Enhance communication, cooperation and coordination among the multiple public and private sector actors focusing on climate change adaptation;
- Call for a forum for extending climate change adaptation support beyond political boundaries, connecting producers across landscapes that share similar challenges;

c) Best practices in Natural Resources management

Agriculture should be seen as a business entity to ensure sustainability. Water is life and key to all adaptation interventions. Best practices in natural resources management need scaling up. Concrete options identified were:

- Create farmer incentive schemes to implement climate smart strategies;
- Develop knowledge management, including platforms for best practices e.g. conservation agriculture, agroforestry, and community based natural resource management;
- Work on the basis of cost benefit analysis of best practices to convince policy makers, financiers and farmers;
- Communicate on agriculture and climate change issues: relating climate change to relevant challenges with impact on agricultural production e.g. floods, crop failures, droughts;
- Rethink funding mechanisms and/or models, e.g. empowerment of local participants;
- Create a unified platform, together with goal setting mechanisms that allows for integrated planning and implementation of policies and programs.

d) Best practices in Innovative economic and trade systems

There are several best practices of innovative approaches between public, private and civil sector. Some of these include the following complementary options:



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- Prioritize farmers as champion stakeholders to drive productivity and climate change adaptation, as the best transferors of technologies;
- Contract farming to achieve increased market access for smallholder farmers;
- Use of incentives to encourage innovation by the private sector;
- National policy development in response to industry demands;
- Consider upscaling of means for precision agriculture, and support communal resource poor farmers in the production of livestock for improved market access;
- Unlock funding for best practices to allow upscaling by resources poor farmers;
- Economically value interventions to succeed (Cost-Benefit-Analysis);

3. Interventions: Understanding the necessities of science, finance and policy to facilitate action in building resilience to climate change

Field research, local knowledge, targeted financial support and thoughtful policy are essential to build resilience. There is a need for more uniform indicators to measure resilience. Developing policy across implementation levels, and improving access to information systems such as databases, modeling tools, gene banks and focusing public Research & Development funds on basic research will all contribute to facilitating more action into building resilience to climate change.

The breakaway sessions had a specific focus on:

a) Generating evidence for interventions

“Sharing Knowledge is Power”. However providing practices and technical options is not enough – we need to improve our understanding and ability to compile and adopt the knowledge to identify sustainable solutions. Therefore steps need to be taken to:



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- Increase funding for interdisciplinary science and technology research;
- Effectively equip farmers through research institutions with appropriate technologies that are less harmful to the environment, increase agriculture production and improve nutrition and food security;
- Make interventions and monitoring activities farmer driven, giving them ownership of the solutions;
- Effectively disseminate science-based knowledge through inclusion of practitioners from other fields, such as psychology, economics and marketing;
- Invest in technology dissemination and innovative extension services for farmers at grassroots level;
- Co-create knowledge for interventions, including with traditional, indigenous and local people;
- Focus on developing priorities, not only science, because development is about helping people to help themselves, building their own capacity to learn, innovating and co-creating knowledge, and building their confidence in their culture and own knowledge systems;
- Package research outcomes in simple and understandable language especially for farmers.

b) Financing climate change interventions

Promoting an integrated climate smart approach encourages greater financial support and funding as a result of perceived greater environmental integrity. Finance is a varied landscape and generating solutions requires moving from the conceptual to the practical phase. There is a need for early actions to invest sustainably and upscale successes, through:

- Realistic funding of projects on a longer term basis where justified;
- Addressing the immense climate change adaptation financing gap through constructive dialogue with funding bodies;
- More investments, including from e.g. Africa, for the science agenda, to improve access to technology for small-scale farmers;



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- A portfolio of financing mechanisms from public finance, bilateral and multilateral sources, such as the Green Climate Fund and ODA, critical for CSA implementation;
- Mobilizing private sector finance for insurance and private lending to advance CSA implementation;
- Working with different sources of financing to put the three pillars of CSA into practice.

