FINAL WORKSHOP REPORT

Training of Trainers on Climate-Smart Agriculture in Zimbabwe

8 – 9 February, 2018

Management Training Bureau,
Msasa, Harare, Zimbabwe

Authors

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Executive Summary

The Training of Trainers on Climate-Smart Agriculture (CSA), co-organized by the Climate Technology Centre and Network (CTCN), United Nations Environment Programme – Technical University of Denmark Partnership (UDP), Ministry of Environment, Water and Climate (MEWC), Ministry of Lands, Agriculture and Rural Resettlement (MLARR), and Green Impact Trust (GIT), was held on February 8 – 9, 2018, at Management Training Bureau, Msasa, Harare, Zimbabwe.

The workshop, an essential component of the Technical Assistance provided to the Government of Zimbabwe by CTCN, and implemented by UDP, brought together Principals, Vice Principals, Lecturers, authors of the CSA Manual, consultants, and stakeholders, to engage in discussions focused on the CSA Manual. There were 44 and 41 participants, respectively, during the 2-day event.

The workshop objectives were centered on understanding CSA and its applications in Zimbabwe, as written in the CSA Manual. First, invited Permanent Secretaries from the Government of Zimbabwe officiated at the event, followed by Microsoft PowerPoint presentations over the next sessions, from the authors and consultants involved in the preparation, writing and dissemination of the CSA Manual. A number of issues were raised during the presentations. Participants queried, critiqued, and exchanged insights on climate-smart agricultural practices and technologies.

The key findings from the workshop were that participants need more collaboration as colleges of agriculture and stakeholders when it comes to new knowledge and information, that they would need to re-visit the research, education, and extension linkages vis-à-vis the CSA Manual, and that the information gained during the workshop had to cascade to students and the farming community. The participants were pleased that the CSA Manual was out and that they could begin to explore different areas they could implement on-site in their contexts. Furthermore, participants noted that the CSA Manual was a useful reference to their work situations. Finally, the participants stated that the partnerships they had with the Government of Zimbabwe represented by the two Ministries was paramount to the subsequent programs and activities, that would follow the workshop.

Acknowledgements

A special thank you to the Government of Zimbabwe, in particular, the Ministry of Lands, Agriculture and Rural Resettlement and Ministry of Environment, Water and Climate, for the timely assistance during the planning, preparation, and execution stages of the workshop. The Government provided an oversight of the entire process of implementation of the Technical Assistance in Zimbabwe since 2015.

We are grateful to Green Impact Trust, the Request Proponent, recipient organization and core-custodian to the CSA Manual, for coordinating and providing logistical support to the Lead Implementer, NDE and CTCN

We are thankful to our participants to the workshop for their kind attention, contributions, and ideas. The participants made it possible to gain an understanding of what the newly published climate-smart agriculture manual would fair when disseminated to the broader agriculture and climate change community.

We also extend our sincere gratitude to the staff at Management Training Bureau, Msasa, Harare, for their assistance on our event planning, and ensuring that the event proceeded as designed on-site.

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Acronyms and Abbreviations

AEZ	Agro-ecological Zone
CIS	Climate Information Services
CSA	Climate-Smart Agriculture
CTCN	Climate Technology Centre and Network
GHG	Greenhouse Gas
GIT	Green Impact Trust
INDC	Intended Nationally Determined Contribution
MEWC	Ministry of Environment, Water and Climate
MLARR	Ministry of Lands, Agriculture and Rural Resettlement
NDC	Nationally Determined Contribution
NDE	Designated National Entity
REDD+	Reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries
SDG	Sustainable Development Goal
ToT	Training of Trainers
UDP	United Nations Environment Programme – Technical University of Denmark Partnership
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WII	Weather-based index insurance

Introduction

The Training of Trainers on Climate-Smart Agriculture (CSA), co-organized by the Climate Technology Centre and Network (CTCN), United Nations Environment Programme – Technical University of Denmark Partnership (UDP), Ministry of Environment, Water and Climate (MEWC), Ministry of Lands, Agriculture and Rural Resettlement (MLARR), and Green Impact Trust (GIT), was held on 8 – 9 February, 2018, at Management Training Bureau, Msasa, Harare, Zimbabwe.

The Training of Trainers (ToT) workshop follows 3 workshops[1] within the framework of the Technical Assistance provided to the Government of Zimbabwe by CTCN and implemented by UDP.

Invited authors and consultants shared aspects of the written chapters in the published Climate-Smart Agriculture Manual for Agriculture Education in Zimbabwe[2] with the participants. The workshop generated good discussion points and insights, which participants promised to take back to their contexts.

Workshop Format and Sessions

The workshop was organized over a 2-day period with presentations from original authors and facilitators for the chapters in the CSA manual. The workshop comprised structured presentations, question and answer sessions, and open discussions. All the presentations were made using Microsoft PowerPoint.

Adjustments were made to the workshop agenda as some of the original authors were pressed with other commitments. All the chapters were presented and comprehensively discussed during the training event.

CTCN Response Plan objectives

CTCN Response Plan[3] states four objectives for the Technical Assistance in Zimbabwe as follows:

[1] The dates of the 3 Workshops are as follows: 1st Workshop on 26 July 2016, at Mandel Training Centre, Marlborough, Harare, Zimbabwe; 2nd Workshop on 15 December 2016 at Cresta Oasis Hotel, Harare, Zimbabwe; and 3rd Workshop on 21 April 2017 at Cresta Oasis Hotel, Harare, Zimbabwe. Reports from the workshops are available at: https://saaiks.net

[2] https://www.ctc-n.org/technical-assistance/projects/developing-climate-smart-agriculture-manual-agriculture-education

[3] https://www.ctc-n.org/technical-assistance/projects/developing-climate-smart-agriculture-manual-agriculture-education

1. Develop a comprehensive CSA Manual for agriculture (university and professional level extension) education in Zimbabwe, building on review of current agriculture education curriculum.
2. Conduct CSA Training of Trainers workshop for agricultural college lecturers and extension officers and selected stakeholders in the agricultural sector of Zimbabwe.
3. Develop and implement a monitoring and evaluation framework for CSA education in Zimbabwe.
4. Highlight best practices on climate smart agriculture with high potential for further financing and uptake.

Workshop Objectives

The training workshop objectives were:

- To impact knowledge on CSA
- To train agricultural lecturers and students.
- To challenge methodologies on teaching of agriculture curricula
- To strengthen networks in agriculture and climate change

Expected Outcomes

The expected outcomes from the training workshop were:

- Enhanced knowledge on CSA
- Commitment to learning and education on CSA.
- Recommended methodologies on teaching agricultural curricula.
- Visible and active networks in agriculture and climate change.
- Supplement to the CSA Manual

Workshop Proceedings

Day 1

Opening Session

The workshop began with self-introduction and sharing of expectations by participants, as chaired by Mr. Elisha N. Moyo, Principal Climate Researcher, Climate Change Management Department, Ministry of Environment, Water and Climate, Zimbabwe in his role as the CTCN NDE for Zimbabwe. Some of the expectations shared by participants were: to gain new information, to understand the CSA Manual, to continue in the implementation of the CSA Manual as required, and to get feedback on the content relevant to teaching and learning in CSA.

