

# IMPROVING LIVELIHOODS

FOR SMALL HOLDER FARMERS IN EAST AFRICA PROJECT



**ASHOKA**  
SURVEY REPORT

**M**  
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**ASHOKA**



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**FOR SMALL HOLDER FARMERS IN EAST  
AFRICA PROJECT**

Reporting Organization- **Ashoka East Africa**

In Collaboration with the **Akili Group-Kenya**

November 2023

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# 1 EXECUTIVE SUMMARY

## SUMMARY OF THE REPORT'S KEY FINDINGS

Ashoka East Africa with support from Mott Foundation is implementing a project titled "Scaling Africa's Distributed Renewable Energy Ecosystem Model (DREEM) through Social Entrepreneurship" This project specifically aims to strengthen the adoption of solar photovoltaic (PV)solutions within key agricultural value chains. To achieve this goal, a survey was conducted to identify and map innovators operating in the agricultural space and distributed renewable energy sector across East Africa. A survey was successfully carried out using the sequential interviewee method. Data was collected from a purposive sample of records from database of a previous research. The key highlight of the innovator mapping initiative is that most innovations are at the start up stage. There are quite innovative ideas ranging from mobile technologies for tree planting to use the use of agricultural waste to make diapers. Close to half of the innovators are working within the intersection between agriculture and renewable energy. This survey report recommends innovators in appendix 5 to be considered when selecting candidates for the mentorship program. Their innovations align the initiative and cut across the intersection.

## 2 INTRODUCTION

### 2.1. BACKGROUND AND CONTEXT OF THE REPORT.

“Towards improved livelihoods for small-holder farmers in Eastern Africa” was an innovator mapping project between the Mott Foundation and Ashoka East Africa. The project sought to map and document innovative solutions on agricultural value chains for small-holder farmers and on distributed renewable energy in East Africa. The innovations under survey hoped to bring out solutions that focus on systemic issues rather than technical problems to identify solutions that solve multiple problems at once, actively engaging communities and creating far-reaching benefits.

### 2.2. THE GOAL AND SCOPE OF THE SURVEY

The main objective of the Project was to conduct a comprehensive analysis of innovators and organizations working in the fields of distributed renewable energy and agriculture in East Africa.

The entire survey project will arrive at an election of 2 new Fellows developing innovative climate solutions and if possible, (knowing that the Ashoka Fellowship criteria are very selective), solutions to increase adoption of distributed renewable energy solutions in agricultural value chains. As part of this initiative, Ashoka will support the next generation of innovators in this space working alongside existing Ashoka Fellows. Ashoka will lead the selection process. To arrive at these 2 fellows, innovative solutions were mapped out using a survey-based questionnaire particularly on agricultural value chains for small-holder farmers and on the use of distributed renewable energy: The main ideas was to conduct practical research to surface, map, and document innovative solutions on agricultural value chains for small-holder farmers and on distributed renewable energy in East Africa. The targeted innovators were those focusing on systemic issues rather than technical problems to identify solutions that solve multiple problems at once, actively engaging communities and creating far-reaching benefits. A summary document with the main findings and learnings was to be produced and shared during a “Baraza” event in Nairobi with about 30 relevant players then enters phase two-the Collaborative Entrepreneurship Program.

Out of the 30 players, 8-12 innovators working at the crossroads of agricultural value chains and renewable energy will be invited to take part in an 18-month collaborative program based on peer-to-peer learnings, expert inputs support to scale impact and collaborations. This Collaborative Entrepreneurship Program will give rise to the election of 2 new Ashoka fellows.





## 3 SURVEY OBJECTIVES

### 3.1. THE GENERAL PURPOSE OF THE REPORT

This report therefore highlights key findings related to relevance of the identified innovation and makes requisite recommendations towards selection of the next new Ashoka fellows and at the same time point to contemporary trends in innovation for future focus.

### 3.2. THE SPECIFIC OBJECTIVES OF THE REPORT:

- A. **To Present Findings:** Summarizing the project's research findings and analysis.
- B. **To Provide Recommendations:** Offer actionable recommendations based on the research.
- C. **To Raise Awareness:** Increase awareness about key issues within the fields of distributed renewable energy and agriculture value chain
- D. **To Inform Stakeholders:** Inform stakeholders about trends, challenges, and opportunities in these sectors.
- E. **To Facilitate Decision-Making:** Assist decision-makers in shaping policies and initiatives.



## 4 SURVEY METHODOLOGY

### 4.1. DESCRIPTION OF RESEARCH METHODS AND INSTRUMENTATION

The survey used a sequential interviewee method of research. A sequential method falls within the wider structured interview technique of data collection. It involves a two-phase design where quantitative data is collected and analyzed first, then qualitative data is collected and analyzed based on the quantitative results. The first phase involves a face-to-face interview format, though it could also be by phone, and interviews are usually scheduled over a day or two and the respondent is provided with an agenda. According to Creswell, in the sequential explanatory design, a researcher typically connects the two phases while selecting the participants for the qualitative follow-up analysis based on the quantitative results from the first phase and that is what Ashoka did.

Seeking to map out new innovations that focus on agriculture value chains and renewable distributed energy, Ashoka crafted specific objectives from which questions were drawn. Key questions were widened to capture as much information as possible. The responses would be filtered to produce the main descriptive variables for analysis.

### 4.2. SOURCES OF DATA, AND DATA COLLECTION PROCEDURES USED.

The source of contacts was an existing list of innovators obtained from previous surveys, supplemented by a few more random contacts from like-minded organizations. An open-ended structured questionnaire was designed to capture desired responses. The research instrument described above was sent out to 140 potential innovators selected from previous interactions, making intentional follow up phone calls and explanatory conferences. Intentional calls were made to those selected (The entire universe-from the innovator listing) with a view to having them fill out the questionnaire and provide responses. A conference was organized to provide information about the exercise, answering questions from the would-be respondents. All such efforts aimed to provide the entire universe with an equal opportunity for participation. 65 of the respondents came back, 8 invalidated for lack of key details and 52 were analyzed.

### 4.3. DATA CLEANING AND CODING TECHNIQUES USED IN THE SURVEY

Data coding is the labeling and organizing of qualitative data to identify themes and patterns. Coding is an analytical process in which data, in both quantitative form and qualitative form, is categorized to facilitate analysis. One purpose of coding is to transform the data into a form suitable for computer-aided analysis and decoding it back for interpretation. Coding provides structure to free-form data so that it can be examined in a systematic way. This research was more qualitative than it was numerical of demographic details. The analysis used words and phrases representing a recurring theme or idea in the data, aligned to the survey's key objectives.

The responses being private opinions and therefore continuous in nature did not need inferential statistics such as measures of central tendency but rather, highlights of key variables or units of analysis. The same were fully captured in appendices listed and attached herewith and the findings are as below:

## 5 FINDINGS

The graph below gives a general picture of responses related to all key variables as captured. Except for a few variables whose graphs will be specifically displayed, most narratives will be based on this combined histogram. for the responses.

