



**Food and Agriculture Organization
of the United Nations**



Climate change and agriculture scenarios for Zambia

**Using scenarios to guide Climate-Smart
Agriculture (CSA) planning**

Report of the Second Scenario Workshop

***Lusaka, Zambia
20-21 May 2014***



Climate change and agriculture scenarios for Zambia

Using scenarios to guide Climate-Smart Agriculture (CSA) planning

Report of the Second Scenario Workshop

Lusaka, Zambia
20-21 May 2014

By:
Tanja HICHERT
CCAFS Facilitator

Veronica NGUTI
CCAFS Facilitator

This report is funded by:



European Commission

With support from the Government of Zambia:



Technical partners:



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



Environmental Change Institute



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2014

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO 2014

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

Contacts

Economics and Policy Innovations for Climate-Smart Agriculture (EPIC) Programme
Agricultural Development Economics Division (ESA)
Food and Agriculture Organization of the UN (FAO)
Via delle terme di Caracalla, 1 00153 Rome Italy
Email: epic@fao.org
Website: www.fao.org/climatechange/epic

DISCLAIMER

This Report has been prepared as an output of the participatory scenario building workshop under the FAO-EC project *“Climate-Smart Agriculture: capturing the synergies between mitigation, adaptation and food security”* implemented under the Economics and Policy Innovations for Climate-Smart Agriculture (EPIC) Programme and has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies or opinions of FAO, CCAFS, the European Union, or other partners.

The project, funded by the European Commission, was launched in January 2012 in Malawi, Viet Nam and Zambia. It aims to support partner counties in their transition towards Climate-Smart Agriculture.

For further information on EPIC, visit: www.fao.org/climatechange/epic

Table of Contents

INTRODUCTION.....	7
WELCOME REMARKS AND EXPLANATION OF THE PROCESS	8
CSA INVESTMENT PROPOSAL (CSA-IP) AND EVIDENCE BASE	10
OUTPUT FROM GROUP WORK TO DEVELOP CSA-IP	12
PROPOSED CSA-IP	14
COMMENTS AND DISCUSSION FROM THE PLENARY	16
USING SCENARIOS TO ‘STRESS-TEST’ THE CSA-IP.....	18
KEY INDICATORS FOR THE CSA-IP AND CRITICAL ISSUES FOR CSA.....	18
CSA SPECIFIC SCENARIOS	19
STRESS-TEST EXERCISE OUTPUT.....	22
BACK-CASTING	24
FINAL REMARKS AND WORKSHOP CLOSURE.....	25
ANNEX A: BACKGROUND DOCUMENT THAT WAS DISTRIBUTED TO INVITEES.....	26
ANNEX B: LIST OF WORKSHOP PARTICIPANTS AND PHOTO.....	33

Introduction

This report contains the proceedings of the second workshop of a European Commission (EC) funded project designed to assist Zambia in obtaining the tools, knowledge and capacities to adopt, advance, scale up and roll out solutions towards Climate-Smart Agriculture (CSA).

The aim of the workshop was **to craft and review a CSA investment proposal(s), CSA-IP and thereafter develop policy recommendations using future scenarios** (which were developed in a previous workshop that took place in Chisamba 14 – 16 October 2013). For more detail on the overall project, and how scenarios work informs and strengthens planning decisions, see the ‘background note’, attached as Annex A, that was distributed to participants ahead of the gathering.

The project is a collaborative effort by Zambia’s Ministry of Agriculture and Livestock (MAL), the Food and Agriculture Organization of the United Nations (FAO) and the CGIAR programme on Climate Change, and Agriculture and Food Security (CCAFS). This workshop was part of a planned series of workshops for the overarching project titled ‘Climate Smart Agriculture: Capturing the Synergies between Mitigation, Adaptation and Food Security’.¹

The workshop participants were drawn from various sectors including government, civil society, farmers’ unions, universities and research centres, and represented multiple perspectives with regard to Zambian agriculture, climate change and food security. Many of the workshop participants were also involved in the initial scenario building exercise. There were 22 participants (including 2 facilitators and 3 representatives from FAO) . A list of participants, as well as a group photo is contained in Annex B.

¹ see www.fao.org/climatechange/epic for details

Welcome remarks and explanation of the process

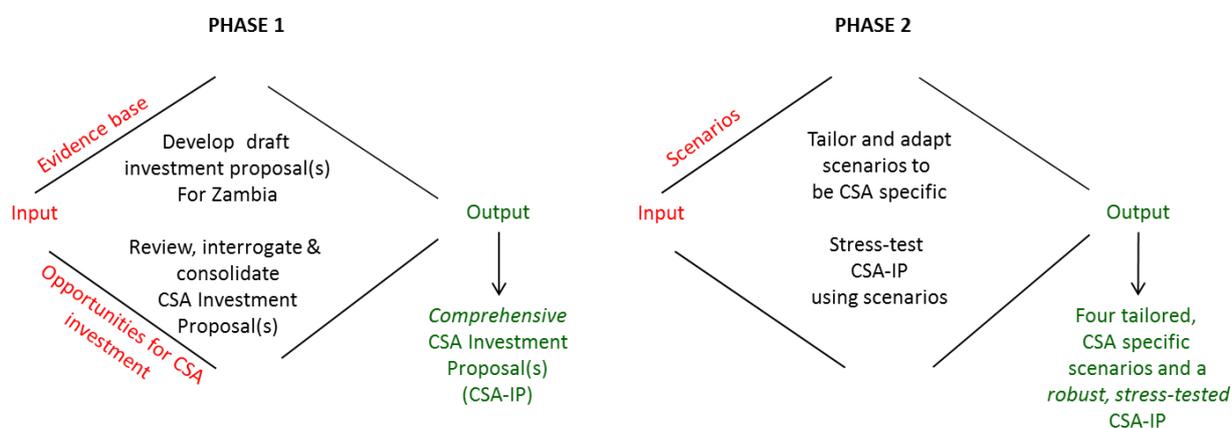
The meeting began with a round of introductions and a quick explanation of the objectives of the gathering, together with a mention of the process to be followed.

The workshop was opened with short speeches by Mr. Young Vibetti representing the MAL and Mr. Andrea Cattaneo from the FAO. Mr. Vibetti noted that the conversations would be centred on CSA with the aim of developing an investment proposal to support interventions in this area. He urged the participants to develop an inclusive proposal and take all aspects of agriculture and climate change into account. Mr. Cattaneo thanked the participants for their patience throughout the investment proposal development process. He was hopeful that they would have one or two proposals to be submitted to donors by the end of the year with the intention of having the implementation done shortly thereafter. He urged the participants to engage in vigorous dialogues bearing in mind the importance of producing a robust investment proposal.

In explaining the process, the facilitator, Tanja Hichert, shared that the essence of scenarios is to 'use' the future to make better decisions in the present. She gave an overview and explanation of the process and structure of the workshop.

There were two distinct phases that needed to be worked through; each starting very specifically, then 'opened up' through conversation, and thereafter 'brought together' again so that there could be a specific output. This is illustrated in Diagram A below.