c) Policy in directing and supporting intervention

Evidence based policies will be key. Policies must build on best practices, which can be out-scaled and up-scaled. Discussions identified the need for:

- Measuring food insecurity and conducting early warning assessments;
- Conducting research to develop credible messages and messengers to advocate for responsive policies, including developing practical research innovations for development;
- Breaking down barriers between sectors and actors (research, governments, private sector, farmers, academics, extension, economist, etc.) and encourage partnerships and collective action especially at grassroots levels;
- Practical CSA interventions by balanced investments between research, knowledge management, and communicating knowledge through innovative platforms such as ITC;
- Facilitating Win-Win Partnerships that promote and support strategies for out-scaling proven technologies;
- Investing in capacity building of farmers and other development organisations at grassroots levels to ensure extended reach;
- Creating one voice between multiple global actors on climate smart agriculture. This could e.g. help to facilitate inputs to the Post 2015 Development Agenda and related Sustainable Development Goals;
- Embedding agricultural research and knowledge into grassroots development organisations and farmers;
- Understanding climate changes at the local level by downscaling global climate models in order to make the knowledge relevant to farmers and to build the resultant and policy options and to build this knowledge into National Adaptation Programmes of Action (NAPAS);



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- Policy development driven by human capital with farmers, women and youth at the centre of attention and resources;
- Integrating climate change into mainstream national agricultural development policy and planning processes and create and manage knowledge databases with global access;
- Mobilisation of efforts and funding by different actors and institutions to support implementation of policy and practical projects at grassroots level.

4. Addressing the constraints to agricultural productivity and food security in the era of climate change

Strong government support for joint management, payment for environmental services, reorienting research and development and major investments that cover upfront costs are critical for addressing constraints to agricultural productivity and food insecurity. Long term benefits outweigh the short term gaps. To achieve improved food and nutrition security in the era of climate change, it is important to:

- Take a comprehensive approach by ensuring safety nets, insurance and weather based agricultural advisories;
- Create robust institutional frameworks for environmental impact assessment and implementation;
- Develop partnerships that foster the transfer of knowledge and the sharing of success stories in CSA implementation, and build a common research and development infrastructure that can be shared and allow dissemination across communities;
- Co-generate and co-create knowledge, ensuring access to the farm level.

IV. The Way Forward: Alliance on CSA

The current CSA movement offers a 'menu' for creating a sustainable food future for all. It is time for transforming words into action. A Roadmap for the design phase of the Alliance on CSA, including a statement of intent, was presented at the Conference and welcomed by the participants.



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Roadmap for the Alliance on Climate-Smart Agriculture

Background

The three global conferences on agriculture, food security and climate change (The Hague, The Netherlands, October/November 2010; Hanoi, Vietnam, September 2012 and Johannesburg, South Africa, December 2013) developed, amongst others, the concept of climate-smart agriculture. The third conference marked the transition to catalyzing action through the development of an Alliance on Climate-Smart Agriculture (further: CSA Alliance).

The design phase of the CSA Alliance has started with a statement of intent as presented during the third *Global Conference on Agriculture, Food Security and Climate Change*.

The objective is to formally launch the CSA Alliance during the UN Secretary General's Leaders' Summit on 23 September in New York.

Significant outreach activities are anticipated to further develop and broaden the partnership of the Alliance in an open and inclusive manner. The formal launch of the CSA Alliance is the culmination of three interrelated processes/tracks: (i) building the partnership, (ii) drafting of a Charter and (iii) developing of a work program, including identifying priorities and early action.

I Building the partnership

Five regional consultative meetings are foreseen to seek input on the development of the CSA Alliance. Taking advantage of FAO Regional Conferences, the regional consultation meetings will be conducted before or after the FAO Conferences scheduled from February-May 2014.



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Further consultations are anticipated for specific stakeholder groups, including for the private sector, NGOs and civil society.