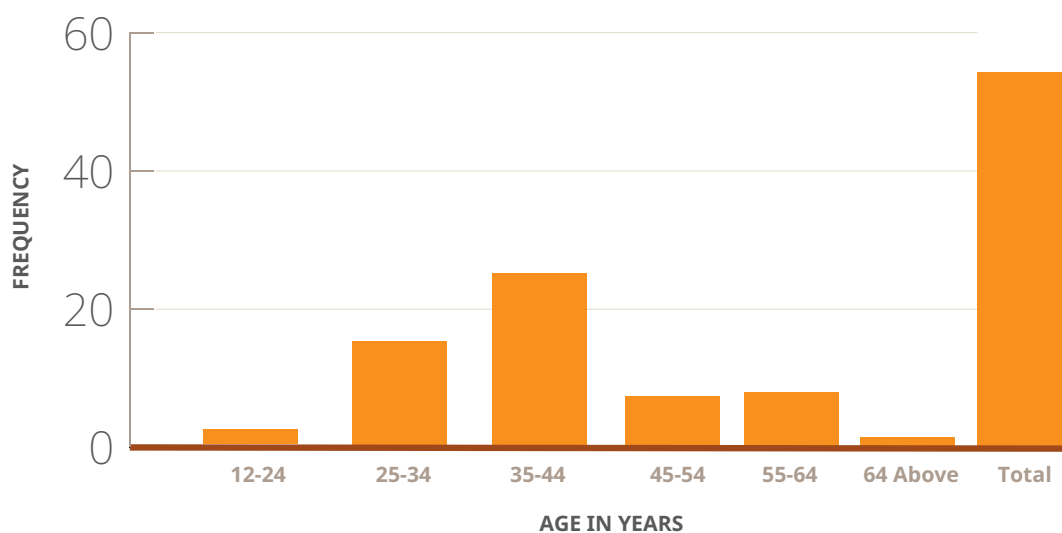


Figure 4. Age brackets of respondents

### 5.1. DEMOGRAPHICS AND CHARACTERISTICS

#### A. Analysis of the demographic data and its significance.

The data obtained and depicted above tells us that the current innovators from the survey are from the lower middle age bracket (35-44) yrs.), majority being male and doing their innovations in Eastern Africa. The information is useful in observing any correlational issues of innovation and the place to invest in. The fact that Eastern African responded better might explain the need to keep an updated data base from many parts of the country. This way, Ashoka East Africa is also likely to have had more accurate contact details because it is their region of operation. The frequency gap between the males and females in the surveyed innovations is a little alarming given that the former is less than one third. This can form the basis for targeting by Ashoka and Mott Foundation.

An age variable exposes an interesting pattern of thematic innovation. The majority of the innovators are in the lower middle age bracket the nearer we draw closer to the lower middle age, the more we find innovations.

The oldest respondent had a highly creative innovation focusing on Biomass- fueled energy plants. Most of those between 45 and 54 years tended to concentrate on innovations related to Soils fertility, preservation and improvement. Higher soil management ability is associated with farmers relying largely on farming knowledge acquired within the household, because of practices slowly elaborated over the years (Ocelli, et al 2021). Investing in soil science can predictably therefore blend better with more experienced farmers-the crystallized intelligence perspectives.

The age bracket between 35 and 44 years had the majority of the respondents focusing on innovations for crop farming. As we draw closer to 35-44 years, heavier use of technology comes up. We see solar panels improved utilization, mobile technology for use in afforestation, soil conditioning technologies and most interestingly, conversion of agricultural waste into diapers for human use. Some have designed technologies for plastic regeneration in to fencing poles (Kilelele Kenya).

The age between 25 and 34 years comes up with more specific technologies on energy. We see improved cookstoves, experiments on electrical vehicle by the swapping of batteries (Yan Kenya). We also see a magnificent innovation on oil extraction using technology (Tanzania). Appendix 3 provides details of the innovations. It is arranged in the age brackets

## B. Organization Profiles

Profiles of organizations in agriculture and renewable energy sectors. All innovators said they were working within efforts that have agriculture in mind as per figure 5 below

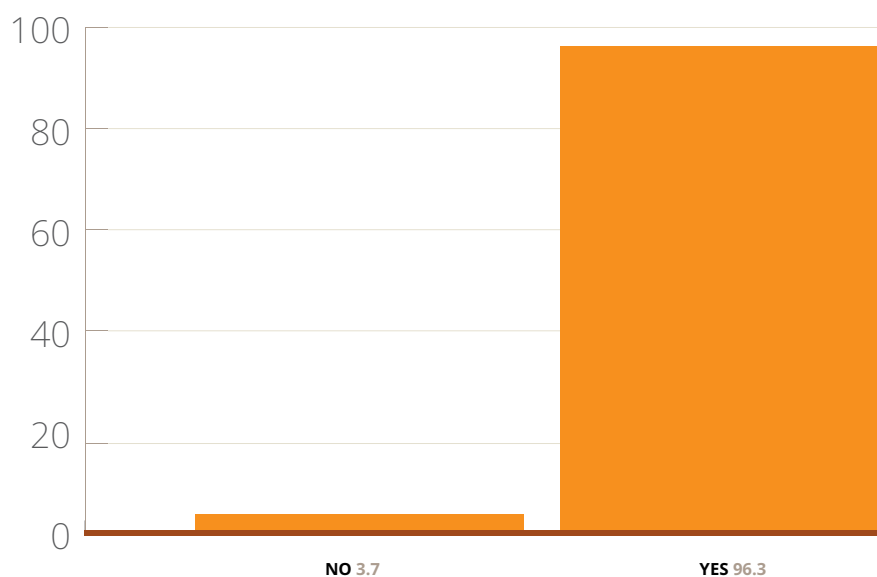


Figure 5. Organizations working within the agricultural sector.



Only slightly more than half of the innovations were within renewable energy. This means that although they may have had agriculture as per figure 5 above, nature was in renewable energy.

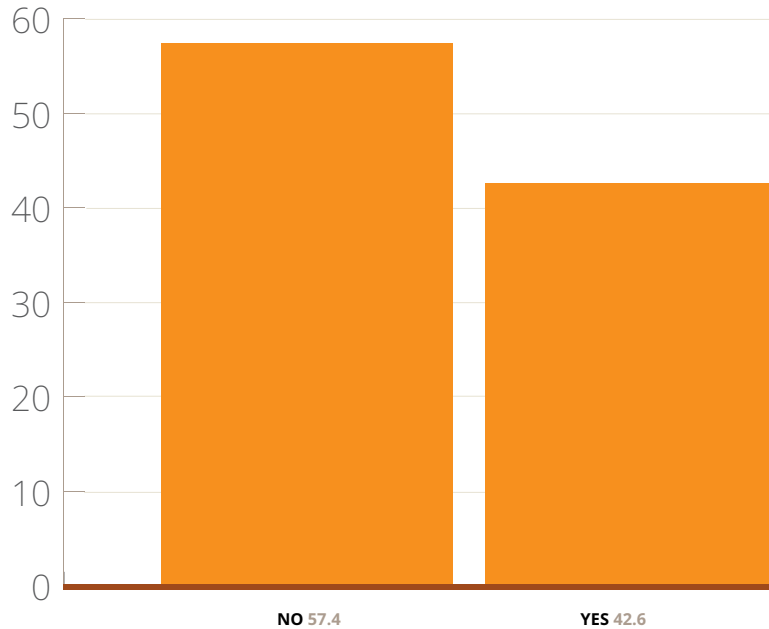


Figure 6. Innovations in Renewable energy.