DIAGRAM A



The first phase is to gain insight into the evidence base for Zambia, as well as the opportunities for CSA investment, and how it may inform a potential CSA-IP. This information will serve as INPUT for a conversation and work around a CSA-IP itself. In groups, participants will develop initial versions of the CSA-IP. In plenary those draft versions of CSA-IPs will be reviewed, interrogated and thereafter consolidated to produce the OUTPUT of the first phase of the workshop, which is (a) **validated comprehensive investment proposal(s)**.

The second phase of the workshop starts with the country level socio-economic scenarios developed in October 2013 for Zambia, which are used as INPUT to an opened up conversation where the scenarios will be adapted and tailored in order to 'stress-test' the CSA-IP. This is also

done in groups and presented back to plenary. The OUTPUT of the second phase of the workshop is a **robust (stress-tested) investment proposal** together with **four CSA specific scenarios** containing key indicators (critical issues) that would inform the feasibility, strengths and weaknesses of the CSA-IP regardless of how the future unfolds.

In other words a CSA-IP that is more 'future-proof', with built-in flexibility, and that can be adapted over time as the contextual situation in Zambia changes. These characteristics would all ensure that the CSA-IP has a much higher probability of succeeding and making a difference with regard to CSA in Zambia.

CSA Investment Proposal (CSA-IP) and evidence base

Presentations on the evidence base generated by the project and the draft CSA-IP, as well as opportunities for CSA investment in Zambia were given by Aslihan Arslan and Andrea Cattaneo. (Copies of these presentations are available and should be distributed in pdf format together with this document.)

The presentation material covered amongst others:

- a brief overview of agriculture in Zambia
- past and current climate trends as well as future projections
- Zambia's National Agriculture Investment Plan (NAIP)
- an introduction to CSA
- the three 'pillars' of the CSA project -- sustainably increasing farm productivity and income, strengthening resilience to climate change and variability, and reducing agriculture's contribution to climate change, and
- the barriers to CSA adoption as well as CSA policy gaps

It was mentioned that the CSA-IP could focus on three levels of intervention:

1. policy, legal and regulatory framework level,
2. the delivery system level, and
3. the implementation level.

The logic behind a CSA-IP is to:

- develop the baseline scenario (what would happen without the project?)
- identify shortcomings (why is the baseline scenario insufficient?) and barriers (what prevents improvement?)
- suggest possible project activities in the three levels (how can these barriers be removed?), and
- sketch alternative scenarios of expected outcomes (what improvements will be achieved?).

The presentation also included suggestions on potential CSA financing opportunities.

The importance of not duplicating or replicating was emphasised, whilst there was an acknowledgement that this workshop was a good opportunity to look for alignment and 'dove-tailing' with other initiatives such as E-SLIP (an International Fund for Agricultural Development (IFAD) initiative aimed at sustainably improving the rural poor's incomes) and/or those by NAIP, NAPA, etc. Participants added that there were several ongoing interventions addressing CSA issues e.g. projects in MAL, as well as some United Nations Development Programme (UNDP) supported projects.

A participant sought to find out the linkages between the various initiatives mentioned above and the FAO, CSA initiative. It was clarified that these other initiatives, despite addressing similar issues, were fundamentally and structurally different from the FAO CSA initiative. The FAO initiative was more research oriented; starting with evidence collection to inform CSA interventions unlike other projects like the UNDP project, which began by implementing projects on the ground.

Further comments and questions, together with responses, on the evidence base and CSA-IP included:

- Whether the strongest determinants for adoption of CSA were calculated -- this is variability of rainfall, followed by extension information and delays in the onset of rains.
- The CSA-IP and E-SLIP timeframes -- the E-SLIP proposal timeframe is 5-6 years, but the timeline for the CSA-IP was open for debate and dependent on how ambitious Zambia wanted to be with potential project activities.
- The link between the scenarios going out to 2030 and the CSA-IP timeframe -- aspects of what is currently happening in Zambia are in all of the four of the 2030 scenarios, and some of the suggested interventions could be gradual and long-term, hence the CSA-IP could be subjected to the stress tests using the scenarios.
- It was noted that there is a gap in how the CSA-IP will link to other existing proposals on CSA in Zambia -- linkages would be established and the CSA-IP is work in progress.
- Are there specific implementers of the project or proposals? There are no implementers yet, and it was hoped that they would be partly identified in the workshop and in subsequent meetings.
- It was cautioned that care should be taken not to duplicate efforts by other stakeholders such as USAID and the Norwegian Agency for Development Cooperation (NORAD). It was also mentioned that more consultations should be held with all stakeholders. The participants were challenged to bring out the linkages with other stakeholders whilst analysing the CSA-IP, as well as share their experiences in the field. It was clear that there was need to look at scaling, leverage, alignment and dovetailing of existing projects and pilots.

Before the participants broke into two groups to develop the initial versions of the CSA-IP, there was a discussion whether to analyse the E-SLIP and CSA-IP separately, or to analyse the CSA-IP only and amend it to include a livestock component.

In the discussion and questions around the evidence base and draft CSA-IP it was suggested that it would be better to include livestock issues in a final integrated CSA-IP rather than have a specific and separate livestock proposal. It was mentioned that livestock, and other, dimensions can be added to the CSA-IP -- it does not have a predefined format. Nothing precludes adding a livestock dimension, but it was pointed out that the FAO cannot get involved in how E-SLIP will be funded.

Some of the participants felt that an enhanced E-SLIP may not take off based on past trends, and since its design could be viewed as flawed because it lacks sufficient financial resources. It was also argued that from a mitigation point of view, the livestock sector is very small compared to other CSA related issues such as land use change (deforestation and charcoal-making).

The arguments for the E-SLIP as a separate proposal was that the FAO could build onto already existing initiatives. Some of the participants argued that the concept was sound, it just lacked financial resources and that it would provide a good fit as a CSA focus area. It was mentioned that E-SLIP is such a good match for the CSA-IP because it touches on 'philosophical' aspects of the Zambian development approach -- livestock expansion, which promotes agricultural diversity and resilience.

Output from group work to develop CSA-IP

Participants split into two group with the task of developing initial versions of the CSA-IP by responding to top-line project scoping exercise questions such as on ‘what’, ‘who’, ‘how’, ‘how much’ and ‘where’. The output of this group work is presented in the table below.

INITIAL VERSIONS OF THE CSA-IP	
GROUP 1	GROUP 2
<p>What is CSA?</p> <ul style="list-style-type: none"> - A tool to achieve agricultural growth and food security through smart agriculture 	<p>Title</p> <ul style="list-style-type: none"> - Climate Smart Agriculture Support Program <p>Overall objective</p> <ul style="list-style-type: none"> - Mainstream CSA into policy, planning and practice in order to build resilience to climate change <p>Specific objectives</p> <ul style="list-style-type: none"> - Building institutional capacity for collecting, processing and dissemination of CSA information - Providing an interface for existing platform - To provide knowledge
<p>Target groups</p> <ul style="list-style-type: none"> - Farmers – to be differentiated by specific activities they engage in - Service delivery institutions (public and private) - Policy makers <p>Implementers</p> <ul style="list-style-type: none"> - Public - Private - NGOs 	<p>Target group</p> <ul style="list-style-type: none"> - Farmers <p>Stakeholders</p> <ul style="list-style-type: none"> - Policy makers - Technocrats - Cooperating partners <p>Implementers</p> <ul style="list-style-type: none"> - Program Management Unit - Relevant government departments (MAL, ZMD, Environment etc.)
<p>Funding sources</p> <ul style="list-style-type: none"> - GEF - GCF - Bilateral sources - GRZ - Foundations 	<p>Sources of funding</p> <ul style="list-style-type: none"> - GEF - GCF - Cooperating Partners (CPs) through government
<p>Key activities</p> <ul style="list-style-type: none"> - Upscale in areas where there has been minimal promotion of conservation agriculture e.g. livestock production and agro-forestry - Check the technology needs assessment reports for Zambia and identify what has been done and how it can be enhanced e.g. crop production, method of cultivation and tillage - Promote crop diversification - Policy direction for input market - reanalyse FISP – should subsidies continue or not - Harmonization of different policies and acts so that they are brought in line with CSA. Policies such as NAIP, land, irrigation etc. 	<p>Key activities</p> <ul style="list-style-type: none"> - Training of personnel involved in data collection, processing and dissemination - Create awareness on CSA among stakeholders - Provision of equipment and tools necessary for CSA activities - Establishing a knowledge management system - Establishing a CSA forum, web based platform etc. - Streamline CSA into the curriculum of institutions of higher learning e.g. colleges and universities - Production of extension materials on CSA

