Synthesis Report

Three Horizon Farmer Session at UFCCC Africa Climate Week

Intercontinental Addis Conference Centre
FAO Regional Office for Africa, Accra, Ghana

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Contents

Summary

The Farmer session co-organised by took place as a side-event to the UNFCCC Africa Climate Week, 18-22 March 2019, Accra, Ghana. The session aimed to bring forward the role of farmer-driven (small-scale) initiatives in building positive, food secure and climate resilient futures in Africa. Pathways towards food secure, sustainable and climate resilient futures are often designed on global or national levels. This session aimed to focus on local-scale, practitioners' perspectives to enrich the large-scale narratives. In order to facilitate the discussion, the 3 Horizon approach was applied. The workshop included three roundtable discussions focusing on visions of the future, existing promising initiatives and how to overcome the challenges. The results showed that the priority areas requiring support are building societal ability to self-organise and act together, increase the ability of different societal groups (e.g. women, young people) to act independently, to increase the position of farmers both in terms of direct investments in infrastructure and in terms of their societal status, and support their considerations of resilient landscapes. The workshop yielded two very different approaches to common challenges, and very different perspectives on these challenges. While one group focused on maintaining or increasing productivity, to meet the double challenges of increased population sizes and climate variability, the other group addressed these challenges by aiming to inform and influence consumer markets and adopt proactive approaches to understanding and managing uncertain weather patterns.

Key points: What does this mean for resilient development?

1. Support farmers' ability to self-organise, aggregate and act together
2. Support the ability of farmers (as well as societal groups, e.g. women, young people) to act independently - e.g. through increasing farmers' seed ownership, etc.
3. Promote collaboration and exchange of knowledge across scales and sectors - among farmers, researchers, policy-makers at different levels, funding donors, etc.
4. Facilitate farmers' access to information (about climate, crops, market prices, etc.) in a user-friendly form
5. Invest in infrastructure to help farmers reach markets and thus decrease the need for middlemen in the value chain
6. Facilitate capacity-building, including support to farmer-driven initiatives
7. Focus on drivers influencing farmers' situation from a distance - employ novel approaches to better inform and educate consumers, and develop more responsible consumption patterns

Soalandy Rakotondramanga (FAO RAF) hosted the event. Zuzana Harmackova and Andrea Downing (Stockholm Resilience Centre), John Recha (CGIAR), and Anastasia Brainich (Global Resilience Partnership) designed, convened and chaired the session. Liz Sharma (on behalf of GRP) was present for communications' support. Participation of farmer representatives was enabled with kind support from UK's Department of International Development (DFID) and CARE.

Introduction

Aim

The session aimed to bring forward the role of farmer-driven (small-scale) initiatives in building positive, food secure and climate resilient futures in Africa. Pathways towards food secure, sustainable and climate resilient futures are often designed on global or national levels. This session aimed to focus on local-scale, practitioners' perspectives to enrich the large-scale narratives.

Participants

There were 12 participants, including 10 farmers / farmer representatives, organisers joined participants (with the exception of Liz Sharma) and we created 2 groups – labelled **East and West Africa**, respectively to carry out the program.

Table 1: Session participants

Name	Organisation	Country	Discussion group
Caroline (Atieno) Odera	Nyando - Vi Agroforestry and Kenya Agric and Livestock Research Organisation (KALRO)	Nyando, Kenya	table East
Daniel Andrew Sandewa	Lushoto – Tanzania Agricultural Research Institute (TARI)	Lushoto, Tanzania	table East
Edward (Awuonda) Ouko	Nyando - Vi Agroforestry and Kenya Agric and Livestock Research Organisation (KALRO)	Nyando, Kenya	table East
Evelyne Kugonza	Hoima - National Agricultural Research Organisation (NARO)	Hoima, Uganda	table East
Hellen (Everline) Were	Nyando - Vi Agroforestry and Kenya Agric and Livestock Research Organisation (KALRO)	Nyando, Kenya	table East
John Recha	CCAFS East Africa	Kenya	table East
Soalandy Rakotondramanga	FAO		table East
Andrea Downing	SRC	Sweden	table East
Agnes Loriba	CARE	Ghana	table West
Denis Kabiito	WFO	Masaka, Uganda	table West
(Akukah) Gilberta Adama	CARE	Ghana	table West
Juliana Bawa	CARE	Ghana	table West
Pauline Nantogo Kalunda	Ecotrust	Uganda	table West
Anastasia Brainich	GRP	Sweden	table West
Julia Turner	FOLU	USA	table West
Zuzana Harmackova	SRC	Sweden	table West
Dominik Semet	FAO		table West
Manar Abdelmagied	FAO		table West
Liz Sharma	Marchmont Communications / GRP		comms

Outline

In order to facilitate the discussion, the workshop followed an approach partly based on the 3 Horizon approach, similarly to previous dialogues with food-system actors in Africa[1].
The workshop was organised in three steps of roundtable discussions with a different focus each.