II Drafting of a Charter

The proceedings of the CSA Alliance will be guided by a charter. An initial draft of indicative elements of the Charter will be prepared with support of the interim secretariat as input to the five regional consultative meetings, involving all stakeholder groups (ie before or after FAO regional conferences, see above).

Following the regional meetings two global meetings are anticipated to finalize the drafting of the Charter. The first global meeting will be conducted on 11-13th of June in Rome (before the FAO Council). The second global meeting will be hosted by the Netherlands in the second week of July.

III Development of Work program, identification of priorities and early action

On December 5 three action groups were established (investment, knowledge and enabling environment) to develop a work program, identify priorities and early action in support of the CSA Alliance. The action groups will be convened by interim facilitators, respectively the World Bank and IFAD on "investment", FAO and CCAFS on "knowledge" and South Africa/Vietnam/ The Netherlands, on "enabling environment".

Action groups will have virtual and face to face meetings.



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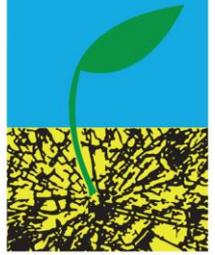
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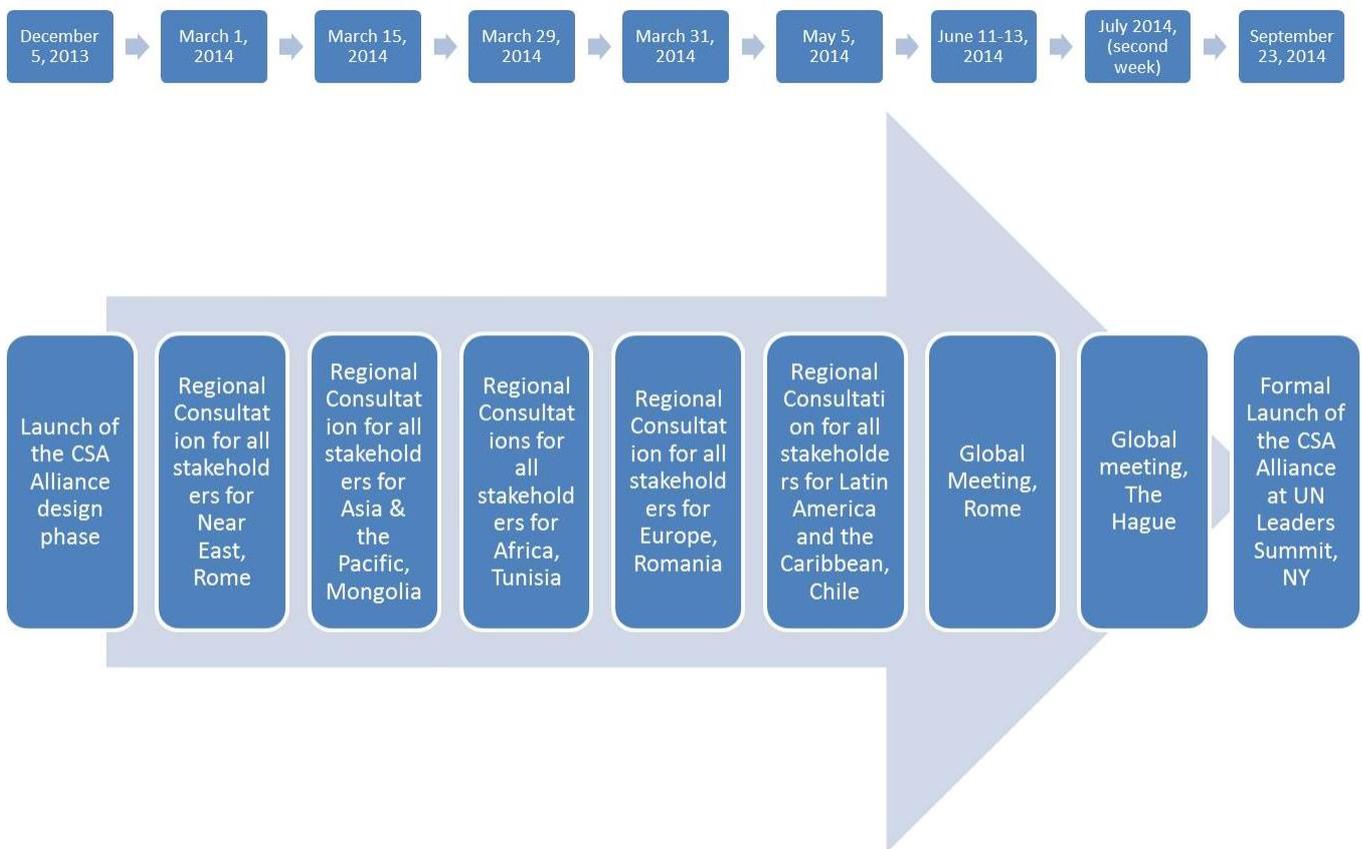
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Timeline Design Phase