<p>Where</p> <ul style="list-style-type: none"> - Initiatives should not be implemented in the same districts as existing projects. Evaluation must be done in order for the projects to have significant impact. 	<p>Where</p> <ul style="list-style-type: none"> - Capital City - Region 1 and 2
<p>General discussion in the group</p> <ul style="list-style-type: none"> - Some projects do not have impact since they are implemented over short periods. This is inadequate to yield intended results - Technology should be tied to local conditions - Propagating wild fruits as they play an important role in food security (debatable) – wild fruits help alleviate hunger especially during dry spells. - Harmonize the GRZ extension services and private sector’s - How do we bring in fisheries? It is missing from the proposal - A vulnerability assessment study should be done - Private sector will provide inputs, equipment and credit– include the role of private sector - FAO will initiate dialogue between the private and public sector on provision of extension services – FAO will act as a go-between or help foster dialogue - FAO should work with Agriculture Consultative Forum in engaging with the private sector and GRZ for policy dialogue - Zambia Land Alliance has done some work on customary land and hence it should be engaged especially with regard to land rights 	<p>Indicators</p> <p>Output level</p> <ul style="list-style-type: none"> - No of personnel trained and applying the knowledge - Number of beneficiaries accessing CSA - No of dissemination events on CSA - Volume of resources committed to CSA activities - Number of institutions supported with equipment - Number of beneficiaries adopting CSA practices <p>Outcome level</p> <ul style="list-style-type: none"> - Farmers become more resilient - Enhance institutional capacity - Improved decision making - Improved productivity - Enhanced diversified livelihoods <p>Key contextual factors</p> <ul style="list-style-type: none"> - Continued political stability
	<p>Project Duration</p> <ul style="list-style-type: none"> - 7 - 10 years

Proposed CSA-IP

The merged and combined output of the groups represented the CSA-IP as follows:

A CSA support program with a duration of 7 to 10 years entitled “Climate Smart Agriculture Support Program (CSASP)”

Overall Objective

- Mainstream CSA into Zambian policy, planning and practice in order to achieve agricultural growth, food security, and resilience to climate change

Specific Objectives

- Building institutional capacity for collecting, processing and dissemination of CSA information
- Providing an interface for existing platforms for evidence-based decision-making for CSA
- Promote knowledge transfer and incentive systems for increased adoption

Target Group

- Farmers – support to be differentiated by type of producer

Stakeholders

- Policy makers & technocrats
- Service delivery Institutions (public and private)
- Cooperating Partners (CPs)

Sources of funding

- GEF
- GCF
- CPs through government (Bilateral and multilateral sources)
- Foundations

Key Activities

Implementation level

- Check the technology needs assessment reports for Zambia and identify what has been done and how it can be enhanced e.g. crop production, method of cultivation and tillage
- Up-scaling of activities in CA, agroforestry, and mixed crop-livestock systems, aquaculture (emphasis to be decided)
- Promoting livelihood diversification

Delivery System

- Training of personnel involved in data collection, processing and dissemination
- Create awareness on CSA among stakeholders and curricula of institutions of higher learning
- Provision of equipment and tools necessary for data collection and dissemination relating to CSA activities
- Establishing a knowledge management system, e.g. CSA forum, web based platform etc.
- Production of extension materials on CSA, and explore complementary nature of public and private extension services

Policy Level

- Policy direction for input market: Reanalyse FISP and how to better design subsidies
- Harmonization of different policies and acts so that they are brought in line with CSA. Policies such as NAP, land tenure, irrigation

Implementers

- Relevant government departments (MAL, ZMD, ENV etc.)
- Private sector for: inputs, credit, and insurance
- Extensions services: both public and private
- Zambia Land Alliance, Ministry of Lands, and FAO for customary land rights policy dialogue
- Agriculture Consultative Forum and FAO on policy issues

Where

- Capital City for policy-related activities
- Region 1 and 2 for activities relating to weather variability/water scarcity
- Region 3: income diversification (aquaculture)

Indicators

Output Level

- Number of personnel trained and applying the knowledge
- Number of beneficiaries adopting key CSA practices
- Number of policies that mainstream CSA
- Volume of resource committed to CSA activities (is it increasing or decreasing)
- Yields per hectare attributed to CSA interventions (this will be challenging – attributing increase to CSA and it might need modelling)
- Household income (indicates resilience in terms of level and variability) – this was debated and it was suggested it should include the value of production in general whether the yield is for sale or subsistence

Outcome level

- Farmers become more resilient
- Enhance institutional capacity
- Improved decision making
- Improved productivity
- Enhanced diversified livelihoods

Key Contextual Factors

- Continued political stability
- Receptiveness of institutions
- Evolution of land tenure
- Government budget allocation to agriculture

Comments and discussion from the plenary

With regard to ‘mainstreaming’ CSA, this means that it becomes part of what everybody does. As for the proposal, it is necessary to discuss entry points and levels and types of interventions -- interventions should be multilevel, but also level specific. An enabling environment is key to the success of the project, especially at the lowest levels (‘on the ground’).

Who is “create awareness” targeted at? The primary target groups are farmers who need to be further classified. But also policy-makers, mainly because they are the final decision-makers and have to be well-informed -- they will also form part of implementation.

What does the proposal seek to do? It was suggested that it should not go so far as telling the farmers what to do, but try to create awareness of CSA technologies by means of extension services.

Participants were asked what ‘surprised’ them about the CSA-IP. One response was about which regions the CSA projects could concentrate on; in this case Region I and II vs. going into areas where there was less CSA activity going on. The rationale behind this is that Regions I and II is where the climate stress, with regard to temperature and rainfall, is most acute. The argument was made, however, that the other regions also experience climate stress and that flooding and soil degradation are equally climate issues. A way forward could be to determine the areas of focus dependent on the type of intervention – a more context specific approach.

Another surprise was around the evidence base necessary to tackle this project. Difficult aspects, or ‘weaknesses’ should be included in the CSA-IP, such as the socio economic effects of CA. There is a need for vulnerability assessments in order to make better decisions. Research is needed in a myriad of areas, and with limited funds it becomes critical to target investment when it comes to knowledge generation.