In his remarks, Dr. Todd Ngara, United Nations Environment Programme – Technical University of Denmark Partnership expressed his appreciation of the work which all counterparts in Government of Zimbabwe had supported from the beginning. He emphasized that the training event was supposed to be interactive with all the invited participants expected to gain a deeper understanding of the CSA manual.

Dr. Manyewu Mutamba, Senior Specialist, Genesis-Analytics and Representative for the United Kingdom Department of International Development supported project – VUNA (which partially supported the development of the CSA Manual) stressed that he was excited of the workshop and the participants who were key in the implementation of the project at grassroots level. He highlighted that VUNA was happy to be associated with the country developments in CSA, and that it was an enriching and learning process to his team at VUNA.

The opening session was jointly addressed by Mr. Moffat Nyamangara, Director, Department of Agricultural Education and Farmer Training, Ministry of Lands, Agriculture and Rural Resettlement, Zimbabwe, as the main beneficiary institution representative, and Mr. Washington Zhakata, Director, Climate Change Management Department and Acting Director, Meteorological Services Department, Zimbabwe, in his capacity as the UNFCCC Focal Point and representative of the Climate Technology Coordinating Ministry. Both officials were standing in for the Permanent Secretaries in their Ministries.

Mr. Nyamangara highlighted that all partners had made progress on the work on the CSA Manual. He noted the need for the progress to continue beyond the project life (i.e. project completion dates). In much of the work which had been supported by foreign partners, Mr. Nyamangara recalled that they believed in what they were doing as Government of Zimbabwe, the example being the past work in environment education in the colleges sponsored by the British Government. He urged the participants, especially the Principals, Vice Principals, and Lecturers from Colleges of Agriculture to cascade the information they would learn during the training to students in their respective work stations. He asked the question: What will we do in

your colleges to show that they had adopted CSA? The participants were encouraged to have evidence on the ground as proof that indeed CSA had generated interest in them.

Mr. Zhakata stated that climate change management touches all areas: adaptation and mitigation. He informed the participants that the Government of Zimbabwe through the Climate Change Management Department had mobilized resources to review the agro ecological zones, from the World Bank. The Government he said is continuously mobilizing support and resources for important work in the area of climate change. Mr. Zhakata highlighted the national strategies in force such as the National Climate Change Response Strategy, Renewable Energy Policy, Zimbabwe Agriculture Investment Plan, and the National Climate Policy, among others. He noted that the country had important obligations in key sectors of the economy such as energy, following the Paris Agreement. He also recognized the importance of public-private-partnerships as evidenced by the initiative taken by GIT.

Mr. Zhakata declared the training event open at the conclusion of his remarks.

Mr. Desire Nemashakwe, Executive Director, Green Impact Trust, and Request Proponent representative, gave a brief of the workshop objectives, expected outcomes and the rationale underlying the ToT to participants.

Summary of the first group of presentations

Presentation #1: Climate Information Services (CIS)
Dr. Dorah Mwenye, Department of Research and Specialist Services, Zimbabwe, shared on the climate information services, as concerned primarily with the packaging of climate information. The presenter noted that there was no national framework for climate information services in Zimbabwe.

The key messages under this presentation were as follows:

- There is a relationship between CSA and CIS.
- CIS contributes to the pillars of CSA.
- We can choose crop varieties to grow based on CIS

The key questions posed to participants during the presentation were:

- Do you have access to CIS? What could be the sources of CIS?
- Who are the users of CIS? Where do you access CIS?
- Do the communities know of and where to access CIS and related data?
- What advice would you give to smallholder farmers under different climate scenarios?
- In what ways can we include CIS in the Master Farmer Training curriculum offered by the Department of Agricultural, Technical and Extension Services?

Presentation #2: Weather-based index insurance (WII)
Dr. Todd Ngara, UDP, gave a presentation on WII.

The key messages shared during the presentation were:

- WII can be used to facilitate agricultural and rural development, as well as providing an alternative method for financing disaster reduction.
- The laws and regulations in many developing countries are not designed to encourage the development and use of WII.
- The index can be used for arable agriculture and livestock.

The comments made by participants during the presentation were:

- WII is useful for decision making by smallholder farmers.
- For example, Kericho in Western Kenya, experiences the highest number of hailstorms.
- It is important for Zimbabwe to look at its historical data in issues to do with WII. WII is location specific and makes use of historical data.
- The case of EcoFarmer, spearheaded by Econet Wireless and Zimbabwe Farmers Union was also raised by participants. The EcoFarmer premium is as follows: USD 0.50 for Ecosure, USD 0.25 for farming tips, and USD 0.25 for WII.
- It was noted that it is difficult to make payouts where there are few subscribers to the service. The insurance is for the entire community and not an individual.
- There is the Famine Early Warning System in Botswana and Niger, based on rainfall estimation. This method of rainfall estimation using rainfall data may not have a high resolution. The accuracy is not bad either. We can improve our system using the Botswana at about 10km apart.

The key questions and responses shared during the presentation were:

Q: Is it better to use traditional insurance or WII?
A: Traditional insurance is different from WII. The element of cost is important in WII. However, WII is likely to have lower premium than traditional insurance.
Q: Regarding the use of satellite data to overcome limited coverage, what's happening in Meteorological Services Department? Are we building the capacity in such and taking advantage of the huge amount of data? Is the use of satellite data part of the curriculum we are looking at?
A: Colleges of agriculture have an online presence (e.g. websites). However, the level of connectivity differs among the colleges. There is a need for upgrading of the information and communication technologies in the colleges. Lecturers should be able to access the weather data if needed. They are also supposed to collect weather data and provide to main stations. It is plausible that some of the staff may not fully appreciate the relevance of weather data. Back in the days, they used to be many provisions for extension workers such as rain gauges and technical back up.

Presentation #3: Energy Management in Agriculture

Mr. James Madzore, Independent Consultant, shared a presentation on Energy Management in Agriculture. The presenter noted that there is direct use and indirect use of energy in agriculture. Direct use is at farm level whereas indirect use was at beyond the farm gate. He gave participants exercises so that they would be able to distinguish among the terms (e.g. energy management, energy efficiency, energy conservation, and renewable energy) found in energy management. He stressed that it was not enough to collect data on usage rates but that these had to be compared with other data, analyzed and decisions made. The main conclusion made during the presentation was that to increase food productivity at competitive prices, the country should adopt CSA embracing energy management.