1. **"The future we want"**: Discussing how the participants of the session invision a **desirable future** of farming, society and landscape in Africa
2. **"What is already being done to reach such a future": which existing initiatives (e.g. farmer-driven) are promising to contribute to these desirable futures**: Which initiatives are the farmers lead, are involved in or feel ownership of, and how that ownership affects the sustainability of results, and supports their resilience.
3. "**Challenges that might impair the futures and solutions to overcome the challenges**"

Each roundtable discussion started with a few minutes for each participant to write down their own contributions on post-its, and then all shared and discussed their thoughts.

[1] Aguiar A P D, Collste D, Galafassi D, Harmackova Z V, Houngbedji K, Mesfin M, Ndahiro D, Pereira L, Selomane O, van der Leeuw S 2019. The Second African Dialogue on the World In 2050: How to attain the SDGs within planetary boundaries: Agriculture and food systems. Report on a Multi-Actor Dialogue for TWI2050, 30 – 31 October 2018, Kigali, Rwanda. Sustainable Development Goals Center for Africa and SwedBio/Stockholm Resilience Centre at Stockholm University.

Program overview

Time	Step
30 min	Welcome coffee
15 min	Introduction: Current and future climate challenges
35 min	Reflection 1: What futures do we want?
35 min	Reflection 2: What are the promising farmer-driven initiatives that can bring those futures?
30 min	Break
5 min	Summaries from the two tables
35 min	Reflection 3: What are the challenges that need to be overcome to reach those futures?
10 min	Summary – how will we bring this forward?

Results

East Africa Table

Future visions

Based on the post-its of futures described by the participants, we created five categories of future visions.
These categories are:

- Skilled /trained farmers: these futures related to capacity building
- Cohesive community: these futures related to working as communities rather than as individuals
- Food security
- Increased productivity: these are the futures that related to making each small-holder farm produce more
- Resilient landscapes: these visions related to halting erosion and ensuring soil quality.

Some of the visions overlapped across two or more categories, and we labelled them 'Nexus'.

Table 2: Categorisation of the futures.

Futures	Futures grouped
For society: well coordinated farmer cooperatives to lead farmer training, marketing and farmer rights	Cohesive community
Proper post harvest handling	Food security
Good food storage facilities	Food security
Reduction of food waste during harvesting and transportation	Food security
Enough food	Food security
Enough water	Food security
Growing crops that cope with climate change, short maturing crops	Increased productivity
Seeds (see notes)	Increased productivity
Farmer-level: increase in tree cover, especially fruit trees	Nexus
Modern farming techniques (e.g. Conservation farming)	Nexus
we should start practicing modern farming	Nexus
Sustainable agriculture	Nexus
Afforestation with fruit trees	Nexus
Landscape level: well controlled soil erosion structures with either fodder grasses or trees	Resilient landscape
Proper soil conservation	Resilient Landscape
we should dig contours	Resilient Landscape
Conserve environment	Resilient Landscape
Lack of communication between scientists and farmers	Skilled farmers
We should change our actions, understanding and what we are doing	Skilled farmers
Should get training	Skilled farmers
Society with good knowledge of sustainable agriculture and conserved environment	Skilled farmers

Initiatives

Most initiatives discussed focus on **working together as a cohesive community**. Together, the community can share resources, including land and time. Together, the community can build common resources, such as seed banks or food storage. Together, the community has a

stronger voice and can represent its members at higher level discussions. The visioned future community implied all its citizens, men as well as women, older and younger generations, and several initiatives aim to better integrate and empower women and youth into the community.

We see partial dependence between the visions: working as a cohesive community can increase capacity building - where skills and training is shared within the community – which in turn or together can improve food security and increased productivity. However, most of the initiatives to build a cohesive community rely exclusively on the community itself, whereas **capacity building** is supported by the community, but not exclusive to it: capacity building relies also on agricultural officers and researchers.