For those in renewable energy, the majority of them were in solar energy and were using it for irrigation purposes. The improved cookstove was also big. They considered it energy because of thermal efficiency they focused on. The data is captured in figure 7 below

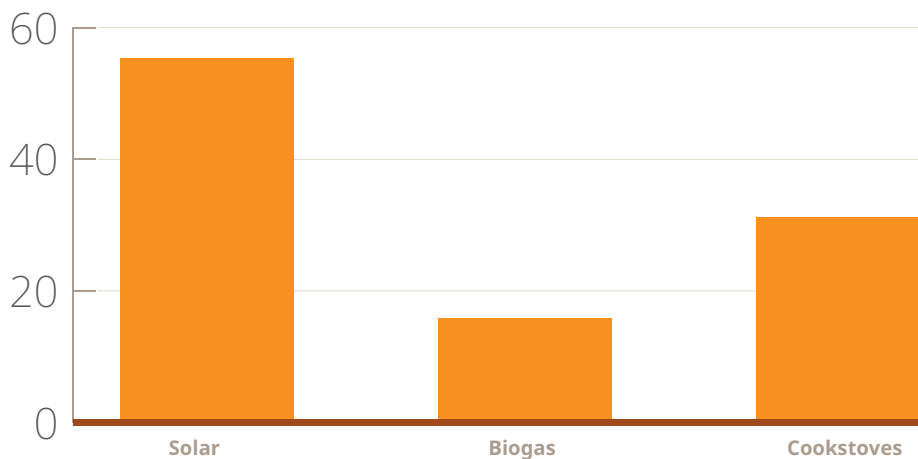


Figure 7. Types of innovations in Renewable energy

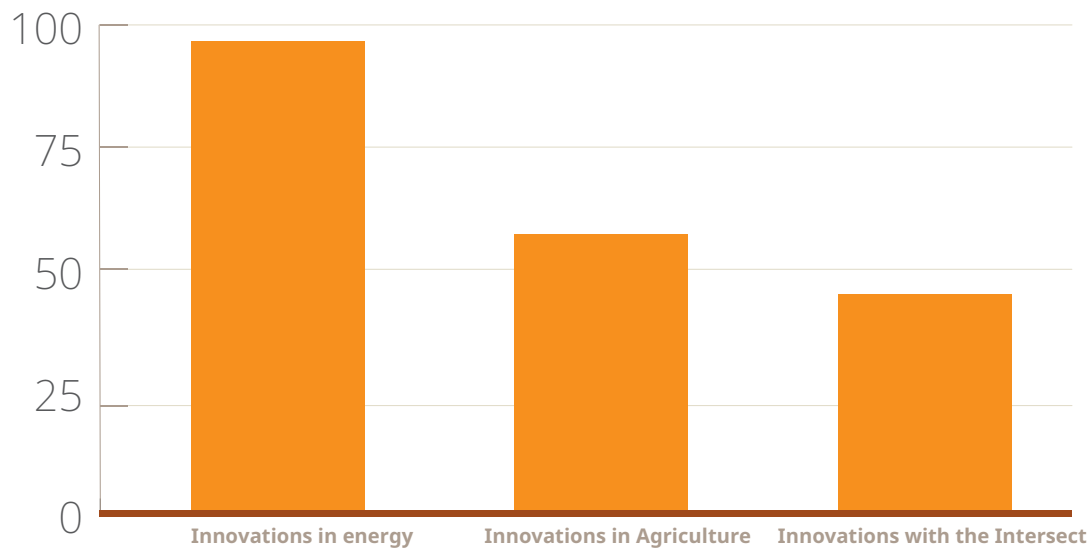


Figure 8: Innovations at the Intersection of Agriculture and Renewable Energy

### C. The intersection between agriculture and Renewable energy

As an overview, slightly less than half of them were within the intersection between agriculture and renewable energy and this is captured in figure 8 . Appendix 5 also provides details of organizations whose innovations intersect between renewable energy and agriculture. A few of he innovations include but not limited to the following.

1. Cookstoves that are designed to use crop residuals and farm waste. That creates a wonderful agricultural ecosystem(Re: Njawara Agricultural Training center)
2. Solar systems for small-holder irrigation
3. Mobile technology in tree planting. This promotes both efficiency and compliance (Re: Tree Adoption Uganda)
4. Solar drying and cooling system for agricultural productivity

## 5.2 MISSIONS, ACTIVITIES, AND REACH OF SURVEYED ORGANIZATIONS.

A detailed description of figure 8 is captured in appendix 1, appendix 2 shows a description of their missions, activities, and geographic reach-All organization.

Appendix 7 provides Profiles of innovators in distributed renewable energy.

### A. Comparative organizational Analysis:

This section provides a comparative analysis of organizations and innovators in agriculture and renewable energy. - Assessment of impact and contributions.

Despite the intersection and mixed interests, there were notable things from which comparisons can be of benefit.

The general thematic areas for innovations in agricultural value chains are covered in appendix 4 attached but in summary they include but not limited to the following:

1. Empowering small-holder farmers with new and improved skills
2. Disseminating agricultural technologies for improved productivity
3. Enhancing community engagement and education
4. Value addition and market access/linkage
5. Promoting mitigation and adaptation in climate change

The survey also sought to understand issues related to smallholder farmers' adoption of renewable energy. - Challenges and opportunities they face. The responses on desired impact are captured in figure 9 below and include the unity of farmers, nutritional benefits for the communities, job creation through increased agricultural activity and economic development through value addition.