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V. Closing of the session

The outcomes of 3rd Global Conference on Agriculture, Food Security and Climate Change, in Johannesburg, will contribute to and link with a variety of national, regional and international processes.

The outcomes will encourage and strengthen collaborative and innovative approaches. The outcomes will feed into existing and new partnerships.

Actions are urgently needed, the Alliance on CSA is the vehicle to do so. The Alliance will seek to promote an integrated action-oriented approach to simultaneously pursue the three pillars of climate-smart agriculture, in support of food security, improved livelihoods and increased equity, and sustainable management of natural resources.

ANNEX

Proceedings of the Conference

Session 1: opening session

The opening plenary session was chaired by Mr. Jonathan Godden, ARC, South Africa.

Honorable Ms. Tina Joemat-Pettersson, Minister of Agriculture, Forestry and Fisheries of South Africa, warmly welcomed participants and underlined that we cannot continue with business as usual when it comes to addressing food and nutrition security in the era of climate change. By integrating the three objectives of Climate-Smart Agriculture (CSA), namely sustainably increasing agricultural productivity, reducing greenhouse gas emissions, and increasing resilience and adaptation, the major challenge for delegates is to find a unified approach to addressing the risks that climate change poses to food and nutrition security and agricultural production. This Conference should provide a decisive roadmap for all delegates and sectors. The wide gap between smallholder farmers has to be narrowed. Challenges of inequality, unemployment and inefficiencies have to be addressed not only in South Africa but also in Africa and other developing countries. Progress has already been made in South Africa for smallholder black farmers, who from 1913-2013 had never been highly successful in agricultural production. She



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highlighted that for the first time in 100 years, smallholder farmers in South Africa successfully exported 140 tons of good quality beans and maize to the World Food Programme in Lesotho. To conclude, she welcomed all participants to the “land of great leaders” such as President Jacob Zuma and Nelson Mandela.

Dr. Hans Hoogeveen, Vice-Minister for Agriculture of The Netherlands, opened by stating that we know how to feed the future 9 billion people, but he asked if we ‘dare to’. He also stressed that the position of women farmers must be strengthened. Food Security and Nutrition should be on top of the Post-2015 Development Agenda. It offers the most effective way to reduce poverty, by strengthening the position of farmers, involving private sector and promoting local entrepreneurship, and working through the so-called Golden triangle partnership (Private sector, Government, Science). He illustrated this by giving two recent examples of CSA programs, one with the Clinton Foundation (12 million USD in Tanzania, Rwanda and Malawi), and the AGRA collaboration. He stressed this CSA movement must be science based and results oriented and move from setting the agenda to driving action on the ground. The UN Leaders Summit in September 2014 will be a major milestone and an opportunity for highlighting CSA role in supporting development efforts and in ending hunger and malnutrition. Dr. Hoogeveen indicated that an Alliance on CSA will need to be nurtured by all stakeholders (private sector, civil society, research institutions, governments and NGOs). He also highlighted the importance of the role of the private sector in helping develop an all-inclusive, voluntary and action-oriented CSA Alliance.