Fewest initiatives address the vision of **resilient landscapes** however, and it seems somewhat disconnected from the other initiatives. This could be because resilient landscapes - issues of erosion and soil quality - seem either distant to farmers' own scope of influence or maybe even at odds with initiatives that aim to increase productivity.

Half of the initiatives address only one vision, the other half addresses two - but no more. In this sense, the **initiatives are very focused, but not very cross-cutting**.

Table 3: Relationship between initiatives and future visions

Initiatives	Skilled farmers	Cohesive Community	Food security	Increased productivity	Resilient landscapes
Practice conservation agriculture					X
Work with my family		X			
Working together		X			
Form cohesive farmer groups to reach out to officers (see notes)		X			
advice for having food storage in the community			X		
Work hard to overcome food insecurity			X		
Improving the livestock and heards and destocking			X	X	
Increase production per unit area. E.g. By modern farming techniques and proper fertiliser application, properspacing during planting, proper use of herbicides and insecticides			X	X	
Researchers to share their research findings with farmers.	X				
get Agricultural extension officers to create demonstration plots for education purposes.	X				
Form CIGs for marketing purposes		X	X		
exchanging seeds		X	X		
Involve the entire family in farming	X	X			
Work together with fellow farmers: exchange seeds, dig together, plant in line, plant together, harvest together, plant decleared seed, seed with are sorted, share knowledge share experiences	X	X			
Spearhead formation of a farmer group	X	X			
Involve more women and youths to participate in farming practices	X	X			
Plan for a better future where the community are all food secure and there is involvement of everybody		X	X		
Fencing the farm		X		X	X
Lead a tree planting campaign in my society (1 million trees for climate change, for women by women)		X			X
sharing experiences	X	X			
Make my farm a learning site for other farmers	X	X		X	
do seed selection in my farm			X	X	
Not plant seeds which you have planted in the garden				X	

Initiatives	Skilled farmers	Cohesive Community	Food security	Increased productivity	Resilient landscapes
Identify seeds which are resilient to climate change, short maturity, high yield, pest resistant	X			X	

Challenges and Solutions

In the final discussion, participants made the pairings between challenges and their solutions, but interestingly, how these challenges and their solutions relate to the visions in our post-hoc analysis differs.

The **challenges** covered all futures evenly, and though half only addressed one vision, some challenges were more cross-cutting - such as the case of the **poor reputation of farming in youth and in investors**. This is a challenge to two visions: building a cohesive community and capacity building. In this particular case, the solution seemed less within the hands of the community than most other 'cohesive community' initiatives and solutions: the participants see the youths' lack of interest in or respect for farming as an issue in large part at the hands of government, investors and media. The farmers discussed how basic farming skills could be taught at school, as are other professional skills. Financial tools are less available to farmers than to other business activities. When farming is seen as a hobby rather than as a source of revenue, livelihood or promising future, it is less attractive to youth who aim to build careers.

Table 4: Relationship between challenges and future visions

Challenges	Skilled farmers	Cohesive Community	Food security	Increased productivity	Resilient landscapes
Poor storage facilities			X		
Low literacy levels	X				
De-afforestation					X
Inadequate food supply			X		
Lack of market			X		
Low prices			X		
lack of knowledge	X				
Land size				X	
Illiteracy of farmers	X				
Individual farmers		X			
Erosion					X
Lack fo farm inputs				X	
Lack of certified seed varieties				X	
Ignorance amongst farmers	X				
Young people doesn't want to farm, instead they want to go the the cities to seek employment	X	X			
thieves		X	X		
lack of land			X	X	
Small land to practice farming			X	X	
Unpredictable weather patterns			X	X	X
low income	X	X	X		
environment lack of knowledge	X			X	X
concept of taking up farming as a hobby	X	X		X	X
Farming is considered to be the job of failure	X	X		X	X
Lack of access to financial facilities (e.g. Banks - collateral)	X	X		X	X

The **solutions** were not as cross-cutting as the challenges, but slightly more so than the initiatives. A possible explanation for this is that the initiatives presented were those that were already owned and in the hands of farmers, whereas challenges lay beyond individual or even national control (for instance climate change), and solutions were also identified for external players, such as NGOs, scientists and the government.