The key messages shared during the presentation were:

- Energy is essential for agriculture in Zimbabwe.
- Energy generated from fossil fuels results in emissions of greenhouse gases which are linked to climate change.
- The intensive use of energy in modern agriculture calls for judicious management of traditional forms of energy, coupled with the accelerated diffusion of technologies that are related to renewable forms of energy. This is imperative for sustainable food production.

The key questions posed during the presentation were:

- What is energy management? What is energy efficiency?
- What are the sources of energy?
- How much energy is taken by agriculture?
- How much does agriculture contribute to GHGs in Zimbabwe? How much GHGs are from agriculture?
- What are the energy management opportunities in agriculture?
- What are the barriers to the implementation of energy management in agriculture?

The comments made during the presentation were:

- Stakeholders in agriculture must be on high alert for opportunities in energy management in agriculture.
- Stakeholders in agriculture must assess the value chain in agriculture. Only then can they begin to identify any gaps to insert aspects of energy management into the activities.
- Smallholder farmers should have in place energy management systems.
- Energy must be conserved by all users. If energy is not needed, it should be switched off. Savings in energy can translate to higher productivity in agriculture.
- Smallholder farmers should keep track of the energy used in their farming systems.

- Energy users can get a competitive product/output when they use less input.

Summary of the second group of presentations

Presentation #4: Gender and Social Inclusion

Mrs. Abby Mgugu Mhene, Independent Consultant, gave a presentation on Gender and Social Inclusion. The premise of her presentation was that gender can be seen as an analytical tool. The presenter explored various aspects focused on how men and women relate to the asset base, decision making, and agricultural production. She encouraged participants to re-examine the roles of men and women in gender and social inclusion. The presenter also highlighted the fact that gender is not about women only but included men, women and the youth.

The key messages during the presentation were:

- Both men and women are smallholder farmers in Zimbabwe, yet the role that women play is often unrecognized.
- Women provide about 70% of agricultural labour in Zimbabwe.
- Women face structural barriers that create gender gaps and inequalities.
- Women farmers in Southern Africa face barriers in adopting CSA practices such as unequal access to credit, technology and agricultural inputs as well as capacity building. Climate change is poised to exacerbate these inequalities unless measures are taken to address them.

The key questions posed during the presentation were:

- How are decisions made at household level in agriculture?

Presentation #5: Crop Production

Dr. Dumisani Kutywayo, Department of Research and Specialist Services, shared on Crop Production. He noted that smallholder farmers tend to shy away from laborious agricultural practices. The presenter shared on climate-smart agriculture practices as below:

- Conservation agriculture, mulching, dry planting, no-tillage and minimum tillage, crop rotations, green manuring, cover crops, broad bed furrows.
- Development and promotion of drought tolerant crops including small grains.
- Promotion of short season varieties.
- Rainwater harvesting techniques.
- Beneficial crop combinations and succession planting.
- Early dry planting of short-season varieties of maize.

The key messages shared during the Crop Production presentation were:

- There is a need for stronger linkages between research, education and extension, and to appreciate the value of local innovations.
- Drought-tolerant and high-yielding crop varieties, together with crop diversification will play a pivotal role in reducing the food-security risks associated with climate change.
- The identification and development of agricultural clusters and incentive schemes for climate resilient products will help accelerate the adoption of CSA innovations in Zimbabwe.
- Incorporation of CSA into the curricula of institutions of higher learning will greatly improve farmers' access to climate-resilient technologies and practices, knowledge and information.

The key comments shared during the presentation were:

- The innovation platform includes everyone in the crop value chain.
- It is important to up-scale and out-scale some of the seed technology (e.g. seed varieties).
- Nurseries can be established in colleges of agriculture as a start.
- The Water Efficient Maize for Africa is an example of a climate-smart technology.
- It is necessary to have a policy on genetically modified organisms. This is because breeding is a type of modification.
- There is a need for all stakeholders to promote organic foods in the country.
- There is a need for all stakeholders including government to get its priorities right and complete research on critical issues in crop production.

Presentation #6: Soil and water management as a CSA approach

Mrs. Sepo Marongwe, Department of Agricultural, Technical and Extension Services, gave a presentation on soil and water management as a CSA approach. She highlighted that soil and water management are interdependent, and that CSA is not business as usual.

The key messages shared during the presentation were:

- We need to manage soils to increase productivity and incomes (e.g. productivity/unit area/ unit period/unit investment).
- We need to manage soils to increase resilience of production systems and populations (e.g. through appropriate farming enterprises, soil conservation works, maintaining carrying capacities for livestock, no-till systems for long health and sustainability of soils, soil organic cover, and the use of legumes).
- We need to manage soils to reduce greenhouse gas emissions (e.g. crop production intensification and appropriate livestock management and pasture practices).

The key questions asked during the presentation were:

- What can we do to manage/respond to dry spells in light of climate change?
- What can smallholders farmers do to respond to climate change?
- How should we define productivity? Is yield per hectare adequate?

Concluding remarks for Day 1

Participants noted that climate information services can be used to facilitate decision making in farming operations. Facilitated decision making was one way of farmers and stakeholders being climate-smart. It was also seen that continuous learning and education is essential in CSA.

Mr. Francis Vengai, Deputy Director, Department of Agricultural Education and Farmer Training, Ministry of Lands, Agriculture and Rural Resettlement, Zimbabwe, expressed appreciation on the objectives of the workshop and the presentations shared on the first day. He noted that at first participants were unsure of the objectives but had gained clarity as the event proceeded. This was commendable he noted. Mr. Vengai noted the opportunities in outsourcing expertise as colleges of agriculture. He called on all participants to use the resource persons available in the country, including the invited presenters on the CSA Manual. He urged all to ensure that colleges of agriculture become centers of excellence in all agricultural practices as well as to continue networking as college and stakeholders in agriculture. He stressed that it was important to keep the participation of all – Principals, Vice Principals and Lecturers – alive and to be exemplary in issues to do with CSA.

Dr. Ngara, UDP, also expressed his appreciation on the practical examples and experiences shared by the presenters and all participants. He alerted participants to the fact that the country is known for this pioneering work to successfully complete a CSA Manual.

Day 2

Summary of the third group of presentations

Presentation #7: The Landscape approach

Mrs. Lindsay Mushamba, Independent Consultant, gave a presentation on The Landscape Approach. She defined a landscape approach as a framework to integrate policy and practice for multiple land uses within a given area to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change. The presenter noted that the landscape approach aims to balance competing demands on land through the implementation of adaptive integrated management systems.

The key messages shared during the presentation were:

- To meet national food security objectives as well as needs of a variety of stakeholders in a specific landscape, land-use planning and the management of natural resources, need to be coordinated across sectors and through a participatory and consensus-based decision-making process.
- Building national and local capacity in developing inclusive governance arrangements.
- Harmonisation and enforcement of public policies and land-use legislation through strengthened national and local institutions and governance;
- The implementation of REDD+ can play a catalytic role in promoting a landscape approach by reinforcing the forest-agriculture nexus.
- Develop a common knowledge base on feasible concepts, techniques and methods to allow stakeholders to develop, implement and monitor landscape approaches.