One proposed solution was for Indaba Agricultural Policy Research Institute, which has representation on the Environmental Council and Ministry of Land, to disseminate the research and knowledge that they generate.

One participant was very surprised that so little was said about water with regard to infrastructure, technology and management thereof.

In terms of what is missing from the proposal, there was a question about how climate change is being tackled in Zambia seeing that climate change is wider than, but related to, CSA. It was argued that CSA is a way of addressing climate change and that climate change as a phenomenon is a certainty -- there is no need to enter into a debate about it.

Zambia is already addressing climate change in policy frameworks like NAPA, as well as an initiative to create a climate change secretariat [in the Ministry of Finance]. There is also a pilot program on climate resilience in the pipeline. The CSA-IP could look at how to enhance these different initiatives and the CSA-IP could be structured in such a way to take advantage of the emerging initiatives. The CSA-IP could also link to Zambia’s REDD+ strategy, in which case CSA could be viewed as one of the solutions. There are also potential linkages to the national biodiversity strategy and action plan.

A key missing element in the CSA-IP is that it does not address the need for legislation to enforce policy. Currently some acts, such as the Land Act, even contradict policy

The participants mentioned that they really liked the indicators and these were critical to catalyse the discussion on what CSA means, as well as a way of identifying focus areas.

Zambia has good institutional experience in CSA as well as good capacity and (human) resources. If the CSA-IP is successful, and CSA is further implemented, Zambia can play a leading role in the region. There was a recognition that there is currently goodwill toward CSA in Zambia.

It was also recognised that agriculture is a key driver of deforestation in Zambia (and responsible for 20% of GHG emissions). This makes it more likely that the CSA-IP will 'sell' / be viewed positively.

Participants were less hopeful about successfully implementing CSA interventions 'on the ground'. In particular the interventions needed as far as water was concerned. Change in precipitation is the biggest impact of climate change in Zambia and this is arguably where the most intervention is required. However, no-one has 'control' over water. The counter-argument was that CSA is linked to water harvesting and that the CSA-IP will focus on both delivery and extension levels.

Using scenarios to 'stress-test' the CSA-IP

The facilitator presented some slides on how scenarios are used to craft better plans and proposals. Scenarios are typically used to 'road test' or 'stress test' suggested policies / plans / proposals against alternative futures. Scenarios encapsulate contingency planning ("what if") and option analysis. Scenarios can help make decision-making more robust (future-proof), and can help to identify strategies for pre-empting undesirable future developments, as well as strategies for reaching a preferred future. Ultimately one 'uses' the future to learn about, and make better decisions in, the present.

The main outputs of the second phase of the workshop were to produce a set of CSA specific scenarios (tailored from the country level socio-economic scenarios) and to stress-test the CSA-IP in all four of the scenarios. The CSA scenarios stories were created by identifying critical issues and key indicators for CSA, and 'merging' or 'splicing' them into the country-level scenario stories.

Key Indicators for the CSA-IP and critical issues for CSA

The participants were asked to identify key indicators for the proposed CSA-IP as well as critical issues related to CSA in Zambia. These were listed as follows:

Key indicators for the CSA-IP:

- Number of beneficiaries adopting key CSA practices
- Number of policies that have mainstreamed CSA
- Volume of resources committed to CSA activities (is it increasing or decreasing)
- Yields per hectare attributed to CSA interventions (attributing increase to CSA will be challenging and it might need modelling)
- Household income (indicates resilience in terms of level and variability). This was debated and it was suggested it should include the value of production in general, whether the yield is for sale or subsistence

Critical issues for CSA:

- Markets (input and output)
- Service delivery issues like extension services, and/or others, to farmers, access to information, access to credit etc.
- CSA adoption
- Policy harmonization
- Land ownership
- Climate change research and information
- Infrastructure
- Governance issues

CSA specific scenarios

To create CSA specific scenarios, the four country level scenarios were tailored by applying the key indicators and critical issues mentioned above.

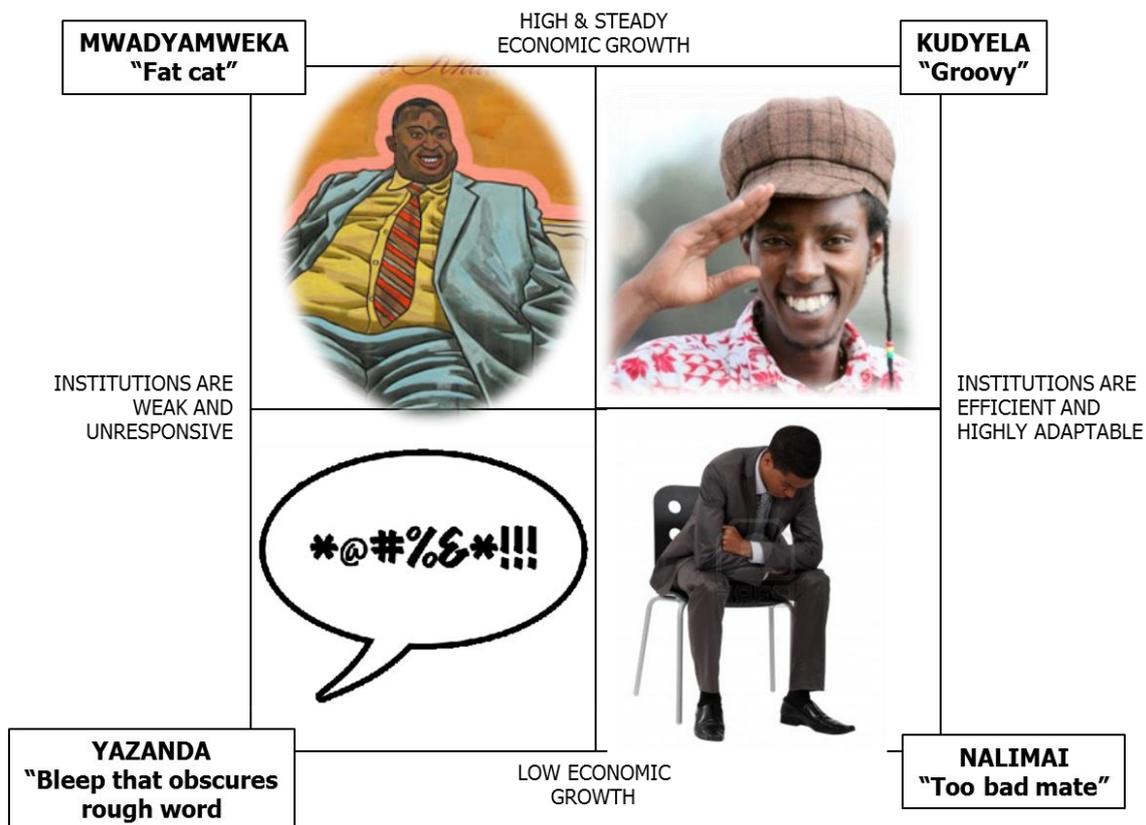
The four country level scenarios for Zambia were:

Yazanda is a Zambia characterized by low economic growth and institutions that are weak and unresponsive. Yazanda is slang in Bemba meaning things are bad.

Mwadyamweka is the story of a country with high and steady economic growth but institutions that are weak and unresponsive. Mwadyamweka is slang word in Nyanja that alludes to selfishness.