Ms. Xiangjun Yao, Director of Tenure, Energy and Climate Change Division for FAO, noted that the progress that has been made in agriculture over the past decades has come at a considerable cost. Food production has caused considerable land degradation - 25% of the world's land is degraded or in the process of becoming degraded. She stressed that the time has come for change. There is no other option, the challenges of climate change, food insecurity and population growth must be addressed. The three pillars of CSA: sustainably increasing agricultural productivity, adapting and building resilience to climate change, and mitigating climate change, must now be transferred into action. FAO is supporting its member countries in moving towards CSA. She closed with six key messages, which included the importance of understanding country needs, improving evidence based and assessment tools to prioritize interventions, and supporting the most vulnerable, particularly women, among others.



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Dr Patrick Verkooijen, Special Representative for Climate Change of the World Bank emphasized that agriculture should be an integral part of the climate change discussion but continues to fall off the agenda, as seen in the recent Doha and Warsaw UNFCCC negotiations. This pattern must change. Without appropriate intervention, global agricultural production are projected to drop 16 percent by 2050, and countries in Africa are expected to be the most acutely affected. The Climate-Smart Agriculture Alliance, to be launched during next year, could be designed to redirect financing and policies to drive science based CSA action on the ground.

Dr. Shadrack Moephuli, CEO and President of the Agricultural Research Council (ARC) of South-Africa emphasized that climate change is the single greatest threat to food security in South Africa. ARC has discovered, based on their research, that changes in rainfall and temperature patterns necessitate different agricultural practices and agricultural innovations to improve the resilience of the South African agricultural industry. Dr. Moephuli noted that South Africa has made progress in adapting to the vagaries of climate change. He said that temperature changes have created the opportunity to introduce new crops to the country, in particular apple cultivation, while the proliferation of drought has resulted in the need to develop drought resilient crop varieties. He also mentioned that a new maize cultivar will be released in 2014.

Dr. Lindiwe Sibanda, CEO of FANRPAN South Africa, highlighted the need for convergence, synergy and win-win partnerships in the CSA alliance. It is important to identify the relevant organizations and platforms that can carry the policy messages to politicians who can make changes at the national and international level. No single organization can achieve change in isolation and the objectives of these partnerships should be to help each one work towards a common goal of combatting climate change. The consideration of gender within CSA will be critical. Malnutrition and food insecurity are some of the biggest threats. Soils are depleted and therefore children are unable to get the nutrients from food that they need to survive. Research institutions need to be able to effectively equip farmers with appropriate technologies that will do less harm to the environment, increase agriculture production and most importantly, improve nutrition and food security.



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Dr. Sonja Vermeulen, Head of Research CCAFS program, recapped the main issues, recommendations and outcomes of the two previous conferences. She highlighted the importance of achieving congruence between the three pillars of CSA. In order to succeed in achieving the three of them, the immense climate adaptation financing gap needs to be filled. In addition to focusing on improved financing and global food production, it is worthwhile to note that the distribution of food supply is extremely unequal throughout the world. To manage food production and ensure food security for developing nations in particular, a global agreement on climate change is critical. The first global conference on Agriculture, Food Security and Climate Change at The Hague was about building a roadmap; the second conference at Hanoi was about communicating the goals of the CSA alliance; the hope in Johannesburg is to build a strong CSA alliance.

Ambassador Lindiwe Sisulu spoke on behalf of the African Union. She indicated that it is important to pay particular attention to building resilience in the Horn of Africa and Sub-Saharan Africa. She indicated that 2014 is the year of agriculture and food security according to the African Union. This focus involves promoting shared prosperity and improved livelihoods through sustainable growth and mainstreaming climate change into the development agenda. A series of events are planned to reflect on present achievements and steps forward to reach the goals outlined in CAADP (Comprehensive Africa Agriculture Development Programme).