Presentation #8: Fisheries and aquaculture in Zimbabwe

Dr. Mzime-Ndebele Murisa, Chinhoyi University of Technology, shared on fisheries and aquaculture in Zimbabwe. She noted that fisheries and aquaculture can be integrated with other agriculture practices at farm level. Her presentation emphasized more on aquaculture to which she said that it fitted within the narrative of CSA. The presenter informed participants that they were 140 indigenous fish species in Zimbabwe.

The key messages shared with participants during the presentation were:

- Fisheries production from natural fish stocks has been declining globally, regionally and nationally (Zimbabwe) due to climate change impacts and overfishing, among other factors.
- Over the last two decades, the demand for fish has increased worldwide, including Africa.
- The fisheries and aquaculture sectors in Africa, including Zimbabwe, have increased in dimension and can make a significant contribution towards filling the demand gap of over 260% by 2020.

- Relevant CSA fisheries an aquaculture systems for Zimbabwe would include research and innovation in technologies for affordable fish feed, breeding (hatchery) equipment and techniques, good quality fish fingerlings, more effective feeding mechanisms, efficient post-harvest techniques and value addition.
- A robust fisheries and aquaculture sector in Zimbabwe would address none of the 17 Sustainable Development Goals, namely, no poverty, zero hunger, good health and well-being (1-3), clean water and sanitation (6), industry, innovation and infrastructure (9), responsible consumption and production (12), climate action (13), life below water (14) and life on land (15).
- An enabling environment for CSA in fisheries and aquaculture for Zimbabwe involves financial, technical and policy interventions, and an integrated approach.

The comments raised during the presentation were:

- Fish are visual feeders.
- There are ethical and social considerations with the use of human waste in fisheries and aquaculture. However, maggots can be used as they are rich in fats.
- The Zimbabwe National Parks and Wildlife issues permits to anyone who may wish to introduce new fish species.
- Algae have many uses as witnessed in the developed countries. However, Zimbabwe lags behind in its use in fisheries and aquaculture.

Presentation #9: Climate-smart agriculture in livestock and rangeland management in Zimbabwe

Professor Irvine Mpofu, Chinhoyi University of Technology, gave a presentation on livestock and rangelend management in Zimbabwe. The presenter noted that the global way of looking at things can be miniaturized into small plots/units.

The key messages shared during the presentation were:

- Livestock require suitable nutrition, veterinary protection, a well-managed habitat, general good breeding and management in order to maximize their productivity. Many of these factors are affected by climate stressors such as (1) high ambient temperatures, (ii) low or unreliable precipitation, and (iii) unexpected disease pandemics.
- The probability of drought-induced crop-livestock system failures ranges from 40% to 100% in most agro-ecological regions of Zimbabwe.
- Much reduction in net primary production and carrying capacity is expected in the southern region of Zimbabwe which is suited to extensive cattle ranching.
- The level of vulnerability among livestock smallholders is also increased by soil salinity, outbreaks of foot and mouth diseases, knowledge gaps, and poor access to resources and markets.
- CSA is a robust approach aimed at reducing the vulnerability of livestock and rangelands to climate change whilst also limiting their impacts on the climate system.

The key questions and comments raised by participants were:

Q: What can be done about the heat stress in poultry?
A: Address ventilation and the numbers of birds you have in the poultry house. You can also have climate-controlled environments. There is also a need for researchers to come up with miniaturized units that suit the smallholder farmers.
Q: Are there any efforts to promote the production of lucerne to farmers?
A: There are isolated efforts. However, in one study conducted at Chinhoyi University of Technology, lucerne reduced the amount of concentrate used in animal operations. There is a need for farmers to have small plots of lucerne to provide a quality diet to their animals.

Presentation #10: Sustainable forest management and agroforestry
Dr. Elizabeth Mujuru, Bindura University of Science Education, shared on sustainable forest management and agroforestry.

The key messages shared during the presentation were:

- Forest ecosystems are important for life and supplying important goods and services, yet they are also threatened by several anthropogenic factors, including clearing for agriculture, use of wood fuel, accidental fires, and climate change.
- Forests and trees on farms (i.e. agroforestry) can be a significant carbon sink – one that can be enhanced through afforestation and conservation efforts, including carbon sequestration in biomass and soils.
- In smallholder farming systems, forest and farms often part of complex rural landscapes, which collectively fulfill the livelihood needs of rural inhabitants.
- Increasing the resilience of forest systems to maintain and enhance the flow of the ecosystem's goods and services, mitigating from the sector by reducing deforestation and increasing forest cover are some of the interventions that contribute to CSA, but these need to be considered in the context of the wider landscape.

The key questions posed and answered during the presentation were:

- What is the difference between "forest" and "forestry"?
- How many forest types do we have in Zimbabwe?
- What is the importance of forests? What do we collect/benefit from forests?
- What should we do to achieve green landscapes?
- What are the drivers of deforestation in Zimbabwe?
- What is the role of traditional leaders in forest conservation?

Presentation #11: Institutional arrangements and policy engagement
Dr. Easther Chigumira, University of Zimbabwe, gave a presentation on Institutional arrangement and policy engagement.

The key messages shared during the Institutional arrangements and policy engagement presentation were:

- Achieving sustainable food production calls for as paradigms shift that allows institutional arrangements and the creation of synergies focused on championing the components of CSA.
- A coordinated, legally binding institutional framework for the enforcement of CSA interventions is required given the need for greater coordination and integration among institutions.
- A CSA policy should be premised on a framework that is clear, scalable and inclusive, taking advantage of the entry points that already exist in the CSA technologies and practices undertaken by a number of state and non-state actors.
- The absence of a legal framework guiding CSA operations has seen research institutions offering piecemeal training in the adoption of new technologies, taking into account local innovations and strengthening knowledge sharing at the individual level.

The key questions posed and answered during the presentation were:

- What can we do with policies on a practical level?
- What forms of technologies and instruments are needed to enable the adoption of CSA?
- How do we get the communities and organizations to work together towards a common goal?

Presentation #12: Climate-smart agriculture in Zimbabwe – the way forward

Mr. Desire Nemashakwe, Green Impact Trust, shared insights on the way forward in climate-smart agriculture in Zimbabwe. He noted the several challenges the continent of Africa faces in present day such as finite land but an expanding population. In Zimbabwe, he noted that the majority of the people stay in rural areas. Participants were urged to engage in actions that will benefit the future generations. The presenter noted that GIT had a number of programs targeted at students in colleges of agriculture to extend the work on the CSA Manual. A fundamental question which arose during the subsequent discussion had to do with what all stakeholders were doing to solve the problems faced by smallholder farmers.