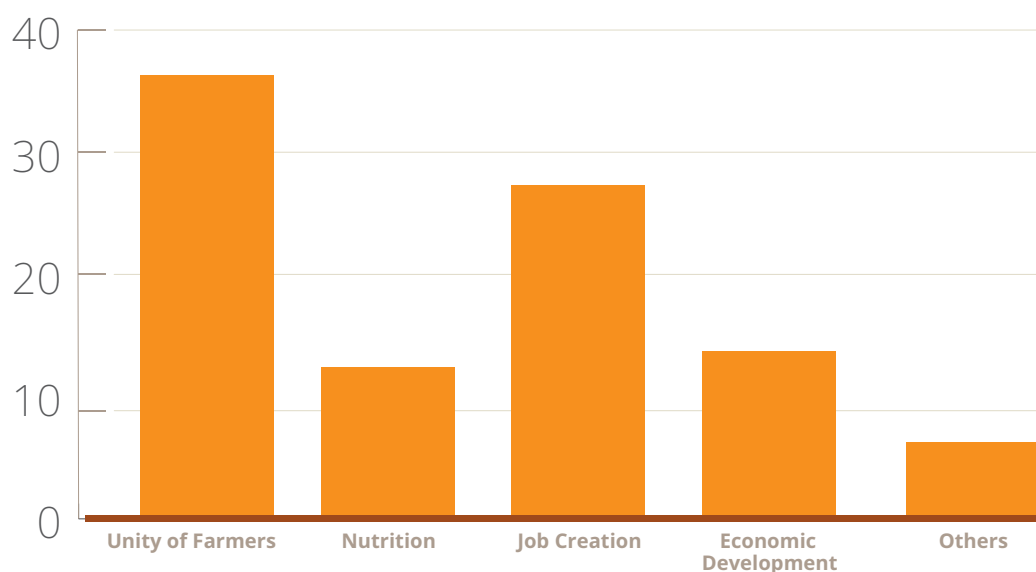


Figure 9. Impacts of Agricultural and Renewable Energy Innovations



## B. Small Holder Farmers and Renewable Energy:

Most of the respondents having said that they were also small-holder farmers and asked to state the challenges faced as farmers (not innovators), low skill/capacity came out most visibly, followed by lack of capital or credit, lack of proper equipment and others as captured by figure 9 below.

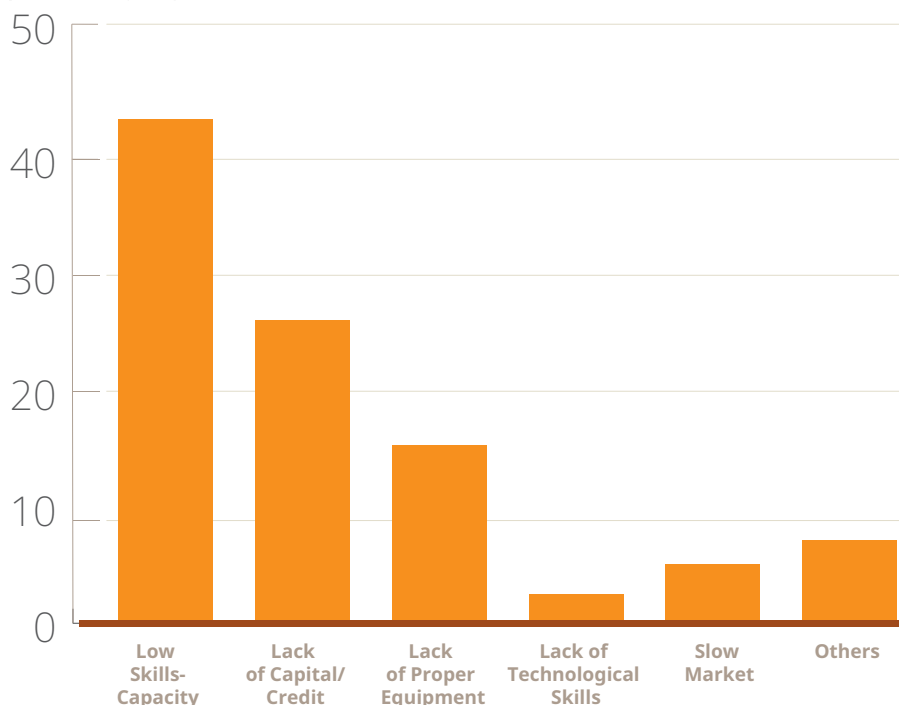


Figure 9. Challenges facing small holder farmers.

The innovators were asked to state the opportunities they saw in the above challenges and demonstrate how their innovations attempted to solve them. The table below captures their responses.

OPPORTUNITIES	CHALLENGES	SOLUTIONS SUGGESTED
Increased productivity and crop yield	Lack of funding for their specific interventions	Provide subsidies and grants
Increased sources of income	Lack of technical knowledge and awareness, hindering adoption	Hold awareness campaigns
Increased sources of income	Limited availability of skilled technicians for maintenance and repairs	Organize training sessions and workshops
Climate Change Resilience	Limited availability of appropriate and efficient renewable energy technologies	Research & Development, and access to the same

Table 1. Innovator solutions for challenges of small-holder farmers.

#### D. Government Initiatives:

Regulatory framework conditions have been identified as important factors influencing the innovation activities of companies, industries and whole economies. However, in the growing body of empirical based literature, the impacts of regulation have been assessed as rather ambivalent for innovation in general, often depending on the different types of innovation. Different types of regulations generate various impacts on innovation, and even a single specific regulation can influence innovation in various ways differentiating between innovation input, i.e. research and development, and output, e.g. incremental or radical innovations, often depending on how it is implemented (NESTA working paper, 2012).

Although it is likely that stringent regulation will not stimulate technological innovation in most firms, some firms are likely to rise to the challenge and become technological leaders in the process. Hence, the “evidence is necessarily anecdotal”. The Schumpeterian notion of “waves of creative destruction” leading to succeeding advances in technological development describes the process by which dominant technologies are being continually displaced as new technologies become available (Nicholas A, et al 2011)

Asked if they were aware of the existing government policies that regulate their work, the responses show a high positive. 63 percent of them were aware

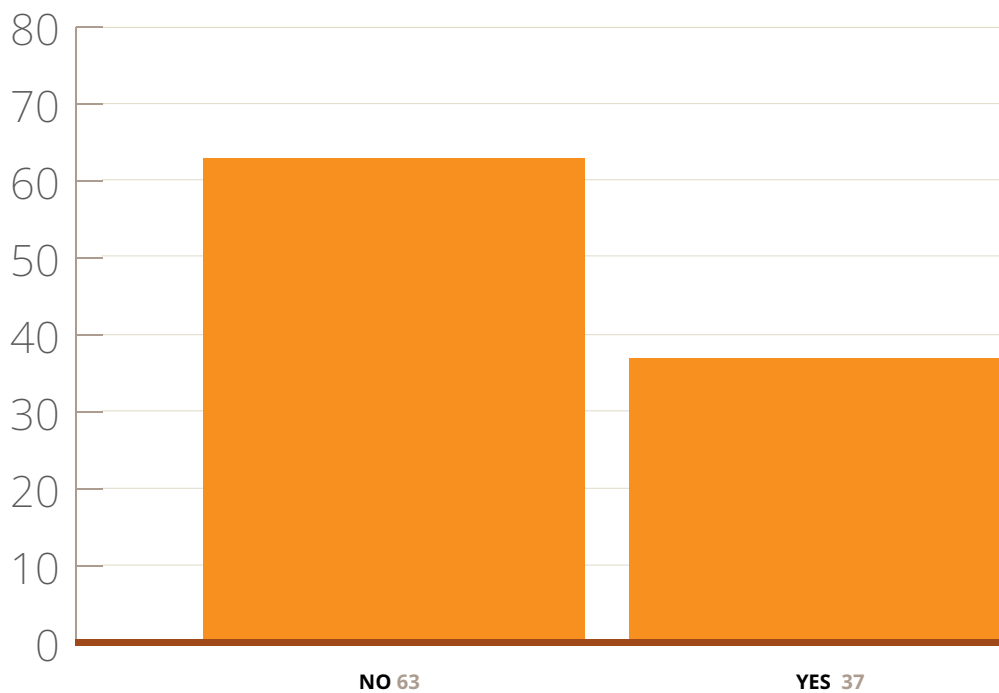


Figure 11. Regulations in Agriculture and Renewable Energy.