Kudyela is a Zambia characterized by high and steady economic growth and institutions that are efficient and highly adaptable. Kudyela is a Nyanja word that means having a good time.

Nalimai is the story of a country with low economic growth but with institutions that are efficient and highly adaptable. Nalimai is a Lozi word meaning the unfortunate one.



The outputs of this exercise are contained in the table below which shows the tailored scenarios together with CSA-critical issues.

Critical issue	Yazanda "Bleep that obscure rough word"	Mwadyamweka "Fat cat"	Nalimai "Too bad mate"	Kudyela
Market (input)	<ul style="list-style-type: none"> – There is market failure or market are non-functional – Unavailability of inputs 	<ul style="list-style-type: none"> – Unreliable markets – Inputs will be unaffordable to the majority 	Poor performance of markets	Robust markets that are efficient
Market (output)	<ul style="list-style-type: none"> – Very low production – High food prices (produce) 	Moderate or low production with high prices for produce	There is biased productivity towards export crops governed by external demand	Well performing value chains
Service delivery (extension and other) to farmers, access to information, access to credit etc.	Non-existent	Limited coverage for few	<ul style="list-style-type: none"> – Poor support for extension services delivery – Poor access to credit 	Extension – strong relations and exchange of information
Infrastructure	It's broken down	<ul style="list-style-type: none"> – Some of the Infrastructure is operational – Majority is compromised, low standards due to corruption 	Poor infrastructure	Improved and well maintained
CSA adoption	<ul style="list-style-type: none"> – Traditional CSA practices survive – New technologies will not be developed 	<ul style="list-style-type: none"> – Adoption rates are not high (stagnant) – Also dis – adoption 	Limited adoption of CSA	Wide adoption of CSA
Policy harmonization	Non-existent	Not optimised	CSA will be mainstreamed into relevant sector policies and legislation since most of the focus is on institutional side	CSA mainstreamed
Land ownership	<ul style="list-style-type: none"> – No security of tenure – Increased corruption 	Unequal land ownership	Land tenure will be reformed to support investment and land use planning. Lack of investment may however weaken this reform	Reformed to support investment and land use planning
Climate change research and	No funding	– Little donor funding	– Critical shortage of funds to	– Availability of funding for

information		- Other funding goes into areas that allow corruption or ease in misappropriation of funds	support research - Less targeted research	research - Functional and responsive research providing evidence or information to support farmers' decisions
Funding	Could go either way – dries up, or much more, but for humanitarian aid	Not from government, and to sectors that are corruption prone or areas that are easier to milk	Inadequate resources committed to CSA, OR a big push to make it happen building on good governance	High volume of resources committed to CSA
Governance issues	Governance has failed -- Fragile or failed state	Government structures enrich the elite	Governance good, but unable to implement & enforce	Governance good and able to implement & enforce
Number of beneficiaries adopting CSA	Could go either way - numbers might come down or people may focus more in adopting CSA	Stagnant	Stagnant	Increasing
CSA mainstreamed policies	Stagnant or reverse – the government could do away with CSA related policies	Stagnant	Yes, but unable to enact	Yes
Volume of resources	Will reduce to zero	Will go down	Not available	High and committed to CSA
Yield per hectare	Very low	Stagnant or low	Bias productivity towards export crops	High productivity for most crops
Household income	Very low	Very low	Low and unpredictable household income	Reduced poverty due to reduced income at household level
Natural resources	Almost non-existent	Low, but some areas may have some minimal conservation efforts	Valued, but unable to protect	Valued and protected

Comments and discussion about the CSA specific scenarios produced the following:

If Zambia lands in the **Yazanda** scenario, which will be bad, it could actually spur CSA uptake and innovation due to the “do or die” nature of farmers that need to survive. This is partly because CSA is not input intensive.

A very lively discussion resulted around the **Mwadyamweka** scenario, because this is the scenario that most closely resembles Zambia as it is today. Many of the challenges, opportunities and risks around CSA for this scenario exist in the present.

Participants felt the extremes of the **Kudyela** scenario were utopian and it would be difficult to achieve 100%. Ultimately it serves as a vision of where Zambia could aspire to go. In **Kudyela** CSA would require the appropriate technology.

Paradoxically, as with the inverse comment made about **Yazanda** above, farmers “having it all” in **Kudyela** may be *less* likely to adopt CSA. Farmers may exist in a “comfort zone” and the service economy will be more developed. These aspects may end up counting against CSA. However, the flip-side could also emerge, where farmers demand even more information and better extension services around CSA. **Kudyela**, despite being a great scenario for Zambia, could end up being a challenging one for CSA.

The **Nalimai** scenario is also interesting for CSA, because extension services could be weak despite ‘well-meaning institutions’ – this is due to the lack of resources. This would imply that prioritisation (and tough choices) become even more important and that research should be even better targeted. Also in **Nalimai** funding and research could easily become skewed towards donor interests – “aid flavour of the month” -- and not national interest or farmers interest.

Stress-test exercise output

‘Stress-testing’ the CSA-IP (or any other strategic initiative or project) using scenarios, basically means that one ‘uses’ the future to make a better, more robust, decisions in the present – in essence it enables one to make more ‘future-proof’ decisions today by thinking (and conversing) through what the proposal would like under different scenarios.

Typically one interrogates the proposal under the different scenarios and asks what would be feasible, and what not; where would strengths and weaknesses lie; what would be prioritised, etc. -- if the future were to be completely different. This provides the opportunity to make recommendations and/or suggest alternatives and conduct a “if this, then that” mental exercise.

The workshop participants did exactly that working in two groups with templates of the CSA-IP for each scenario. (Copies of these worksheets are available and can be distributed in pdf format together with this document.). The plenary report-back and discussion encapsulates the stress-test exercise and includes top-line recommendations and alternatives where applicable.

This included the following:

- There was a relationship between CSA and major government programmes, such as FISP, and how the proposal would perform under different scenarios. FISP can be useful if it underwent some reforms especially around the identification of target groups. More so in the **Yazanda** and **Mwadyamweka** scenarios given their poor, or weaker, institutions. Under the **Kudyela** scenario, FISP could be a hindrance
- Priorities changed per scenario. In **Kudyela** the focus should be around development oriented initiatives, while initiatives in **Yazanda** would probably be relief oriented. State institutional interventions under **Nalimai** and **Yazanda** are inadequate and this would also trigger re-prioritisation.

- The implementation of CSA programmes and projects depends on the magnitude of available resources. These would be very low in **Yazanda** and would, therefore, require a bigger budget.

- Targeting needs is critical, and these needs are different under each scenario. Needs in the **Yazanda** scenario will be vast, and if Zambia ends up in this future, the CSA-IP requires better targeting *and* more money.
- The development of institutional capacity [targeted by the CSA-IP] depends on the prevailing scenario. It would be easy to implement the activities in **Kudyela** and **Nalimai** scenarios because they have stronger institutions, while more capacity building is necessary for the other two.
- It was questioned whether FISP could be afforded in **Yazanda** -- this would depend on the extent and/or severity of **Yazanda**. If things were very bad, there is a possibility that other funders could get involved.

- The CSA-IP was deemed to be most feasible for the **Mwadyamweka** scenario. This is good, because Zambia today most closely resembles the **Mwadyamweka** scenario. Some dependencies for feasibility in **Mwadyamweka** are listed below.