Table 5: Relationship between solutions and future visions

Solutions	Skilled farmers	Cohesive Community	Food security	Increased productivity	Resilient landscapes
Timely operations			X		
Establish cereal and seed bank			X	X	
Form FFs and demo farms	X				
Diversify rural livelihoods options (e.g. Basket weaving, table banking)		X	X		
do crop diversification & embrace smart farming / climate smart technology	X		X	X	X
Mindset change	X				
farming is a valuable business.	X				
ministerial and parliament levels to provide bank for farmers. need to invest, need bank, if farming is a business, it needs the same opportunities to invest and loan as other businesses	X			X	
we need support from NGOs and government	X				
Form groups		X			
Not be lovers of ourselves (selfish)		X			
Work together, put what we have been taught into action	X	X			
plant resilient crops				X	
we should change in our doing	X				
encourage farmers to lease land lying fallow		X	X	X	
Involve children to give guidance	X				
form cohesive groups		X			
Government to come with a policy for every farmer to plant trees on half an acre					X
Teach agriculture as a subject in primary schools to involve the youth	X				
Use of crop rotation and organic manure in such a small area of land for more food production			X	X	
practicing farm as a business				X	
Form working farming groups		X			

Reflections

These reflections are based primarily on the context of the East Africa table:

Why is there lack of community cohesion today?

There are a number of reasons for lack of community cohesion: difference in literacy level among community members, those who have attained a higher education level and secured jobs perceive themselves as belonging to a different class and therefore often limit their interaction with one in the lower class. Lack of common goals and interests particularly in farming is another reason for lack of cohesion, most farmers do farming for their own different reasons and therefore, they cannot come together to pursue same goals and this explains why they are exploited by middlemen since they don't have togetherness and bargaining power to control prices for their produce. Poor attitude towards farming by some community members, lack of proper support from government i.e. inadequate extension service and negative impacts of climate change which discourage those farmers who have not adopted practices that promotes resilience. These cause higher loses in farming, leading to some farmers opting to do other things not related to farming.

Seed ownership

Most farmers are now using hybrid seeds which they buy from agro dealers every farming/planting season. This is because of the fear of using recycled seeds which may not perform well under varying environmental conditions. Furthermore, they do not have a community seed bank or proper storage facilities which often leads to spoilage of seeds when kept for planting in the next season, and this contributes to them buying seeds from shops. Farmers also lack knowledge in planting and management of crops specifically for seed production. Most of them only grow crops for either home consumption or sale if they get a higher yield. Farmers don't have technical knowhow to produce high quality seeds, a role which is only left in the hands of research organizations and seed producing companies

Financial incentives and barriers

Most farmers don't access financial services due to a number of reasons: ignorance about the existence of financial service providers and the lack of viewing farming as a business and therefore, they don't find a reason of taking a loan for farming. High interest rates charged by financial institutions such as banks also scare away farmers from obtaining loans in fear of losing their assets in case of defaulting. Most smallholder farmers lack collaterals which are requirements to take a loan from banks. This is due to the fact that women and youths are the ones mostly involved in farming practices and yet they don't have legal documents for land ownership which are normally used as collaterals. There are a few women farmers organized in groups which are doing financial savings and loaning at village level, however, there are a number of reported cases of defaulting in loan repayment, which hinders them from future borrowing or ceasing to be a member.

Urbanisation - why do the youth prefer living in the cities, and what can be done about it?

Urban migration is at a higher level among youths because of the following reasons: high population pressure which causes constraints on land use hence, youths opt to move to urban centres in search of jobs. Poor attitude towards farming also contributes highly to rural-urban migration, most youths are not interested in farming and they often view farming as a dirty

and laborious job and therefore, they prefer moving to urban centres in search of white collar jobs. The challenges experienced in farming particularly as a consequence of climate change, leading to very low yields discourage most youths who do not have tolerance/perseverance like the older people and hence shy away from farming and relocate to urban areas in search of jobs.

To reduce or curb rural urban migration, governments have to come up with strategies or policies that will promote rural industrialization to create jobs in rural areas so as youths do not need to relocate to cities to get jobs. The government should also support and encourage modern technology in agriculture so that farming can be viewed as a business and not as a dirty, expensive and labourers work. This can be done by increasing extension services to provide trainings on farming practices that will help farmers develop resilience to climate change and by subsidizing farm inputs.