## 6 KEY MESSAGE

The data obtained tells the reader that the current innovators from the survey are from the lower middle age bracket (35-44 yrs.), majority being male and doing their innovations in Eastern Africa. The modal age bracket is very ideal if any Ashoka fellow likely to be selected from a mature age-able to get exposure and mentor others

All innovations are at an early stage-requiring more work on full development to document lessons and fully benchmark. The survey brings out a variety of innovations, some of which are pretty interesting interesting, and which can be made big. The innovations range from improved cookstoves and carbon sink on climate change and livelihoods to Rise milling. The few energies focused innovations involve solar-based solutions. Agriculture-based innovations involve crop disease diagnosis, using waste to make degradable diapers and creative fish farming techniques. There are a couple of opportunities for supporting some innovators- capacity building for research and development, and policy matters related to advocacy





## 7 RECOMMENDATIONS

Africa has potential for growth in solution-based innovations. Governments and policy makers need to see an opportunity in this window and provide intentional support and guiding mechanisms for creativity. Some of the innovations revealed by this survey are community targeted and lack business-related capitation to grow. As we continue supporting industrialization in Africa, an eye on community-based innovation can be a fantastic opportunity to achieve high-level growth targets. The report recommends innovators in appendix 5 to be considered when selecting candidates for the mentorship program. Their innovations align the initiative and cut across the intersection. However, others outside of the intersection can produce a few more good candidates.

## 8 CONCLUSION:

There is need for cultivation of solution-based renewable energy in East Africa. The survey was timely and its findings relevant for a time like this when the general economic situation for Africa is such that self-employment is the way out. Small-holder farming needs to be taken to the next level of productivity through simple but practical technological solutions. The finding of this initiative is that there are great innovative ideas which can be encouraged, amplified and supported to become catalysts for rural farming practices.





## 9 PROJECT NEXT STEPS:

### Ashoka Changemaker Baraza Series

- The initiative will target about 30 innovators to take part in the baraza and the 2-day in-person events as a shallow exposure to other innovators through a baraza. The Baraza will produce a negotiated list of 8-12 innovators (A list of recommended names is also attached in Appendix-->) who will take part in the 18-month mentorship program with experienced Ashoka fellows.

### Collaborative entrepreneurship program

- The collaborative entrepreneurship program is an 18-month program tailored to support the growth and advancement of innovators in the agriculture and renewable space towards the improvement of the livelihood of smallholder farmers.
- Goal: Support the growth and advancement of innovators in the agriculture and renewable space towards the improvement of the livelihood of small holder farmers

### Objective:

- Host capacity building workshops, in-person and virtual workshops
- Foster collaboration and connection among innovators, leading social entrepreneurs, thought leaders and partners in the agricultural and renewable space to support their growth
- Build an ecosystem around the agriculture and renewable energy sector that promotes sharing and learning
- Establish a spark fund to support and accelerate innovators initiatives within the agriculture and renewable energy sector

### Spark Fund

A spark fund for collaboration: a small fund is budgeted to support participants through visits of projects, seed collaborations, a trip to an important funder or participation to a key conference, etc.

### Elect and support two new Ashoka Fellows

The project aims to elect 2 new Fellows developing innovative climate solutions and if possible, solutions to increase adoption of distributed renewable energy solutions in agricultural value chains. As part of this initiative, Ashoka will support the next generation of innovators in this space working alongside existing Ashoka Fellows. Ashoka will lead the selection process.

## REFERENCES

1. Creswell, J.W. (2013) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition, SAGE Publications, Inc., London
2. Occelli, M., Mantino, A., Ragaglini, G., Dell'Acqua, M., Fadda, C., Pè, M. E., & Nuvolari, A. (2021). Traditional knowledge affects soil management ability of smallholder farmers in marginal areas. *Agronomy for Sustainable Development*, 41, 1-15.
3. Saldaña, J. (2021). Coding techniques for quantitative and mixed data. *The Routledge Reviewer's Guide to Mixed Methods Analysis*, 151-160.





## APPENDICES

- APPENDIX 1: Profiles of organizations- their potential impacts and stage of innovation.
- APPENDIX 2: Description of their missions, activities, and geographic reach-All organization.
- APPENDIX 3: Classification of innovation by age of innovators
- APPENDIX 4: Thematic Areas in the Agricultural Value Chain
- APPENDIX 5: Innovations That Intersect Between Agriculture and Renewable Energy
- APPENDIX 6: List of innovators Purely Involved in Agricultural Value chains
- APPENDIX 7: List of Renewable Energy innovators and their impacts
- APPENDIX 8: List of innovation intersecting between Agriculture and Renewable Energy
- Supporting materials such i.e. survey forms, detailed data tables, or additional information are not included in the main text.

## ACKNOWLEDGMENTS

Akili Group acknowledges the opportunity to participate in this noble exercise both at developing the tool and writing of this report.



# APPENDIX

## APPENDIX 1

### PROFILES OF ORGANIZATIONS- THEIR POTENTIAL IMPACTS AND STAGE OF INNOVATION.

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
Njawara Agricultural Training Centre Leader:	Improved cooking stoves using crop residues.	Accessibility An easy-to-use cookstove and easily available sources of fuel
Lake Agriculture and Marketing Cooperative Society Leader	Solar system for irrigation system.	Introduction of a new agricultural community because of available solar power for irrigation
Hopeside CBO (community-based organizations). Leader	Distributed improved cookstoves and Home Biogas.	Community development through production of Biogas
Village Industrial Power	Biomass-fueled energy plants for food preservation.	Longer storage of post-harvest perishable farm products
Soil Doctors	Microclimate planters and carbon sink planters.	<p>This technology input is inherently environmentally friendly, has immense benefits and will see a reversal to land degradation.</p> <p>Carbon sink planters represent inexpensive and environmentally sound treatment options for farmers in areas of the world with infertile soils and suitable climates.</p>

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
Bunyala AGR Climate Action Impact Solutions (Vermi-Farm Initiative)	Cactus farming with diversified techniques and sustainable livestock feed using smart greenhouses, regenerative fertilizers, green financing, and franchising.	Reported that “our Vermi-Farm Initiative is an innovative approach that uses technology, regenerative practices, and community involvement to promote sustainable agriculture, enhance food security, and promote economic growth.”
Green Pavers	Recycling waste plastic into construction materials.	Addresses Waste Management, provides access to Energy, and creates employment. Their response on deforestation was not clarified even with a follow up.
InspCorp	Organic soil conditioner and biofertilizer.	Combined Nutrient and Fuel plant will market the renewable electricity generated from the gaseous biofuel product to a localized mini grid and thus create a distributed renewable energy network around multiple CNF plants.
Safi Organics	Decentralized fertilizer production using locally available waste and solar energy installation.	Employing 15 locals and also assisting in avoiding up to 200 tons of CO2-eq emissions.
Tree Adoption Uganda (TAU)	Mobile technology in tree growing efforts.	Builds resilience for smallholder farmers against the changing climate while economically empowering unemployed young people in Uganda’s rural communities
GreenEdge	ALLIN Digital platform for farmer- centric agricultural data integration and support.	Works directly to reach farmers in remote locations to access affordable services by leveraging digital technology to build last mile distribution networks.  Also, by leveraging 360 degrees data points to support farmers access affordable credit beyond traditional collateral.
Aquarech Ltd	Fish farming platform for farmers, feed manufacturers, and buyers.	Provides a platform that is efficient and able to guarantee continuous access to quality inputs, flexible payment plan, technical support, and immediate market access for them products.