The key messages shared during the presentation were:

- The CSA Manual is an opportunity to look at new technology (e.g. knowledge, skills, and equipment) which can benefit the colleges of agriculture, and how this knowledge can be applied in different contexts.
- The knowledge is dynamic and it is every one's responsibility to update the knowledge as and when needed.
- We need to be entrepreneurial in our activities in agriculture.
- The new knowledge on CSA should be put into practice by all stakeholders. The stakeholders should also experiment with the different business models.

- Partnerships are essential to future work in CSA in the country. Some of the partnerships need to be at college level and sometimes, among groups of colleges.
- Colleges of agriculture should seriously look into the issue of financing some of the activities in CSA to enable scaling-up and out-scaling of new technologies.
- There is a need for continuous learning and education by all stakeholders in CSA.

The key comments raised during the presentation were:

- Ideas and concepts should be presented in unison.
- It is important for the colleges of agriculture to explore partnerships with other institutions in other parts of the world (e.g. North – South collaborations).
- Colleges of agriculture should be seen to be solving the problems faced by the smallholder farmers. In this regard, the research, education and extension components were tasked to collaborate more in providing smallholder farmers with solutions to their contexts.

Presentation #13: Post-CSA plans and other strategic policy developments

Ms. Emily Matingo, Climate Change Management Department, Ministry of Environment, Water and Climate shared some perspectives on post-CSA plans and other strategic policy developments. She noted that the Ministry was in the process of developing the National Adaptation Plan, which would outline measures and interventions on short, medium and long term time scales. The presenter informed participants that the Ministry had also concluded the National Climate Policy.

The key messages shared during the presentation were:

- CSA Manual will be supported at country level through the various frameworks, strategies, and policy frameworks.
- The country was engaged in a number of activities which contribute to the Low Emission Development Strategy.
- The country places emphasis on low-carbon development (e.g. clean technologies) as this would offset the negative consequences of a wholesale-approach such as industrialization.
- The country has an obligation to itself and the international community of reducing its greenhouse gas emissions by 33% by 2020.

This session was followed by an interactive discussion where the college representatives were asked to identify low-hanging fruits to catalyse the implementation of the CSA manual starting with their colleges and operations. The participants were also briefed on the CSA dissemination tour which would follow after the ToT with support from VUNA.

Closing ceremony

Mr. Desire Nemashakwe, Green Impact Trust, noted that the work on CSA had just begun. He highlighted that it is mentorship and guidance that had brought the work on the CSA Manual to its completion. He informed participants that there were opportunities in the student's programmes that GIT would roll out soon.

Dr. Manyewu Mutamba, Senior Specialist, Genesis-Analytics and Representative of VUNA, thanked the Government of Zimbabwe as represented by its two Ministries whom he said were open to partnerships. He said that the country was ahead of other regional countries in terms of the work on CSA. He stated that the interaction with the government in the work on the CSA Manual had changed his perception about the way in which governments do business. He ended his remarks with the words that "climate-smart agriculture is good agriculture".

Dr. Todd Ngara, UDP, stated that the TOT brought to the conclusion the Technical Assistance provided to the Government of Zimbabwe by CTCN. The work was a dynamic experience. He stressed that the input provided by all stakeholders would not be unnoticed.

Mr. Elisha N. Moyo, Ministry of Environment, Water and Climate, expressed that there were opportunities in climate technologies. He was pleased with the participation by the stakeholders at the workshop as this was part of the build-up of a critical mass of local experts. The Government was keen on having the CSA Manual translated into practical areas. He stated that it was the aspiration of the country to host the Committee of Parties meeting. He encouraged all stakeholders to work together in developing competitive project proposals which could be used to source funds from funding mechanisms and international institutions. He quipped that resources are given to those who make the request and who take time to write down their ideas. Mr. Moyo also encouraged stakeholders to respond to the Calls for Proposals the Ministry puts from time to time. He noted that the Technical Assistance was complete in the country, and looked to further work in the areas of climate change especially further disseminating and operationalising the CSA manual. He stressed the need for the manual to be used also in designing project proposals which will build the resilience of the country and reduce GHG emmissiions for submission to the GCF and other financiers.

Mr. Moffat Nyamangara, Director, Department of Agricultural Education and Farmer Training, Ministry of Lands, Agriculture and Rural Resettlement, thanked all the participants – Principals, Vice Principals, and Lecturers – from the Colleges of Agriculture as well as stakeholders and the presenters. He noted that the deliberations had come to a successful end. Climate change is real. He posed the question: What are we doing about climate change? Mr. Nyamangara highlighted that there were a lot of concepts which the country can adopt in its work in agriculture. He urged participants that it was not too late to start on a specific project. The participants were encouraged to devout time to develop good proposals after having mapped out areas where their intervention could fall in. He challenged the participants from colleges that they had to persuade the students that they were doing something meaningful in CSA. The

impact at national level only comes when smallholder farmers are adopting some of the CSA practices in their contexts, he noted. He stressed to participants that it was their high standard of performance that would give rise to excellence in CSA and other technologies. He ended his remarks by urging participants to have it all planned, stating that they should aim for the high standard of excellence, and this would also extend to the hinterland. Thereafter, the workshop was adjourned and all present wished safe travels.

Conclusions

The workshop was well-attended by participants from the media, agriculture and climate change. Participants expressed satisfaction at the fact that the work on the CSA Manual had come to a successful completion. They also noted the excellent collaboration among stakeholders in ensuring that the teaching community was well-equipped in terms of knowledge, skills, and attitudes on CSA. The presenters shared key messages in their presentations as well as other issues outside the scope of the CSA Manual. The presentations raised the interest of the participants on the new technical and scientific knowledge in CSA.

The participants were pleased that the CSA Manual was out and that they could begin to explore different areas they could implement on-site at in their contexts. They also expressed satisfaction that the CSA Manual was a useful reference for information, knowledge and current understandings in CSA. Participants observed that the partnerships they had with the Government of Zimbabwe represented by the two Ministries was important in the subsequent activities that would follow the training workshop.

Appendices

Appendix A: Concept Note

Training of Trainers on Climate-Smart Agriculture in Zimbabwe

Introduction

The Climate Technology Centre and Network (CTCN), the United Nations Environment Programme – Technical University of Denmark Partnership, in collaboration with the Government of Zimbabwe and the Request Proponent - Green Impact Trust, recently produced a climate-smart agriculture manual for agricultural education in Zimbabwe[4]. The publication which is meant to assist the agriculture community in Zimbabwe through information on the best practices and latest knowledge and technologies on climate change, is part of the broader Technical Assistance which Zimbabwe requested to the CTCN. VUNA supported some of the components of the Technical Assistance.

CTCN is providing technical assistance to Zimbabwe as part of its core mandate under the United Nations Framework Convention on Climate Change, and in promoting technologies to developing countries in the wake of climate change and related issues. The Government of Zimbabwe agreed to have the Training of Trainers precede the official launch of the climate-smart agriculture manual, scheduled together with the National Climate Policy.