West Africa Table

Future visions

Based on the post-its of futures described by the participants, we created nine categories to organise the topics raised by the participants. These categories are:

- Cohesive, self-organised society: A society in which farmers have the ability and opportunities to aggregate, self-organise and act in a coordinated manner, which contributes to a more cohesive society.
- Equal and respectful society: A society where all societal groups (men and women, old and young, etc.) have equal opportunities and are equally respected.
- Health for people: Farming practices not impairing people's health.
- Secure food and income: Farming brings more food, secure income and profitable livelihoods at the same time.
- Transformed food systems: Different aspects of food production, processing, transport, consumption, etc., are substantially changed.
- Resilient landscapes
- Better access to resources, information and knowledge
- Accessible funding and better incentives
- Awareness even across distance

Table 6: Categorisation of the futures.

Futures	Futures grouped
Organised and self-owned and self-managed farmer organisations, e.g. cooperatives	Cohesive, self-organised society
We want to see **farmers respected** and adding value to their products	Equal and respectful society
Proper succession plans and **generational renewal [young and old, men and women]**	
More female ministers of food and agriculture, **more female owned farms**	
To cultivate crops **without using chemical fertilisers** and chemicals like weedcide [health issues]	Health for people
Agriculture provides enticing and **profitable livelihoods for next generation** of farmers and enterpreneurs	Secure food and income
Enough **food** throughout the year	
Society free of **hunger** and **poverty**	
We also want the society to have **enough to eat** and have **enough to sell to increase their income** levels.	
Farms sustainably serve as a source of **food and income** for my family	
Good **incomes** at the farms	
Farmers see **farming as a business**	
By 2023 the government should start **scaling most of our production** like shea nut, maize, soya instead of open market	
Sufficient **water** for households	
Everybody should be aware of **post-harvest losses**	Transformed food systems
No food waste (production => distribution => consumption)	
Landscapes rich in **biodiversity**	Resilient landscapes
People are more concerned about the **effect of human activities on the environment and landscape**, and take actions to address them	
In the future we want our **farm lands to be restored**	
Reliable, affordable, accessible methods of **regenerative agriculture** define farming at small and large scales	
Farmers are encouraged to plant more **trees**, farm a little far from river banks and stop felling trees in discriminatively	

Futures	Futures grouped
Particularly those striving to integrate **risk-driven ecological practices**	
Access to weather **information**, risk planning and **early warning**	Better access to resources, information and knowledge
Policies and cultural practices that support **equal access to productive resources and information** for male and female farmers	
Farmers grow the **food** we need to nourish us - the right **incentives**, climate and the **markets** to do so	Accessible funding and better incentives
Enabling policies to **eliminate negative incentives**	
Awareness of displaced impacts of env. degradation and [subsequent] action!	Awareness even across distance

Initiatives

Most initiatives identified at the West Africa table were related to the visions of Secure food and income, followed by Resilient landscapes, Better access to resources, information and knowledge and Equal and respectful society. This underlines that most of the initiatives (and, later, solutions) identified by the group were cross-cutting, related to multiple aspects of the societal, economic and environmental pillars of sustainability in parallel.

The initiatives ranged from local, farmer-driven actions, such as establishing local Market Research Committees by farming women to be able to learn more about current market prices, or the use of sustainable farming practices, e.g. composting and crop livestock integration, to larger-scale initiatives including also other actors then solely farmers, e.g. the ESOKU system, which facilitates the dissemination of information using mobile phones, available also for people who cannot read, using pictograms and local languages; e.g. weather forecast, what to plant, information on prices.

The participants frequently highlighted that promising initiatives often address multiple desirable futures at the same time. For instance, farming practices such as tree planting or agroforestry improve the condition of the landscape, which can then prove more fertile and allow for the production of more food for both direct consumption and sale. Another connection was between initiatives providing better information and easily accessible knowledge for farmers (e.g. ESOKO), which helps to improve the equality in the society.

It was highlighted that initiatives helping to farmers' voices being heard have twofold benefits - first, they make the contributions and needs of farmers more visible in higher-level decision making processes, and second, they can further lead to higher awareness of the food origins among distant consumers, whose consumption and lifestyle choices have an impact on farmers in West Africa.

Fewest initiatives addressed Accessible funding and better incentives, as well as Health for people living at farms.