- Up-scaling is feasible, but only if resources are targeted correctly.
- Livelihood diversification is feasible, but only if current inefficiencies are reduced.
- The delivery system and extension material are feasible, but only if resources are provided and funds are allocated.
- Data collection is feasible, but funds need to be allocated towards a knowledge management system.
- Producing the evidence base needed for praxis under the **Mwadyamweka** scenario was also deemed feasible.
- Under the **Mwadyamweka** scenario policy harmonisation and direction for input markets would have to be prioritised.

- Elements of the CSA-IP that were deemed feasible, and that should be undertaken across the board -- in other words no matter which scenario transpired -- were; the need for evidence base and research, providing extension material, equipment and tools, and livelihood diversification.

- In **Yazanda**, however, the up-scaling of some CSA activities, such as agroforestry and mixed crop-livestock systems and aquaculture, was deemed unfeasible, as was the training of personnel involved in data collection, processing and information.

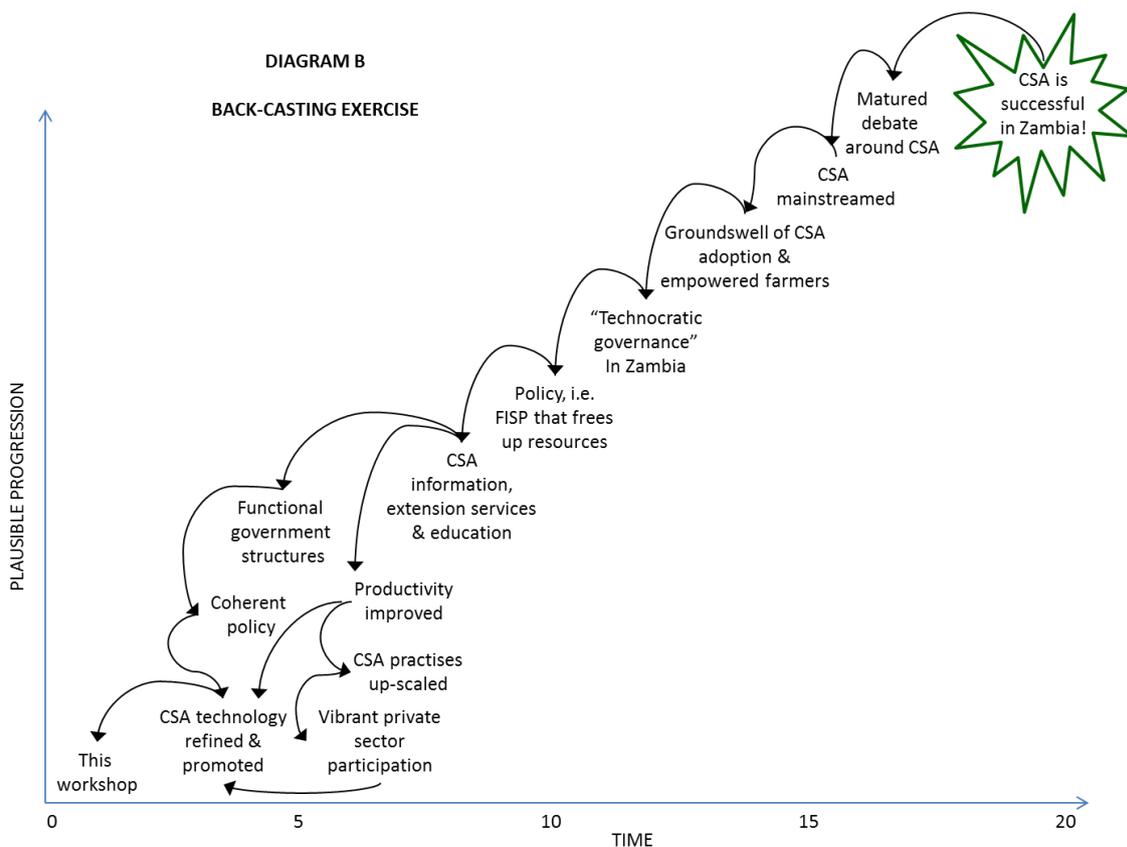
- Changes to the CSA-IP under the different scenarios seemed to be mostly in 'activities' due to the socio-economic changes and differences in the scenarios. This implied a change in focus for each scenario with regard to targeting and entry points at project level.

Finally, it was questioned whether there was a cost-benefit aspect to the CSA-IP and to what extent it would be quantified. In reply it was stated that the CSA-IP would be mostly narrative and that it would probably be submitted in September for proposals.

Back-casting

As a final exercise the participants collectively undertook a back-casting exercise. Back-casting is typically used to get a group to envision a desirable future – in this case, that in 20 years' time, CSA is successful in Zambia -- and then determine what must happen in order for that goal to be reached. It is the process of working backwards from a possible future to determine what needs to happen to make this future unfold and connect to the present.

The back-casting output is depicted in Diagram B below.



Final remarks and workshop closure

The participants reported that the workshop provided them with the opportunity to learn a lot, especially about the use of scenarios. It was mentioned that they enjoyed the diversity of, and multiple, inputs and could link the process and outputs of this workshop to the first scenario-building workshop. This way of working 'makes a lot of sense'.

The projects identified were good ones and would help resolve CSA related issues. There was a call to create a 'common platform' for all stakeholders involved in CSA. It was stated that any follow-up activities should emphasise the logistics and practicalities of the project.

Some of the participants were concerned with the timelines for the project and hoped that the time between proposal finalisation and implementation of activities would not be too long as there is an urgent need to address climate change in Zambia.

It was also appreciated that the workshops were an excellent opportunity to network with people around the issues of CSA and climate change. The use of scenarios and stress-testing a proposal using scenarios was appreciated. For one participant the process begun well and ended well.

The hope was expressed that this project will help add coherence to the issues around CSA and provide guidance to similar initiatives like the development of CSA proposals at ministerial level. It was pointed out that this project is important for praxis and, therefore, important that it goes ahead because of its good and necessary implications.

The FAO team shared that the process was very participative, informative and interesting -- they would not have been able to do this sort of work at HQ. They had hoped to extract even more local knowledge out of the workshop, but shared that this could be done within small working groups in future. They informed participants that the proposal should be ready by September 2014, and that the output of this workshop would serve as a basis for the final CSA-IP, which in its final draft, will be circulated to the group for validation.

The workshop closed at 16:30 on 21 May 2014. This serves as a working document that can be used by all stakeholders, and/or it can be dovetailed / expanded into other relevant material and formats.



VERONICA NGUTI & TANJA HICHERT

25 MARCH 2014

ANNEX A: Background document that was distributed to invitees

FAO / CCAFS WORKSHOP

Workshop 2 – Using scenarios to guide Climate-Smart Agriculture (CSA) planning

20 - 21 May, Ibis Garden, Zambia

Introduction

To be able to respond to the challenges of achieving food security under the pressure posed by an increasing population and the threats posed by climate change, agriculture in developing countries must undergo significant transformation. A key role at the core of this transformation can be played by Climate-Smart Agriculture (CSA).

CSA “promotes production systems that sustainably increase productivity, resilience (adaptation), reduces/removes Green House Gas GHG (mitigation), and enhances achievement of national food security and development goals”². The CSA approach is regarded as an “entry point for essential information on how to make agriculture, forestry and fisheries part of the solution to the negative impacts of climate change”³.