Worldwide, training of trainers is a recognized way to build capacity in a target group and on specific subjects. The Government of Zimbabwe's programs and interventions to build climate resilience towards a green economy are thus complemented with the training, which in the long-term contributes to the country's goal of achieving food security. Cadres who take part in the training are expected to lead in knowledge exchange and dissemination on climate-smart agriculture with farmers and stakeholders in the various districts and provinces. Furthermore, the training provides the impetus for the agriculture community to continuously innovate in issues on climate change and agriculture.

This Concept Note describes the pertinent details on the training in accordance with CTCN's Response Plan for Zimbabwe.

Rationale

According to the CTCN's Network Response Plan, the training is aimed at agriculture personnel (lecturers, students, and extension officers) who are in touch with farmers in various parts of the country. The training is expected is foster networking within the agricultural community. The training is premised on the need to continuously upgrade the knowledge and skills of agriculture cadres especially lecturers, students and extension staff in the country's colleges of agriculture.

[4]https://www.ctc-n.org/technical-assistance/projects/developing-climate-smart-agriculture-manual-agriculture-education

Objectives

The specific objectives of the Training of Trainers are to:

- Impart CSA knowledge to agriculture lecturers.
- Improve the training of students in colleges of agriculture.
- Challenge the agriculture lecturers to improve teaching methodologies in light of new knowledge on CSA.
- Strengthen networking within the agriculture and climate change community

Expected Outcomes

- Enhanced knowledge on CSA.
- Commitment to engage students in colleges of agriculture.
- Recommendations on new teaching methodologies.
- Visible and active networks within the agriculture and climate change community.

Participants

Total number of participants is **42.**
The duration of the training is **2 days.**

Date and Time

Date: 8 – 9 February, 2018.
Times: 0800 hrs – 1630 hrs.

Venues and Location

Management Training Bureau, 128 Mutare Road, Msasa, Harare

Appendix B: Workshop Agenda

Day 1		
Time	**Agenda item**	**Lead Facilitator & Comments**
08:00 – 08:30	Registration	Green Impact Trust / National Coordinator
08:30 – 09:00	Welcome Remarks • Self-introduction of participants • Description of project • Objectives of the workshop	Mr. E. Moyo, Ministry of Environment, Water and Climate (National Designated Entity – CTCN)
09:00 – 09:30	Remarks by	• Dr. Todd Ngara, UDP • Representative from VUNA
09:30 – 10:00	Opening Remarks	• Permanent Secretary of MLARR • Permanent Secretary of MEWC
10:00 – 10:15	TEA BREAK	
10:15 – 10:45	Energy Management	Mr. J. Madzore, Independent Consultant Mr. B. Zeyi, Independent Consultant
10:45 – 11:15	Climate information services	Dr. Dorah Mwenye, Department of Research and Specialist Services
11:15 – 11:45	Discussion	Facilitator
11:45 – 12:00	Weather-based index insurance as a CSA strategy	Dr. Todd Ngara, UDP
12:00 – 12:30	Gender and social inclusion	Mrs. Abby Mhene, Independent Consultant
12:30 – 13:00	Discussion	Facilitator
13:00 – 14:00	LUNCH	
14:00 – 14:30	Crop production	Dr. Dumisani Kutywayo, Department of Research and Specialist Services
14:30 – 15:00	Soil and water management	Mrs. Marongwe, Department of Agricultural, Technical and Extension Services
15:00 – 15:30	Discussion	Facilitator
15:30 – 15:45	TEA BREAK	
15:45 – 16:15	Emerging issues & action items	Facilitator
16:15 – 16:30	Wrap up & conclusions	Dr. Todd Ngara, UDP

Day 2		
Time	**Agenda item**	**Lead Facilitator & Comments**
08:00 – 08:30	Registration	Green Impact Trust / National Coordinator
08:30 – 09:00	Recap of Day 1	Mr. F. Vengai, Department of Agricultural Education and Farmer Training, Ministry of Lands, Agriculture and Rural Resettlement
09:00 – 09:30	The Landscape Approach	Mrs. L. Mushamba, Independent Consultant
09:30 – 10:00	Discussion	Facilitator
10:00 – 10:15	TEA BREAK	
10:15 – 10:45	CSA in livestock and rangeland management	Prof. I.D.T. Mpofu, Chinhoyi University of Technology
10:45 – 11:15	Sustainable forest management and agroforestry	Dr. Elizabeth Mujuru, Bindura University of Science Education
11:15 – 11:45	Discussion	Facilitator
11:45 – 12:00	Fisheries and aquaculture	Dr. Mzime-Ndebele Murisa, Chinhoyi University of Technology
12:00 – 12:30	Institutional arrangement and policy engagement	Dr. E. Chigumira, University of Zimbabwe
12:30 – 13:00	Discussion	Facilitator
13:00 – 14:00	LUNCH	
14:00 – 14:30	CSA in Zimbabwe – the way forward	Mr. D. Nemashakwe, Green Impact Trust
14:30 – 15:00	Post-CSA plans and other strategic policy development	Mrs. E. Matingo, Ministry of Environment, Water and Climate
15:00 – 15:30	Discussion	Facilitator
15:30 – 15:45	TEA BREAK	
15:45 – 16:15	Wrap up of Discussion	Facilitator
16:15 – 16:30	Closing Remarks & Way forward	Dr. Todd Ngara, UDP & key officials

Appendix C: Analysis of Event

Attendance

Category	Males	Females	Total
Day 1	30	14	**44**
Day 2	25	16	**41**

Selected Expectations from Participants

Expectations	CSA Training of Trainers Workshop Emphasis
To gain practical knowledge on CSA	Mastery of knowledge.
To understand the content in the CSA Manual	Provided simple examples to illustrate ideas and issues in the CSA Manual.
To have our minds broadened enough in CSA issues	Open discussions with convergent and divergent opinions, views, and facts.
To learn more about CSA	Basic terminology defined in the presentations.
To be a better researcher in CSA	Research, education and extension linkages emphasized in the discussions.
To make practical the concepts in the CSA Manual.	Specific examples from within Zimbabwe shared during the presentation
To gain more knowledge on CSA to impart to students	Experiment with different teaching methodologies (e.g. handouts, quizzes, analytical questions, and group work.)

Appendix D: Speech by Permanent Secretary, Ministry of Lands, Agriculture and Rural Resettlement, Zimbabwe

Director of Ceremony,
Permanent Secretary, Ministry of Environment, Water and Climate, Zimbabwe,
Senior Government Officials,
Principals and Vice Principals – Colleges of Agriculture,
Lecturers – Colleges of Agriculture,
Representative from United Nations Environment Programme – Technical University of Denmark (UNEP – DTU) Partnership,
Representatives from VUNA,
Executive Director, Green Impact Trust
Ladies and Gentlemen

I am humbled to share with you our thoughts at this timely meeting.

We are pleased to be part of this CSA Training of Trainers Workshop, which you – our Principals, Vice Principals, and Lecturers – have readily welcomed.