Table 7: Relationship between initiatives and future visions

Initiative	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
Support local food production (The responsibility for own action) vs. Create export opportunities for farmers (*)			x				x		x
Women are slowly getting (but need more): group agency, access to money, access to information, higher level of engagement, more power (becoming the "heads")		x	x			x			
Mechanization and digitalisation on farms			x			x	x		
Integrating trees into livelihood strategies (fuel wood, fruit production, building ???, timber)			x		x				
Agroforestry			x		x		x		
I have been practising comus keeping for almost three years now; I started planting casio trees and shea on my farm and also practise intercropping cover crops within my crops to restore the land.			x		x		x		
Do more tree planting			x		x		x		
Keep more compost pits			x		x				
Intercrop with legumes to restore the lands			x		x				
Farm a little far from river banks			x		x				
ESOKU: a system of information dissemination using mobile phones, available also for people who cannot read, using pictograms and local languages; e.g. weather forcast, what to plant, information on prices		x	x			x			
Traditional knowledge		x	x		x	x			
Use of indigenous knowledge for wather prediction and action		x	x		x	x			
Market Research Committee established by women (?) to learn more about prices around		x	x			x			
Use of sustainable practices, e.g. composting, crop livestock integration			x		x		x		
Diversification on farms (integrated farming systems)			x		x		x		

Initiative	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
Mobilising financing from the Market (products and services), Environmental services - [need for] pre-financing from the Market	**x**	x	x		x	x			
Complexity: [every issue includes the aspects of] Social, Economic, Environmental. Farmers have to operate on a [this] triple bottom line	**x**	x	x		x	x			
[Seeing] Farming as a business; Increased investments [needed]			x			x			
Mobilisation of like-minded farms into social action groups ([Higher self-]Organisation [needed])	**x**	x	x			x	x		
Supporting collective action by farmer groups for information dissemination, marketing and advocacy	**x**	x	x			x	x		
Consumers getting to know the farming business (good and quality food comes at a price)			x		x		x		x
Farmers' voices being heard - through events like this, at the international level, [more information about the farming background needed] for consumers		x							x
Strong, sustainable infrastructure enables farmers to be super productive and informed, and **better links rural and urban**			x			x			

Challenges and Solutions

Most **challenges** identified by the participants were linked to the visions of Secure food and income, Cohesive, self-organised society, Equal and respectful society and Better access to resources, information and knowledge.

This illustrates that many of the challenges faced by the farmers are nested in deeper societal issues, and farmers will only be able to tackle them if they are provided with sufficient support from society at large. Examples of such challenges were the lack of infrastructure to connect rural and urban areas and to reach the markets for farming products, as well as the lack of access to information, e.g. on current prices at the markets. The lack of infrastructure and information forces farmers to use multiple middlemen to reach the markets, which then disadvantages them as they lose a large proportion of the final price of their products on the markets.

Another challenge with wide consequences was the user-unfriendliness of technologies, which cannot be fully utilized by the farmers, and thus do not solve their problem with low access to information and knowledge from external sources. This challenge then threatens to further deepen the inequalities in society.

A fundamental perceived challenge was climate change and its impacts on landscapes, planted trees and crops, water and food security, etc.

In terms of distant connections, the participants noted that the consumer patterns of the end-users of their products, whose preferences for very specific parameters of products (e.g. avocado size, etc.) and following food-related fashions make it difficult for farmers to adjust.

Similarly, to the challenges, the **solutions** identified by the participants were linked mostly to the visions of Secure food and income, Cohesive, self-organised society, Equal and respectful society and Better access to resources, information and knowledge.

A frequently raised, cross-cutting solution was to make it easier for **farmers to aggregate, so that their power and agency is increased**. This was explicitly mentioned as a solution to many of the previous challenges. For instance, female-driven Market Research Committees were mentioned as a solution to the lack of access to the information about markets, and to inequality issues in parallel.

Another overarching solution was a broader **use of technology** (e.g. mobile phones) to facilitate farmers' access to information as well as to support their aggregation. Specific information systems, e.g. ESOKU, were mentioned as successful examples of how the issue of access to information and knowledge can be solved and overcome language barriers, lack of infrastructure and connections, and other obstacles.

Among the solutions to inequalities in society, **improving the situation of women in farming** and their access to land ownership and farming inputs represented an important theme. In general, many participants saw the solution to inequalities in society through **changing land tenure systems** and traditional systems of land ownership.