Dr. Tim Searchinger, Princeton University and Senior Fellow World Resources Institute, USA, set the scene for the further discussions by presenting a menu for creating a sustainable food future. He stressed the importance of addressing rampant food insecurity and food shortages in the world. The problem lies in increasing agricultural production by 70% by 2050 while at the same time ensuring that agriculture doesn't lead to land use change and climate change. Thus the key takeaway is to look at the problem with a holistic viewpoint and work towards boosting crop yields combined with land protection; increase the productivity of pastures; ensure the protection of wetlands across the world; work towards efficient use of inputs, particularly livestock; reduce food waste and utilize education as a tool to address population growth. The main challenge for the CSA alliance would be to figure out best practices that focus on the most important things that the world needs to address in order to ensure food security while at the same time mitigate climate change.



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Session 2: Challenges to food and nutrition security in the face of climate change

A. Introduction of theme

This session was chaired by Dr. Yemi Akinbamijo of FARA, Ghana. The presentations offered perspectives from all stakeholders, followed by a panel discussion, which set the scene for the breakaway sessions.

Prof. Mandivamba Rukuni, of the Barefoot Education Afrika Trust, Zimbabwe presented a keynote speech in which he highlighted the need to “co-create” knowledge with traditional, indigenous and local people. These groups have vast knowledge of natural resource management in their respective areas and strategies must be climate safe and climate friendly. Prof. Rukuni called for more African investments for the science agenda to improve access to technology for small-scale farmers. He highlighted that ultimately there is a need to focus on development priorities, not just science because development is about helping people help themselves, building their own capacity to learn, innovating and co-creating knowledge, and building their confidence in their culture and own knowledge systems. He identified key messages from the Science Agenda for Agriculture in Africa, such as the need to develop African own scientific knowledge (not outsourced), role of science to preserve and use African’s rich biological heritage, as well as indigenous and local knowledge, among others.

Dr. Litha Magingxa, Land Bank, South Africa, presented a clear view from the private sector side, by beginning with a review of the impact of climate change on the global food system citing statistics on decreased yields and depleted fisheries. He also highlighted the effects of this degradation on food security and the economy. He noted that global investment in climate change financing is presently around \$359 billion but that \$10 trillion dollars may be necessary for adaptation by 2050. Current estimates for the effects of drought in South Africa alone are \$200 million. Dr. Magingxa provided an overview of the global commodity market and intermediary services as they relate to climate change, giving details on the history of deregulation of markets during which the provision of direct support to agriculture was replaced with indirect support. He called for environmentally conscious support of agriculture financing, incentivized climate-friendly farming (ex: conservation discounts), providing access to insurance, and capacity building.

Mr. Ernie Shea, The Land Initiative, USA, outlined the need for a landscape strategy to approach CSA by increasing coordination and bringing in multiple stakeholders to meet numerous objectives. The policies that have served well



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in the past will not be as effective in addressing climate change challenges and governments alone cannot solve all of the problems. In particular he emphasized the importance of having the actual farmers at the table to incorporate an important perspective that only they can bring as the main stakeholders of the land. He highlighted three key points: (1) climate change is real, (2) it is going to create an enormous challenge - economically, politically, and socially - for producers around the globe, and (3) the time for action is now, there is a need to adapt and become more resilient and to be able to transform.

Prof. Roland E. Schulze, University KwaZulu-Natal, South Africa elaborated on the NGO and Civil Society nexus. He spoke about South Africa's agricultural production and food security issues. Food security is a national issue, but local scales matter. In order to secure food, natural capital must be examined. Agriculture is the cause of many of South Africa's water quality problems and natural capital has been degraded by non-judicious irrigation and overgrazing. Invasive species also affect natural capital. Typically, changes in yields and growing seasons vary by crop. We need to be able to forecast rainfall top soil moisture, and sub-soil moisture. Instead of solely looking at 3-months forecast, one should also look at short and medium-term forecasts. He considered nested forecasts as the preferred model.