We are proud as well to continue our partnership with the Ministry of Environment, Water and Climate, to serve our people and Government.

The Ministry of Lands, Agriculture and Rural Resettlement is very much active in the implementation of the Climate Technology Centre and Network (CTCN's) Technical Assistance in the following roles:

a) Core-custodian of the CSA manual.
b) Providing information on existing curriculum and identifying existing gaps.
c) Expert provision and review and validation of the handbook.
d) Ensure the CSA manual is mainstreamed in the agricultural education sector beyond project life.
e) Co-Monitoring and Evaluation of the impact of the CTCN intervention.
f) Review the handbook and expert guidance.

Some of these roles, we have already acted on them, and some, we are still to act on.

One of the aims of the Technical Assistance is to encourage the adoption of CSA practices and enhanced sustainable food production practices and reduction of greenhouse gases (GHGs). You – our trainees – are the medium through which the loft aims will be achieved. What this means is that we are all expected to play our roles well, in teaching in our colleges, provision of extension support, coordinating agriculture and climate change activities in our areas and colleges, and working within the broader vision of food security, sustainable development, and climate resilience, as spearheaded by the leadership in our country, through the Ministry of Lands, Agriculture and Rural Resettlement.

We are excited as a Ministry that the CSA manual fills in the gaps in curriculum as identified in our Curriculum Review Meeting in July 2015. Those of you who attended this meeting will

appreciate that the CSA manual is evidence that the Government is committed to improving current agricultural and extension practices.

The scope of the CSA manual to include topics such as climate information services, crop production, energy management, livestock and rangeland management, soil and water management, and weather-based index insurance, attests to the multifaceted nature of the solutions we must provide in response to the climate change and its related issues. The CSA manual itself should prepare you all adequately for addressing interrelated subjects as well as challenge your mental models. It is not going to be an easy ride, after all, to master and teach this new concept called "CSA".

Though seemingly unrelated from each other, we – in the Ministry – have observed that the topics, ideas, and themes in the CSA manual relate to climate resilience, food security, and sustainable development. Information acquired must be applied intelligently, and not foolishly. Take heed that because of the different agro-ecological zones (AEZ) in our country, what works particularly well in one AEZ may not be suited to another AEZ. Be ready to assess the suitability of the recommended "climate-smart approaches" to each AEZ.

Through the CSA manual, Zimbabwe joins other countries in the global transition to sustainable food and agricultural practices. We state with a high degree of confidence that this work contributes to the global Sustainable Development Goals (SDGs) on No Poverty (SDG 1), Zero Hunger (SDG 2), Quality Education (SDG 4), and Climate Action (SDG 13).

Our Ministry's focus on conservation agriculture was, and is favorably ranked in Southern Africa. Many of our farmers have achieved high yields through recommended agricultural practices, including, conservation agriculture. Therefore, your presence here, as trainees, is by no means insignificant. You are a cog in the wheel of our agricultural development process.

Upon completion of your training, we expect you to teach your students and those with whom you come into contact on professional grounds, without reservations on the current state of knowledge on CSA. We expect you to fully equip your students, extension officers, and other stakeholders with the knowledge and skills on CSA.

We expect you to lead in the sustainability of this project beyond its completion dates. When called upon to serve as a Resource Person, do not hesitate to share the knowledge and skills, some of which, you will gain in this training. We are counting on you, as our frontline cadres, to generate the evidence-base for CSA adoption in this country.

I thank you all for coming to take part in the training, and warmly wish you an enjoyable training exercise. Thank you for your attention.

Appendix E: Speech by Permanent Secretary, Ministry of Environment, Water and Climate, Zimbabwe

Director of Ceremony,
Director of Agriculture Education and Farmer Training, Mr. Moffat Nyamangara,
Principals and Vice Principals of Agricultural Colleges,
Government Officials here present,
Executive Director – Green Impact Trust, Mr. Nemashakwe,
UNEP – DTU representative, Dr. Todd Ngara,
VUNA Representatives,
Members from the Press,
Ladies and Gentlemen.

At the outset, I wish to express my sincere appreciation that you have been able to take some time off your busy schedules to attend this workshop on CSA.

Zimbabwe is a nation which depends heavily on ran-fed agriculture for its food and nutrition security. The sector contributes towards national Gross Domestic Product (GDP). Over the recent years, the country has faced recurring series of droughts and floods. We have been experiencing erratic ranfall, long mid-season dry-spells and high average temperatures which negatively affect agricultural production. These impacts have been attributed to climate change and variability and calls for strategies that will enhance adequate adaptation and build resilience to climate change.

Due to climate change challenges faced by the country, the Government is continuously mobilizing support towards enhancing the dissemination of climate-smart practices, strategies and technologies that would assist in both climate change mitigation and adaptation across all economic sectors. To date, the Government through my Ministry has developed a National Climate Policy and National Climate Change Response Strategy (NCCRS). Climate-Smart Agriculture (CSA) has been identified as a climate change adaptation measure with mitigation co-benefits.

Climate change mitigation and adaptation is also integrated in the various other related policies and development plans for example, the Renewable Energy Policy, Irrigation Policy and the Comprehensive Agricultural Development Policy and the Zimbabwe Agricultural Investment Plan, among others.

In compliance with the multi-lateral environmental agreements, Zimbabwe as a party to the United Nations Framework Convention on Climate Change (UNFCCC) submitted its Intended Nationally Determined Contribution (INDC) in 2015. The INDCs were basically emission reduction ambitions to be achieved by 2030. The INDCs were adopted as Nationally Determined Contributions (NDC) under the Paris Agreement on Climate Change adopted in

2015. Following Zimbabwe's accession to the Paris Agreement in August 2017, the 33% per capita greenhouse gas emissions reduction target below the projected business-as-usual scenario presented in the country's INDC in now a national obligation to be achieved by 2030. The NDCs will be achieved through emission reductions in the areas of renewable energy, energy efficiency and CSA. We shall be taking stock of the implementation of CSA as part of our reporting under NDCs.

The current agricultural education curriculum was found to be limited in the harmonized teaching of climate-smart agriculture following review processes. This led to the development of a Technical Assistance request by Green Impact Trust, Department of Agricultural Education and Farmer Training, and the Ministry of Environment, Water and Climate to the Climate Technology Centre and Network (CTCN), which is the technology mechanism to the UNFCCC, for the development of a CSA Manual. The Technical Assistance was granted and resulted in the "Development of the Climate-Smart Agriculture Manual for Professional-Level and University-Level Education in Zimbabwe", under the leadership of the UNEP – DTU Partnership.

The manual forms the basis of this Training of Trainers Workshop. The developers of the manual and invited experts will take you through all the chapters of the manual to enhance the understanding of the linkages of the various agricultural practices towards a sustainable production system.