Table 8: Relationship between challenges and future visions

Challenge	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
paired with solutions									
lacking infrastructure, low connectivity						x			
interplay between the user-friendliness of technology and the need or more skills to be able to use technology	x	x				x			
not being aware of the prices on the markets (too many middle men)	x	x	x			x			
transport to distant markets			x			x			
too many middlemen exacerbate the prices of products that the farmers can reach	x	x	x			x			
better prices for farmers needed	x	x	x			x			
non-paired									
Lack of skills for people to understand and use technology? Vs. Technology needs to be more user-friendly (*)	x	x	x			x			
Infrastructural limitations: - [afffecting] communication - [poor] internet - [poor] road [network] vs some communication issues have been already overcome (e.g. by offline taking books) (*)	x	x	x			x			
Climate change - impacts and effects	x	x	x		x				x
Disconnect between consumers an farming products (demand for "perfect" products from farmers without fully understanding agricultural system [by consumers])	x	x	x						x
Farmers are far removed from markets (geographically, conceptually [in terms of western-style product specifications that they are asked to deliver and that they	x	x	x						x

Challenge	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
don't understand], etc.)									
Urbanisation and trendistic styles of consumers [people tend to go for avocados, then for something else, which affects farmers] [also affects diversity of products planted]	x		x						x
Trees planted - we always lose some because the [only] one season we have [in our geographic area]. But we have always tried to plant and replace and the planting should be done [at the right] time to sustain [the trees'] survival.			x		x				

Table 9: Relationship between solutions and future visions

Solutions	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
paired with challenges									
aggregation of people increases their power and agency - it is a solution to many of the challenges	x	x	x			x	x	x	
the use of technology (e.g. mobile phones) to support the aggregation of people	x		x			x			
information sharing through systems such as ESOKU	x		x			x			
aggregation of people increases their power and agency - it is a solution to many of the challenges	x	x	x			x	x	x	
Market Research Committee established by women (?) to learn more about prices around	x	x	x			x			

Solutions	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
CARE activities	x	x	x			x	x		
non-paired									
working together as groups to achieve marketable scale [and better prices, since producing in bulk]	x	x	x			x			
Mobilisation of like-minded farms into social ation groups ([Higher self-]Organisation [needed])	x	x	x			x	x		
Enabling local processing => value and less loss			x				x		
Interpreting technology in the local language						x			
Engaging the land owners to release and for women farmers		x	x						
Help women to be input dealers		x	x						
Improve mechanisation to reduce drudgery, time and labour requirements and make farming attractive especially for the youth		x	x				x		
Mechanisation also makes it possible to scale [up production (?)]			x				x		
Skills and technology [user-friendliness] meeting each other, technology being made accessibleis for instance the case of ESOKO			x			x			
Talking books - information on corp and planting in multiple languages, even for people not able to read		x	x			x			
To be done: Standardisation and bulking of products	x		x						
Interpretation of technology						x			
Ownership of land by women farmers		x	x						
Women input dealers		x	x						

Solutions	Cohesive, self-organised society	Equal and respectful society	Secure food and income	Health for people	Resilient landscapes	Better access to resources, information and knowledge	Transformed food systems	Accessible funding and better incentives	Awareness even across distance
Multi-national (and domestic?) restructure and reshape relationships/agreements in the supply chaing to give farmers a fair and reliable price		x	x						x
Land tenure/traditional systems/stewardship		x				x			

Conclusions

Key points: What does this mean for resilient development?

8. Support farmers' ability to self-organise, aggregate and act together
9. Support the ability of farmers (as well as societal groups, e.g. women, young people) to act independently - e.g. through increasing farmers' seed ownership, etc.
10. Promote collaboration and exchange of knowledge across scales and sectors - among farmers, researchers, policy-makers at different levels, funding donors, etc.
11. Facilitate farmers' access to information (about climate, crops, market prices, etc.) in a user-friendly form
12. Invest in infrastructure to help farmers reach markets and thus decrease the need for middlemen in the value chain
13. Facilitate capacity-building, including support to farmer-driven initiatives
14. Focus on drivers influencing farmers' situation from a distance - employ novel approaches to better inform and educate consumers, and develop more responsible consumption patterns

Commonalities

The results show that the participants understand society, livelihoods and environment as closely connected.