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
Centre for Citizens Conserving Environment & Management (CECIC)	Solar drying and cooling systems for agricultural products.	Solar dryers and coolers powered by photovoltaic panels reduce post-harvest losses and increase the value of agricultural produce for communities currently without access to grid electricity.
Philemon Farm	Mushroom cultivation, organic produce, and waste utilization.	Reduces deforestation, mitigates greenhouse gas emissions, and alleviates air pollution in the reduced use of wood and charcoal, leading to forest preservation.
Buzana FRM Chaice ltd	Grading and milling in rice production and fish farming.	Grading process for selecting long from short grain in the line of production for rice.
Smart Kilimo	AI-driven crop disease diagnosis and farming guidance.	to revolutionize farming practices by leveraging on cutting-edge technology (AI (Artificial Intelligence)) to offer an array of solutions
Kozzi Homes	Market support for smallholder farmers in floriculture and fruit growing.	Impacting the lives of smallholder farmers by finding markets for their produce and helping companies find quality ornamental trees, plants and fruits that would otherwise be difficult for them to find.
Kyamaganda community development	Maize processing for value addition and nutritious supplements.	Improved livelihood of the rural community
Avo oil group	Cold screw pressing technology and centrifuge machinery for oil extraction and value addition.	Economic impact to farmers, Nutritional impact, employment, and sustainable economic development for all.
Kimonyi Women Development Group Ltd	Production of organic vegetables using a greenhouse and drip irrigation system.	Helping women smallholder farmers to move from subsistence farming to oriented market farming
Rainbow Health Food Ltd.	Agri Processing with a focus on high- quality nutritious porridge.	We helped malnourished children who was in yellow and now there are in green color they are healthy, and they are growing well physically and mentally
Greenstand	Generating income from agroforestry ecosystem services.	Climate fin tech, in the land restoration and reforestation space,

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
Ubuni Green	Extracting fiber from agricultural waste to create high absorbent, degradable diapers	Through a market based circular business innovation and environmental impact at scale to catalyze consumer behavior.
SAT (Sustainable Agriculture Tanzania) Holistic Group Limited	SAT (Sustainable Agriculture Tanzania) has cooperatives as their shareholders so that farmers can benefit from the value chain	Easily scalable, strong on empowering small-scale farmers, simply a great solution for the 21 centuries.
Burn Design Lab	They have developed a roaster that allows them to work with small holder, women farmers in the shea value chain. They are also in the business of developing energy efficient, low carbon cooking systems	Adoption of the technologies/ designs we work on, and the impact on the health and livelihood of users
Springboard	Operatives using a cooperative model in order to work with farmers so that they can earn more from their value chains	Benefit: Adoption of the technologies/designs we work on, and the impact on the health and livelihood of users
Byestart International Limited	Technology that ensures the byproduct of biogas digester, bio slurry, is effectively used by farmers to increase their crop yield through technology	To improve efficiency & farmers crop yield.
Yawazee Enterprises	Fish powder to be added to baby food, soups, etc.	Adding shelf life to the fish by drying and grinding it into a powder.
KOFAR Kenya Limited	Fortified compost and soil conditioners	Increasing production of quality clean food for the farmers. Also cleaning soil and this environment.
Dunia Bora	Diversified agricultural farming practices centered around cactus farming and	Our portfolio of cactus-based foods offers a dependable source of nutrition for communities living in challenging environments

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
Integrated Humanitarian Aid	Turning maize into flour for food security	We help the most vulnerable come out of poverty & to help farmers realize better earnings as their produce is turned into a final product that has a ready market in any part of the country and even Sudan.
Meishan International Merchants	Organic Fertilizer	Benefits: It is very impactful because the entire process helps in protecting our environment and hence mitigate climate change and improve livelihood through creation of income and alternative and cheap sources of energy
Kilele Accelerator	Recycled plastic posts for fencing	Create jobs for rural youth in nearby urban centers whilst recycling waste plastic
Buc Farms Concepts	Hydroponic farming to grow fruits and vegetables for sustainable farming. They also train the farmers, especially women for skill transfer	Creating a major shift in the demography of African farmers from just older people to the massive young population that we are currently witnessing. Also, the improved food systems change that Agricultural technologies and techniques have brought on board
Maison du Paiysan	Solar panels to provide lighting in rural areas, and converting palm kernels and animal waste for biogas production	Profitability of traditional livestock farming by bringing together several species together at the Maison du Paysan and the Farmers' Village
Swiftcome Systems	Solar Technology for agricultural purposes	Providing farmers with solar energy
Tree Adoption Uganda	Planting and growing trees for farmer empowerment, and training unemployed youth in rural areas for skill transfer	Our technology has been adopted by the Government of Uganda through the Ministry of Water and Environment for mapping and monitoring Uganda's landscape restoration efforts under the running out of trees campaign that aims to plant 40 million trees nationwide.



ORGANIZATION	INNOVATION	POTENTIAL IMPACT
DSM - Firmenich	Improved Poultry value chain by increasing egg production through collaborating with small-scale farmers to address malnutrition challenges in Sub-Saharan Africa	Benefits: Improving farmers income and livelihood, addressing malnutrition in vulnerable rural communities
Centre for Agro-ecological Practices and Conservation of Nature	The center cultivates diverse crops such as vegetables, mushrooms, and animal products using organic farming methods and offers training by operating as a hub where farmers, women, and youth learn and create ecological farming solutions.	The center functions as a living system from which farmers, Farmer Field School (FFS) groups, course participants and interns can learn.
Participatory Livelihood Improvement Ecology and Sanitation	Support small and medium farmers in practicing intercropping for sustainable farming practices. They also train farmers on agricultural best practices, climate change adaptation, and coping mechanism	CAPCN's practical experience and training programs span across all production needs of farmers. Practice and programs cover the entire food chain from farmers' fields to the kitchens and tables of consumers.
Food at Home	Promotion of incorporating zucchinis and mushrooms, fast-growing crops, into local diets while utilizing rabbit manure for soil fertility. The company emphasizes raising awareness about the nutritional value of rabbit meat.	While focusing on awareness raising around the nutritional value of rabbit meat. I am proud of the fact that farmers we worked together with in the past are calling me every day telling me that they are teaching their neighbors how to grow mushrooms and zucchinis and I feel happy to hear that.
GB Farming Ltd	GB Farming Ltd is an innovative agricultural company dedicated to combating climate change through afforestation of fruit trees.	Reducing malnutrition, improving food security, addressing climate change effects, modern afforestation, and facilitating small farmers to contribute to climate change mitigation.
Isonga Agri-Business Company Ltd	Maize and Kawunga production in environmentally friendly packages	Having mindset which do not rely on one opportunity only
Aimee Business Company Ltd	Production of tea	Wishes to expand my project in producing horticulture seeds