It is my hope that at the end of this two day workshop, participants would have been re-oriented from the conventional agriculture to more sustainable farming practices through climate-smart agricultural practices. The Government expects agricultural colleges to play a pivotal role by transferring CSA knowledge to trainee extension officers so that upon completion of their studies and deployment to the farming constituencies they will able to adequately disseminate CSA knowledge to farmers. CSA adoption by farmers will be expected to sustainably increase agricultural productivity and reduce or remove greenhouse gases from the agricultural sector which we at times refer to as "climate proofing the agriculture sector".

This workshop, ladies and gentlemen, comes at the right time to strengthen the foundation of agricultural education and contribute to the dissemination of sustainable agricultural practices that will assist farmers in climate change mitigation and adaptation. I would like to extend the appreciation of the Ministry to the developers of the CSA Manual, Green Impact Trust, CTCN, Education Unit of the Climate Change Management Department, and the stakeholders who reviewed this Manual.

Ladies and gentlemen, with these few remarks, it is now my singular honor and privilege to declare this workshop officially opened. I wish you all a fruitful two-day Training of Trainers workshop.

Thank you.

Appendix F: List of Participants

Name	Organization	Position
Mr. Moffat Nyamangara	Ministry of Lands, Agriculture and Rural Resettlement, Department of Agricultural Education and Farmer Training	Director
Mr. Francis B. Vengai	Ministry of Lands, Agriculture and Rural Resettlement, Department of Agricultural Education and Farmer Training	Deputy Director
Mr. Lovemore Vambe	Ministry of Lands, Agriculture and Rural Resettlement, Department of Agricultural Education and Farmer Training	Chief Agriculture Education Training Officer
Mrs. Rudo Mbabvu	Ministry of Lands, Agriculture and Rural Resettlement, Department of Agricultural Education and Farmer Training	Curriculum Development Officer
Mr. Washington Zhakata	Ministry of Environment, Water and Climate, Climate Change Management Department	Director
Mr. Elisha N. Moyo	Ministry of Environment, Water and Climate, Climate Change Management Department	Principal Climate Researcher
Mr. Kudzai Ndidzano	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Scientist
Ms. Emily F. Matingo	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Scientist
Mr. Justice Nhidza	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Officer
Ms. Geraldine Mugwe	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Officer
Ms. Mary Jalose	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Officer
Ms. Lesley Mutyavaviri	Ministry of Environment, Water and Climate, Climate Change Management Department	Climate Change Officer
Mr. Farayi B. Jaure	Chibhero College of Agriculture	Lecturer
Mr. Lawrence Gweshe	Chibhero College of Agriculture	Lecturer
Mr. Phillip Mushayi	Chibhero College of Agriculture	Principal
Mr. Jeffrey Jinya	Gwebi College of Agriculture	Lecturer
Mr. Kundai Chakamanga	Gwebi College of Agriculture	Lecturer
Mr. Obey Zingwari	Gwebi College of Agriculture	Lecturer
Mr. Farai Gomo	Esigodini Agricultural College	Lecturer
Mrs. Fungayi Moyo	Esigodini Agricultural College	Acting Principal

Ms. Siziba Bhekisisa	Esigodini Agricultural College	Lecturer
Eng. Damiano Chiuswa	Rio Tinto Agricultural College	Principal
Mr. Never Zifodya	Rio Tinto Agricultural College	Lecturer
Mr. Johnson Mushandu	Shamva Agricultural College	Vice Principal
Mrs. Belta Madhumbu	Shamva Agricultural College	Lecturer
Mr. Obert Mavuto	Shamva Agricultural College	Lecturer
Mr. Aaron Mapakame	Mazowe Veterinary College	Lecturer
Mr. Lovemore Kachitsa	Mazowe Veterinary College	Lecturer
Dr. Nyamadzawo Donora	Mazowe Veterinary College	Principal
Ms. Sibongile Chipare	Mlezu College of Agriculture	Lecturer
Mrs. Nyaradzai Madzime	Mlezu College of Agriculture	Principal
Ms. Priscilla Rudzingi	Mlezu College of Agriculture	Lecturer
Mr. Benjamin Chirambiwa	Kushinga / Phikelela College of Agriculture	Lecturer
Mrs. Caroline Chipomho	Kushinga / Phikelea College of Agriculture	Lecturer
Mrs. Lindsay Mushamba	Self-Employed	Independent Consultant
Mr. Benson Zeyi	Self-Employed	Independent Consultant
Mr. Julius Madzore	Bees Consultancy	Independent Consultant
Mrs. Abby Mgugu	WARESA	Director
Dr. Dorah Mwenye	Department of Research and Specialist Services	Knowledge Management Officer
Dr. Dumisani Kutywayo	Department of Research and Specialist Services	Director
Mrs. Lungowe Sepo Marongwe	Department of Agricultural, Technical and Extension Services	Conservation Agriculture Coordinator
Mr. Walter Makotore	Department of Agricultural, Technical and Extension Services	Agribusiness Specialist
Mr. Alistair Munyorwi	Department of Agricultural, Technical and Extension Services	Agribusiness Specialist
Mr. Fradrick Nyamadzawo	Agriculture	Research Assistant
Dr. Manyewu Mutamba	VUNA	Lead Representative
Dr. Easther Chigumira	University of Zimbabwe	Lecturer
Dr. Elizabeth Mujuru	Bindura University of Science Education	Lecturer
Dr. Mzime-Ndebele Murisa	Chinhoyi University of Technology	Lecturer
Prof. Irvine D. T. Mpofu	Chinhoyi University of Technology	Director
Ms. Tendai Nyika	Mandi Rukuni Seminar Private Limited	Researcher
Ms. Kudzanai Chimhanda	Barefoot for Afrika Education Trust	Research Assistant
Mr. Prince Mukuna	Zimpapers – Herald	Journalist
Ms. Mellisa Mutasa	Zimpapers – Herald	Journalist

Mr. Desire Nemashakwe	Green Impact Trust	Executive Director
Mr. Raymond E. Zvavanyange	UNEP – DTU Partnership	National Coordinator

Appendix G: Media Coverage

UNEP – DTU Partnership News: New publication released: Climate-Smart Agriculture Manual for Agriculture Education in Zimbabwe

http://www.unepdtu.org/newsbase/2017/10/new-publication-climate-smart-agriculture-manual-for-agricultural-education-in-zimbabwe (30 October 2017)

CTCN Website: Portable Document Format: Climate-Smart Agriculture Manual

https://www.ctc-n.org/system/files/dossier/3b/climate-smart_agriculture_manual_final.pdf

CTCN in Zimbabwe: Introducing the Climate-Smart Agriculture Manual

https://www.ctc-n.org/news/ctcn-zimbabwe-introducing-climate-smart-agriculture-manual-education (8 February, 2018)

CTCN: Developing a Climate-Smart Agriculture Manual for Agriculture Education in Zimbabwe

https://www.ctc-n.org/technical-assistance/projects/developing-climate-smart-agriculture-manual-agriculture-education