The priority areas requiring support are:

1. **Building societal ability to self-organise and act together, in order to increase collaboration and cooperation within farming communities,**
2. **Increasing the ability of different societal groups (e.g. women, young people) to act independently, e.g. through changing land tenure systems and traditional systems of land ownership,**
3. **Increasing the position of farmers both in terms of direct investments in infrastructure and in terms of their societal status,**
4. **Supporting their considerations of resilient landscapes,**
5. **Supporting farmers' ability to store fertile seeds between seasons and thus increase their seed ownership.**
6. **Decreasing the need for middlemen in value chains.**

Visions of resilient future agricultural and food production systems included a cohesive, equal, respectful and self-organised society, secure food and income, easy-to-access funding, technology and information, resulting in skilled and well-trained farmers and leading to a better social status of farming; more productive resilient landscapes and community seed and cereal storage systems, as well as a world where even distant consumers and businesses are

aware of the impact of their consumer choices and business decisions on the everyday life of farmers.

Based on the distribution of initiatives, we find that the farmers see their scope of influence lies specifically within the areas of community and capacity building, where community cohesion can lead to capacity building - through teaching each other as well as by forming common interest groups with a stronger voice to reach out to researchers or agricultural extension officers.

While community cohesion is necessary for the other visions, it is not sufficient, specifically when it comes to building resilient landscapes and to increased productivity. However, community cohesion is an important player in food security (for instance in building community food storage and in devising alternative livelihoods) and capacity building is seen as essential to increase productivity (learning about the right seeds, agricultural methods, herding practices).

Resilient landscapes was a frequently addressed vision for the future, yet least addressed in terms of solutions and initiatives. Initiatives here included planting trees (fruit trees specifically so as to build on the high-productive vision) and terrassing. This mismatch in terms of the visions and solutions could in part be explained by perceived low scope of influence of farmers on landscape resilience - defined here as restored landscape with low erosion and rich soils – especially in a context where immediate priorities are food security /increased productivity. For instance, the tree planting solution towards resilient landscape was phrased as a government policy solution. We suggest that a gap that needs to be bridged is the link between productive and resilient landscapes, and that perhaps, as this knowledge is built and shared with communities, it can be part of the scope if not of individual small-hold farmers, at least of the communities of small-holder farmers.

We identify points of highest leverage for supporting the pathways to the visions lies in creating and supporting capacity building platforms for the communities, by increasing feedback between researchers and the farmers, by promoting and teaching farming skills in school curricula, and integrating knowledge and solutions to food security, improved productivity and landscape resilience into the skills taught and developed.

Differences

While the West Africa table results indicate that reaching their visions requires initiatives which address multiple of these areas simultaneously, East Africa participants had much more focused initiatives. This result could be an artefact of the layout of the workshop, where the East Africa group was a closely connected group that all were involved in CGIAR group led by John Recha (as noted in the Reflections on the East Africa context chapter). In this sense, their ideas about how to answer questions, and their focus on CGIAR-related initiatives or contexts was pre-set. Not all participants of the West Africa group knew each other before hand, and the discussions were therefore broader, contributing perhaps to more overarching perspectives.

An important difference between the two tables was the reliance of the East Africa table on **inputs and knowledge from 'researchers'**, whereas the West Africa table centred on **ownership of ideas**, of seeds and more agro-ecological solutions (i.e. designed by community members). The East Africa group relied on purchased seeds and livestock, engineered for climate resilience. The challenges they faced were placed on the **ownership and management of the and seeds and breeds**: how not to cross-fertilise wild garden seeds with the farm seeds, the wild animals with the purchased breeds; how to acquire the knowledge on how and when to effectively plant the bought seeds; how to feed the fast-growing breeds; how to have a community seed bank in this context. In the West Africa table, **agro-ecological approaches** prevailed (e.g. composting, intercropping): **access to information** about climate, crops and market prices, and access to markets through better infrastructure were mentioned as key areas for improvement. In the West Africa table, initiatives were more cross-cutting of various visions, indicating perhaps the **self-organisation** of these initiatives, whereas initiatives in the East Africa table had a strong **top-down influence**.

In this sense, the tables presented two very different approaches to common challenges, and very different perspectives on these challenges. The East Africa group aimed to maintain or increase productivity, to meet the double challenges of increased population sizes and climate variability. The West Africa table addressed these challenges by trying to inform and influence the consumer markets and learn proactive approaches to understanding and managing uncertain weather patterns.

Barriers to achieving visions, such as the lack of ownership, community cohesion, and information about the bigger-picture processes around farming - from climate to market dynamics - constitute perhaps a bridge to investigate which approaches best address challenges of sustainable food product

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