The FAO Economics and Policy Innovations for Climate-Smart Agriculture (EPIC) Programme and the CGIAR⁴ Research Program on Climate Change, Agriculture and Food Security (CCAFS) are working together with the Zambian Ministry of Agriculture and Livestock (MAL), to organize Climate Smart Agriculture (CSA) investment proposals and policy recommendations for Zambia based on future socio-economic scenarios.

This document provides the background for a workshop that will be organized on 20 and 21 May 2014 in Lusaka, Zambia, to review investment proposals and develop policy recommendations using future scenarios to guide planning.

FAO EPIC

In 2010, the agricultural development economics division (ESA) of the FAO initiated the EPIC (Economics and Policy Innovations for Climate Smart Agriculture) programme aimed at developing tools, knowledge and partnerships to support countries in achieving climate smart agriculture. With funding from the European Commission, FAO/EPIC has partnered with Zambia, Malawi and Viet Nam, for a project that builds the necessary technical, policy and financing basis for achieving CSA in the respective countries. The project has four main objectives:

1. Provide an evidence base for identifying, developing and implementing practices, policies and investments for CSA.
2. Develop a country-owned strategic framework to guide action and investment on CSA.
3. Formulate climate smart agriculture investment proposals and identify possible financing sources.
4. Build capacity to plan, implement and finance CSA on the basis of the results above.

To achieve these objectives, the project has both research and policy activities, as well as collaboration with international research and policy institutions including CCAFS.

² <http://www.climatesmartagriculture.org/72610/en/>

³ <http://www.climatesmartagriculture.org/72610/en/>

⁴ Consultative Group on International Agricultural Research

CCAFS

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), addresses the increasing challenge of global warming and declining food security on agricultural practices, policies and measures through a strategic collaboration between [CGIAR](#) and [Future Earth](#). Led by the [International Center for Tropical Agriculture \(CIAT\)](#), CCAFS is collaborating with all [15 CGIAR research centres](#) as well as with the other CGIAR thematic research programs.

Its objectives are to:

1. Close critical gaps in the knowledge of how to enhance – and manage the trade-offs between – food security, livelihood and environmental goals in the face of a changing climate;
2. Develop and evaluate options for adapting to a changing climate to inform agricultural development, food security policy and donor investment strategies; and
3. Enable and assist farmers, policymakers, researchers and donors to continually monitor, assess and adjust their actions in response to observed and anticipated changes in climate.

CCAFS has first initiated activities in South Asia, East Africa and West Africa. Two new regions have been added to the CCAFS geographical areas being Latin America and Southeast Asia.

Project process and context

In order to make make CSA research useful for, and responsive to, policy in Zambia, Malawi and Vietnam FAO and CCAFS have been working collaboratively on a project with a number of phases, including:

- Institutional and policy analysis
- Stakeholder identification
- Developing country level socio-economic scenarios
- Linking the qualitative scenarios to inputs, parameters and contexts required by different quantitative models
- Developing (macro and/or micro) quantitative models and risk simulation where applicable
- Using the scenarios to engage with stakeholders in exploring the current, foreseeable and likely relationships between climate change adaptation, climate change mitigation and food security in the three countries
- Developing investment proposals
- Using scenarios to guide CSA planning, and
- Linking to the United Nations Framework Convention on Climate Change (UNFCCC)

Scenarios, which are stories about different/alternative futures and what impact these may have on the issue under investigation – in this case CSA – are particularly effective when there is a high level of complexity and uncertainty involved. Short descriptions of the Zambia scenarios, which were produced on 14 – 16 October 2013 in Chisamba at a Participatory Scenario Building Workshop are featured below. The workshop included a range of stakeholders such as policy-makers, agricultural and climate change researchers, as well as farmers union - and civil society representatives. (The full Zambia Scenarios Workshop Report (opens pdf) can be downloaded here <http://www.fao.org/docrep/019/i3565e/i3565e.pdf> .)

In addition to generating scenarios about Zambia's plausible, alternative futures, the project involved a quantitative modelling component. Inputs, parameters and especially the context of the modelling work was informed by the scenarios.

Scenarios are typically used to ‘road test’ or ‘stress test’ proposed policies / plans / proposals against alternative futures. Scenarios encapsulate contingency planning (“what if”) and option analysis. Scenarios can help make decision-making more robust (future-proof), and can help to identify strategies for pre-empting undesirable future developments, as well as strategies for reaching a preferred future. Ultimately one ‘uses’ the future to learn about, and make better decisions in, the present.

Therefore, the subsequent workshop, scheduled for 20 - 21 May 2014, will be a participative gathering designed to use the scenarios to evaluate and review the CSA investment proposals, and in particular to help build greater capacity for collaborative governance to enhance adaptive capacity and sustainable policies.

Four scenarios for Zambia

There are many key uncertainties around how the future of Zambia may play out, but two of them, with a particularly high level of impact and uncertainty, were chosen by participants to serve as the main drivers of alternative futures. They are;

- issues related to **economic growth and the nature of economic growth**, which is very dependent on commodity prices, and
- whether the state and other Zambian **institutions could be efficient and implement policies**

This gave rise to four scenarios, namely:

Yazanda is a Zambia characterized by low economic growth and institutions that are weak and unresponsive. Yazanda is slang in Bemba meaning things are bad.

Mwadyamweka is the story of a country with high and steady economic growth but institutions that are weak and unresponsive. Mwadyamweka is slang word in Nyanja that alludes to selfishness.

Kudyela is a Zambia characterized by high and steady economic growth and institutions that are efficient and highly adaptable. Kudyela is a Nyanja word that means having a good time.

Nalimai is the story of a country with low economic growth but with institutions that are efficient and highly adaptable. Nalimai is a Lozi word meaning the unfortunate one.

HIGH & STEADY ECONOMIC GROWTH		
INSTITUTIONS ARE WEAK AND UNRESPONSIVE	MWADYAMWEKA Greedy, selfish politicians and so-called "leaders" are milking the system and skimming all they can off the top. The economy is red-hot and so are the cars and fancy clothes of this lot. But the poor are restless and hungry...	KUDYELA Things in Zambia are just "Groovy". All Zambians are prospering. There is a vibrant youth culture, and the state functions beautifully. It is nimble, effective and delivers! The country is flourishing and farmers even more so.
	YAZANDA The economy has floundered ever since the Chinese crash. Roads remain unfinished, buildings are crumbling, people are starving and nothing works -- except as a result of small bribes here and there. And the drought is in its 3 rd year...	NALIMAI Oh, what a nightmare! "Bad luck" doesn't even begin to describe things. Institutions at all levels did everything right, and more, but the economy tanked and never recovered. Will Zambia ever recover?
LOW ECONOMIC GROWTH		

Some proposed key indicators -- some of them relating to uncertainties surfaced during the workshop, and others resulting from the proceedings of the scenarios' post workshop discussion -- are shown in a table below in relation to the scenarios. These indicators, also known as 'factors of change' clearly show how important a role current decision-making and policies can play in shaping a better future.