Mr. Eelco Baan, SNV Netherlands Development Organisation, spoke about the SNV advisory services and work on agriculture, renewable energy, water and sanitation. He added youth unemployment to the list of challenges that climate change will impose on society. Mr. Baan noted that the focus should be on solutions rather than problems, which can cause institutional paralysis. He also noted that private-public partnerships will drive the process of CSA implementation. He closed by identifying five key opportunities related to climate change, such as the growth of GDP and middle class (which will demand more goods), agribusiness development, among others.

B. Outcome of the Breakaway sessions

Realities – best practices for improving food production in the era of climate change

Four parallel breakaway groups were organized concentrating from four different entry points, with representatives from different stakeholder groups and actors presenting their views in panel discussions and interacting with the floor. Panel presentations and discussions were very rich, and can be summarized as follows:



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1. Best practices in livestock production

Smallholder livestock farmers will continue to play a critical role in food security and will need access to information, innovations and technologies if they are to adapt and mitigate to the impacts of climate change. The private sector, particular private-public partnerships, will be a necessary part of CSA because of their advantage at creating innovations but, in order for them to invest, they must be incentivized with profit-making potential. The role of the farmer and the private sector should be matched by the role of governments in implementing an enabling policy environment for CSA.

2. Best practices in crop production

The label of “best practice” should only be applied to those actually adopted by farmers. In order to facilitate the implementation of these practices, barriers to adoption must be identified to enable the construction of coherent policies and institutions. Perceived barriers may be opportunities for investment. Innovative systems like “CABI’s Plantwise program” can be useful tools in getting knowledge of CSA practices, such as intercropping with beneficial horticultural crops, into the hands of smallholder farmers. Reaching these farmers is essential because the majority live in regions highly vulnerable to climate change. However, a focus on smallholders should also target women and youth through outreach and extension.

3. Best practices in natural resources management including forestry & fisheries

From the case studies presented, there are a number of effective programs taking place, such as an income generation fisheries project in northern Bangladesh, community conservancies of land in Namibia and green water credits. The British Government, for example, has set up a climate fund to support forestry, agriculture and global carbon projects. Civil Society Organizations (CSOs) in Kenya are working closely with small-scale farmers to conduct more sustainable agriculture practices. The practices include reduced tillage, crop rotation, carbon and nitrogen sequestration and community management of wildlife and natural resources.

4. Innovative economic and trade systems



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Multi-sector collaboration is at the foundation of successful implementation of CSA. Examples of innovative synergies between public, private, and civil sector, include: the role of the South African Department of Trade in facilitating enterprise for smallholder farmers and the development of a local market for red meat; the responsiveness of a commodity farmer from the United States to government incentives; and the adoption of intensive grazing in Brazil. Partnership is imperative at the programmatic level, in enacting national policy, and in crafting regional coalitions to address global challenges.

Session 3: Understanding the necessities of science, finance, and policy to facilitate action in building resilience to climate change

A. Introduction of theme

This session was chaired by Ms. Bongi Njobe, independent consultant and former Director General for the Department of Agriculture, Forestry and Fisheries of South Africa. It had two key speakers who addressed in a very rich manner the need for building resilience and developing adaptation tools. The presentations were followed by three break away sessions. Keynote speakers' interventions can be summarized as follows:

Prof. Alice Pell, Cornell University, USA, talked about the importance of building resilience in adaptation for CSA. Resilience is considered the younger sibling of sustainability. There is a need for more uniform indicators to measure resilience (human, biophysical, economic behavior) so that practitioners, policy makers and farmers can build more adaptive capacity in practicing CSA. Real change of behaviors and institutions take at least three years, and therefore, scalability is one issue of concern, considering that biophysical and social indicators all vary differently in terms of time.