Factors	Land ownership and land management / Land tenure complexities	Land and environmental degradation / Impact of climate change	Role of the private sector and governance of the market	Infrastructure rollout	Allocation of public resources to smallholder agriculture
Yazanda "beep sound"	No decisions /resolution, over land ownership, no security of tenure, increased corruption.	Degradation of natural resources / environment and impact of climate change high.	A few 'robber-barons' and 'land-grabbers' operate and their capital flees. No social investment by business.	Infrastructure broken or never existed, and no hope of it being built / financed.	Non-existent
Mwadyamweka "fat cat"	Decisions driven by vested interests of the elite and finance supporting them. No security for smallholder farmers.	Exploitation of natural resources and selected / skewed investment towards resilience	Commercial farming and land-grabbing in cahoots with the political elite. No effective taxation or social investment.	Selected infrastructure financing and rollout to benefit the political / economic elite.	Exists in patches where there are synergies between commercial farming and smallholder agriculture
Kudyela "groovy"	Land tenure issues addressed equitably over time with good governance and enforcement. Farmers have security.	Resources managed well and sustainably, resilience builds due to investment and good governance	Commercial farming & agro-processing work synergistically with smallholder farmers. The 'trickle-down' effect kicks in.	Infrastructure aimed at equitable agricultural growth & development. Built & financed in partnership with private sector.	Present and managed equitably and effectively
Nalimai "too bad"	Attempt to address land tenure issues, but no ability to enforce & implement. Global economic forces dictate ownership.	Sustainability policy and intentions but no ability to implement /enforce, impact of climate change high	Private sector interested to get involved but not willing to take the financial risk. Market governed by pro-poor policies.	Appropriate infrastructure, including that for climate resilience exists on paper, but no money to build.	Exists in patches despite good intentions. Source of public income not sufficient to sustain.

Outline for the 20 – 21 May workshop in Lusaka

Workshop objective

To review and revise CSA investment proposals for Zambia together with decision-makers and funders, and to discuss enabling policy conditions – using the scenarios to test the proposals for feasibility.

Workshop logic and background

To be able to meaningfully assess the feasibility of CSA investment proposals (which will be tabled at the workshop) these have to be examined in the context of the different scenarios representing diverse future socio-economic and climate developments. If a proposal is likely to be successful under a wide range of different conditions, this can be used as evidence for the feasibility of the proposal – in other words, it could indicate a ‘robust’ proposal.

So, for example, the different scenarios can be used to ask the following questions about an investment proposal:

- If a given proposal is based around a single strategy, is this strategy robust/flexible enough to be successful under different scenarios? What improvements can be made?
- Alternatively, if a given proposal provides a portfolio of strategies, which strategies in this portfolio are more or less feasible in different scenarios? What has to be changed, and/or are additional options needed?
- Is the proposal concrete enough to even have meaningful information about how some of the challenges could be tackled? How can the proposal be made more concrete?
- Using scenarios to test the investment proposals is a way to engage stakeholders and actors in a dialogue about future uncertainties which results in an active, critical understanding of the proposals. This leads to co-ownership of these plans and will make it more likely that they are properly informed, and ultimately more likely to succeed over the long-term.

The reviewing and revising of CSA investment proposals will be the core of the workshop. To do this, the scenarios and their associated quantitative results will be reviewed and adapted for the purpose of the meeting. A discussion of enabling policy conditions to CSA will serve to provide further insights into how CSA can be feasibly implemented.

Workshop outputs

- Improved CSA investment proposals supported by decision-makers and funders, proven to be feasible under diverse scenarios.
- Recommendations coming out of an analysis of what policy conditions must be established for CSA to be successful.
- Revised and improved scenarios, tailored to the Zambian context.
- A new network of participants able to take the development and implementation of CSA investment proposals and policy recommendations forward.

Workshop outline

Day 1: 20 May	
9:00-10:00	Present the project, introduce participants
10:100-12:00 (with coffee break)	Present the evidence base for CSA generated by the project, and a first version of an investment proposal to be reviewed and tested in the workshop.
12.00-13.00	<i>Lunch</i>
13.00 to 15.00	The investment proposal presented in the morning will be reviewed and elaborated by two groups of participants; two other groups of participants will work on developing a new proposal from recommendations emerging from the evidence base not covered by proposal 1.
15.00-15.30	<i>Coffee break</i>
15.30-16.00	Present scenarios and associated model results: The country scenarios and their associated model analyses and risk simulation, where applicable will be discussed.
16.00-17.30	Adapt the scenarios to key indicators of interest: The country scenarios are adjusted to function as tailored decision contexts for the participants and the investment proposals. This is done by taking the list of key indicators and outlining what a given scenario means for this indicator over different time periods. The result is a tailored set of scenarios.
Day 2: 21 May	
9.00-10.30	Testing the 2 investment proposals against the scenarios; develop recommendations for improving the proposals for a given scenario: The group splits up into breakout groups, each group testing the investment proposals against a different scenario, highlighting where the proposal is strong and where it has problems dealing with the scenario, and proposing recommendations to overcome these problems. <i>The group also considers what policy conditions may be created that would better enable CSA to be successfully implemented.</i>
10.30-11.00	<i>Coffee break</i>
11.00-12.30	Compare proposal feasibility across the different scenarios; compare recommendations for improvement: the groups come together to compare the strengths and weaknesses of the proposals in the context of different scenarios, and to compare which recommendations for improvement would increase the feasibility of the proposal across this range of futures. <i>Recommendations to create enabling policy conditions are also compared across scenarios.</i>
12.30-13.30	<i>Lunch</i>
13.30-15.30	Discussion, guided by scenarios, on the priorities for the next years and how the next phase of the EPIC programme should be designed to provide the best support to focus on these priorities.
15.30-16.00	<i>Coffee break</i>
16.00-17.30	Next steps forward – funding and implementation

ANNEX B: List of workshop participants and photo

NAMES	ORGANISATION
Ballard Zulu	IAPRI
John Mulenga	Ministry of Agriculture
Lewis Bangwe	Africa Development Bank
Collins Nkatiko	Conservation Farming Unit
Young Vibetti	Ministry of Agric - Livestock
Ephraim Shitima	Ministry of Lands, NREP
Janet Masuzyo	Ministry of Agric -M&E
Patrick Matakala	Centre of Environmental Research & Education
Rasford Kalamatila	Ministry of Agric-Land use
Thomson Kalinda	UNZA-Economics
Charles Chewe	Principal Research Officer; Irrigation Support Project (World Bank)
Davies Kashole	Forestry Officer, Forestry Dept
Misheck Nyembe	Ministry of Agriculture
Joseph Mbinji	Agricultural Consultative Forum
Godfrey Mutale	SARO/Zambia Agricultural Research Institute-Kabwe
Misael Kokwe	FAO - CSA Technical Coordinator
Andrea Cataneo	FAO/EPIC /CSA
Aslan Aslihan	FAO/EPIC/CSA
Tanja Hichert	CCAFS Facilitator
Veronica Nguti	CCAFS Facilitator
Doryn Mpondela	FAO Zambia-workshop secretariat
Friday Chanda	FAO Zambia-workshop secretariat





Economics and Policy Innovations for Climate-Smart Agriculture Programme

Agricultural Development Economics Division

Food and Agriculture Organization of the United Nations

Via delle terme di Caracalla, 1

00153 Rome

Italy

epic@fao.org

www.fao.org/climatechange/epic