Dr. Andrew Dale, Trade and Agriculture Directorate, OECD, indicated that national climate adaptation plans are increasingly common in OECD countries and nearly 20 countries have published reports since 2012. Water is increasingly integrated to many of these reports. Field research, local knowledge, targeted financial support and thoughtful policy are essential to building resilience. Developing policy across implementation levels, and improving access to information systems such as databases, modeling tools, gene banks and focusing public R&D funds on basic research will all contribute to facilitating more action into building resilience to climate change.

B. Outcome of the Breakaway sessions



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Necessities of science, finance and policy for interventions

Three parallel breakaway groups were organized concentrating on necessary elements for successful interventions. It benefited from the participation of representatives from different stakeholder groups presenting their views in panel discussions and interacting with the floor. Panel presentations and discussions were very rich, and can be summarized as follows:

1. Generating evidence for interventions

Inclusion of practitioners from other fields, such as psychology, economics, and marketing, is essential to the effective dissemination of science-based knowledge. This interdisciplinary approach allows for coordination of activities of multiple stakeholders across all levels, including local, regional and national governments, farmers, and the private sector. Interventions and monitoring activities must be farmer driven, as these are more successful than top-down models because they empower farmers and make them owners of the solutions.

2. Financing climate change interventions

There is a big finance gap in adaptation that needs to be addressed. The existing financial system makes it extremely hard for the farmers to draw loans from these institutions. In addition to that there is too little liquidity in the system and the transaction costs are especially high as farmers live in remote rural areas. A portfolio of financing mechanisms from public finance, bilateral and multilateral sources like the Green Climate Fund and Official Development Assistance are critical for advancing CSA Implementation. Mobilizing private sector finance for insurance and private lending is critical to advancing CSA implementation. It is important that institutions work with different sources of financing to put the three pillars of CSA into practice.

3. Policy in directing and supporting interventions

In the development of climate change and CSA policy, there is a need for enhanced integration and cooperation of the multiple levels and sectors of relevant stakeholders to ensure the transfer of knowledge and information. The policies must be driven by human capital, with farmers, women and youth at the center of attention and resources.



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Similarly, a future CSA Alliance must be driven by a bottom-up approach, instead of using a top-down approach, with a focus on research, innovation and extension.

Session 4: Addressing the constraints to agricultural productivity and food security in the era of climate change

A. Introduction of theme

This session was chaired by Dr. Siboniso Moyo, ILRI Mozambique. To introduce the topic, the session started with the interventions of two keynote speakers. Afterwards, a panel discussion was held, with the participation of several invited speakers representing different stakeholder groups. The keynote speaker interventions and the panel discussion can be summarized as follows:

Dr. Bruce Campbell, CIGAR, indicated that it is important to take a comprehensive approach by ensuring safety nets, insurance and weather based agricultural advisories. Strong government support for joint management status, payments for environmental services and reorienting research and development is critical for addressing constraints to agricultural productivity and food security. He also stressed that it is important to keep in mind that long-term benefits outweigh the short-term gains. Major investments that cover significant upfront costs are essential for addressing constraints to agricultural productivity in the era of climate change.

Dr. Yemi Akinbamijo, FARA, expressed that to achieve improved food and nutrition security in the context of climate change, it is imperative that the institutional framework for environmental impact assessments and implementation are robust. Partnerships should foster the transfer of knowledge and the sharing of success stories in CSA implementation. Partnerships should also build a common research and development infrastructure that can be shared. An estimated 100 million people are involved in pastoral livestock agriculture in Africa. Thus it is important to ensure that pastoral livestock agriculture is given as much attention as crop production.

B. Panel discussion

The last part of the session benefited from the participation of six speakers, who contributed to an in-depth discussion on a range of technological innovations, predictive models, and case study reports. They represented national agriculture departments, multinational NGO's and farm organizations. Several speakers emphasized the



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dangers of maladaptation, the need for further scientific research, and constraints to implementation - specifically distribution of knowledge to the farm level. Observed successes in climate smart agriculture were highly context specific, highlighting the need for co-generation and co-creation of knowledge. A short video titled "Feed the Food" was presented by its director, Peter Byck.



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