ORGANIZATION	INNOVATION	POTENTIAL IMPACT
<b>Sigomre Organic Agriculture Program</b>	Training content encompasses a diverse topic range on organic farming, pesticide use and other related content which ensures that farmers are fed with the helpful information they need	Eco-friendly environment is very crucial since it ensures biodiversity is conserved and human health is not exposed to any harm.
<b>Yna Kenya</b>	Solution that offers a sustainable and reliable source of distributed renewable energy for electric vehicles (EVs) through battery swapping technology	Convenience and accessibility of E-Go charging stations directly contribute to reducing carbon emissions, promoting sustainable transportation, and improving air quality.
<b>OTG Holdings Limited</b>	Allowing farmers to receive disease free planting material at an affordable price	The preservation of farmer preferred banana varieties
<b>FADECO (Family Alliance for Development and Cooperation)</b>	Post-harvest innovation (solar fruit drying)	Low cost, affordable, utilizes local materials. It is cheap, conserves the environment and is friendly. Its gender adaptable and nondiscriminatory.
<b>SWEDO Innovations Limited</b>	Using locally fabricated machines for manufacturing renewable energy for commercial purposes.	Working with women and youth thus creating employment
<b>Candela Tech Ltd</b>	We deal with the distribution of electricity generating cook-stoves that allow the user to light their homes when cooking. We are piloting the project with members of IZMGM cooperative grouping smallholder farmers in Mareba Sector, Bugesera District in the eastern province of Rwanda. We are currently seeking funding to scale up the project and distribute more cook stoves as per an agreement we have with energy development corporation limited.	Distribution of electricity generating cook-stoves that allow the user to light their homes when cooking

## APPENDIX 2

### DESCRIPTION OF THEIR MISSIONS, ACTIVITIES, AND GEOGRAPHIC REACH-ALL ORGANIZATION.

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
Njawara Agricultural Training Centre	This initiative provides eco-friendly cooking solutions while supporting local communities, promoting cleaner cooking practices, and generating income.	Improved cooking stoves using crop residues.	The Gambia and Senegal.
Lake Agriculture and Marketing Cooperative Society	This innovation leverages solar energy to improve agricultural practices, enhance crop production, and address rural energy needs while contributing to sustainable farming.	Solar system for irrigation system.	Tanzania.
Hopeside CBO (community-based organizations)	Hopeside's solutions tackle clean cooking and biogas utilization, promoting environmental sustainability, reducing indoor air pollution, and improving energy access for households.	Distributed improved cookstoves and Home Biogas.	Kenya.
Village Industrial Power	This innovation enhances food preservation, reduces post-harvest losses, and promotes renewable energy usage, contributing to sustainable agriculture and reducing waste.	Biomass-fueled energy plants for food preservation.	Kenya.
Soil Doctors	Soil Doctors' technology aids tree planting in water-scarce settings, enhances soil fertility, and contributes to climate change mitigation, benefiting communities and ecosystems.	Microclimate planters and carbon sink planters.	Kenya.

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<b>Bunyala AGR Climate Action Impact Solutions (Vermi-Farm Initiative)</b>	This initiative focuses on sustainable farming practices, resource efficiency, and economic empowerment of farmers through innovative greenhouse techniques, regenerative fertilizers, and value chain development.	Cactus farming	Kenya
<b>Green Pavers</b>	Green Pavers addresses waste management, access to energy, employment, and deforestation challenges by recycling plastic into construction materials, benefiting developers and the environment.	Recycling waste plastic into construction materials.	Kenya
<b>InspCorp</b>	CNF contributes to sustainable agriculture by providing organic soil amendments, potentially reducing fertilizer costs, and supporting smallholder farmers.	Organic soil conditioner and biofertilizer.	Kenya
<b>Safi Organics</b>	This initiative promotes localized fertilizer production and renewable energy usage, potentially enhancing agricultural sustainability.	Decentralized fertilizer production using locally available waste and solar energy installation.	Kenya
<b>Tree Adoption Uganda (TAU)</b>	TAU's use of mobile technology for tree planting aims to benefit smallholder farmers and leverage carbon markets to support tree growing initiatives.	Mobile technology in tree growing efforts.	Uganda.
<b>GreenEdge</b>	GreenEdge's ALLIN platform enhances farmer support, promotes data-driven farming, and addresses climate and economic challenges in agriculture.	Digital platform for farmer-centric agricultural data integration and support.	Kenya.

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
Aquarech	Aquarech's platform promotes fish farming, market access, and financial inclusion for smallholder fish farmers.	Fish farming platform for farmers, feed manufacturers engagement	Kenya
Centre for Citizens Conserving Environment & Management (CECIC)	This initiative enhances food preservation and market access for agricultural produce through solar technology.	Solar drying and cooling systems for agricultural products.	Uganda
Philemon Farm	Philemon Farm promotes sustainable agriculture, waste utilization, and economic empowerment through mushroom cultivation and organic produce.	Mushroom cultivation, organic produce, and waste utilization.	Rwanda.
Buzana FRM Chaice Ltd	This initiative aims to improve rice processing and fish farming practices, potentially enhancing food security and income generation.	Grading and milling in rice production and fish farming.	Rwanda
Smart Kilimo	Smart Kilimo leverages AI (Artificial Intelligence) technology to improve crop disease diagnosis and provide personalized farming guidance, potentially boosting agricultural productivity.	AI-driven crop disease diagnosis and farming guidance.	Tanzania
Kozzi Homes	This initiative focuses on market access and support for smallholder farmers in floriculture and fruit growing, potentially enhancing their income and livelihoods.	Market support for smallholder farmers in floriculture and fruit growing.	Rwanda
Kyamaganda community development	Kcdo's initiative adds value to maize and provides nutritious supplements, potentially improving food security and income for smallholder farmers.	Maize processing for value addition and nutritious supplements.	Uganda



ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
Avo oil group	This initiative enhances oil extraction and value addition, potentially benefiting oilseed farmers and the agricultural value chain.	Cold screw pressing technology and centrifuge machinery for oil extraction and value addition.	Tanzania
Kimonyi Women Development Group Ltd	This initiative promotes organic vegetable production and efficient water use through greenhouse and drip irrigation systems.	Production of organic vegetables using a greenhouse and drip irrigation system.	Rwanda
Rainbow Health Food Ltd.	This initiative focuses on Agri processing to produce nutritious porridge, potentially enhancing food security and nutrition.	Agri Processing for high-quality nutritious porridge.	Rwanda
Greenstand	This initiative uses technology to make data available to industries within the carbon credit market, to help make carbon funding possible	Agroforestry ecosystem services.	Kenya & 53 Other Countries
Ubuni Green	This innovation seeks to extract fiber from agricultural waste and create biodegradable diapers to reduce plastic waste, protect the environment and shape consumer behavior	Extracting fiber from agricultural waste	Kenya and Uganda
SAT (Sustainable Agriculture Tanzania) Holistic Group Limited	This initiative seeks to empower farmers by making them co-owners	Cooperative farmers engagement	Tanzania
Burn Design Lab	Their innovative cookstoves are designed to be fuel-efficient and reduce harmful emissions, improving the lives of people who rely on solid fuels for cooking.	Roaster activities. Developing energy efficient, low carbon cooking systems	Ghana

<b>ORGANIZATION</b>	<b>MISSION</b>	<b>INNOVATION (KEY ACTIVITIES)</b>	<b>GEOGRAPHICAL REACH</b>
<b>Springboard</b>	Springboard is a social enterprise that operates using the co-op model to engage small scale farmers and introduce them/their products to the market	Working with farmers in co-op models	Nigeria
<b>Byestart International Limited</b>	Byestar uses technology to help farmers effectively use bioslurry for improved crop production	Management of the by-product of biogas digester, bio slurry.	Kenya
<b>Yawazee Enterprises</b>	Yawazee Enterprises specializes in adding value to fish through dehydration and grinding processes. This innovative approach transforms fish into powder, significantly extending its shelf life. The resulting product finds versatile applications in various sectors, including the food industry and beyond.	Fish dehydration, grinding and fish powder packaging processes	Kenya
<b>KOFAR Kenya Limited</b>	This initiative seeks to recycle agricultural waste for the creation of fortified compost and soil conditioner to benefit farmers and protect the environment	Fortified compost and soil conditioners	Kenya
<b>Dunia Bora</b>	Diversified agricultural farming practices centered around cactus farming	Cactus-Based Foods	Kenya and Africa at large
<b>Integrated Humanitarian Aid</b>	Collaborating with refugees and conflict-affected regions in South Sudan to process maize into flour, ensuring food security.	Grinding maize into flour	South Sudan

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<p><b>Meishan International Merchants</b></p>	<p>This initiative focuses on converting animal waste, like manure, into organic fertilizer and is crucial for agricultural sustainability. This process gains added significance by utilizing energy derived from waste plastic, thereby promoting eco-friendly practices and waste recycling.</p>	<p>Organic Fertilizer production</p>	<p>Kenya</p>
<p><b>Akili Group Ltd</b></p>	<p>Akili Group focuses on implementing last mile inclusive value chain projects for the empowerment of a rural community</p>	<p>(1) Grow, dry, pack and sell various high nutrient foods (including moringa oleifera, hibiscus flower petals, lemongrass among others). (2). Solar technology (3) drip irrigation (4) Software for record keeping are integrated in the production process (5) grow, process, and sell high altitude arabica coffee as a finished product</p>	<p>Kenya</p>
<p><b>Kilele Accelerator</b></p>	<p>Recycling plastic into useful items like fencing posts to help in waste reduction but also supports sustainable agriculture, community development, and environmental conservation.</p>	<p>Recycling plastic into posts</p>	<p>Mt. Kenya, Kenya</p>



ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<p><b>Buc Farms Concepts</b></p>	<p>This initiative focuses on hydroponic farming and upskilling which plays a vital role in ensuring food security, conserving resources, empowering communities, and promoting sustainable agricultural practices, making it crucial in the face of global challenges such as population growth, climate change, and environmental degradation.</p>	<p>Hydroponic farming to grow fruits and vegetables. Training of farmers.</p>	<p>Nigeria</p>
<p><b>Maison du Paiysan</b></p>	<p>Utilizing solar panels for lighting in rural areas and converting palm kernels and animal waste for biogas production has the potential to improve access to energy, reduces environmental impact, promotes sustainable agriculture, creates jobs, and enhances overall community well-being. These initiatives play a significant role in fostering both social and environmental sustainability.</p>	<p>Converting palm kernels and animal waste for biogas production</p>	<p>Gabon, Niger Cot d'Ivoire, Brazzaville, RDC, Cameroon, Benin, Togo</p>

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<p><b>Swiftcome Systems</b></p>	<p>This initiative focuses on installing solar technology to help ease agricultural production for farmers. Solar-powered agricultural systems reduce reliance on fossil fuels, lowering greenhouse gas emissions and mitigating climate change. Additionally, these systems provide farmers with a reliable and sustainable source of energy, powering irrigation, machinery, and processing equipment. This not only increases agricultural productivity but also reduces operational costs, fostering economic sustainability for farmers while promoting eco-friendly practices.</p>	<p>Solar Technology for agricultural purposes</p>	<p>Kenya</p>
<p><b>Tree Adoption Uganda</b></p>	<p>This initiative not only supports sustainable agriculture but also addresses youth unemployment, contributing significantly to community development and environmental conservation</p>	<p>Planting and growing trees and training unemployed youth</p>	<p>Uganda</p>

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
DSM - Firmenich	This initiative focuses on enhancing egg production in collaboration with small-scale farmers, helping address malnutrition challenges in Sub-Saharan Africa. By improving the poultry value chain, this initiative ensures a consistent supply of protein-rich and nutritious eggs. This not only boosts community health but also supports local economies and sustainable agriculture, playing a crucial role in addressing food security and well-being in the region.	Poultry farming and supply of eggs	Sub-Saharan Africa (Tanzania, Rwanda, Burundi, Kenya, Uganda, Kenya)
Centre for Agro-ecological Practices and Conservation of Nature	By combining agricultural practices with education and training, the organization plays a crucial role in creating a more resilient, self-sufficient, and environmentally conscious agricultural sector	Cultivating vegetables, mushrooms, and animal production Organic farming methods and training farmers, women, and youth learn and create ecological farming solutions.	Rwanda

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<p><b>Participatory Livelihood Improvement Ecology and Sanitation</b></p>	<p>The organization's work is crucial for economic stability, food security, environmental preservation, and the empowerment of farmers. By equipping communities with knowledge and sustainable farming techniques, they contribute significantly to the overall well-being and resilience of both farmers and the environment.</p>	<p>Intercropping farming practices. Training farmers on agricultural best practices, climate change adaptation, and coping mechanism</p>	<p>Tanzania</p>
<p><b>Food At Home</b></p>	<p>This initiative aims to improve both agricultural practices and nutritional awareness in the community.</p>	<p>Promotion of incorporating zucchinis and mushrooms, fast-growing crops, into local diets while utilizing rabbit manure for soil fertility. The company emphasizes raising awareness about the nutritional value of rabbit meat.</p>	<p>Rwanda</p>
<p><b>GB Farming Ltd</b></p>	<p>GB Farming is dedicated to sustainable horticulture production and quality assurance while actively addressing climate change effects. Their initiative aligns with Sustainable Development Goals, particularly focusing on climate action, life on land, and zero hunger, aiming to contribute to a sustainable reduction in the effects of climate change.</p>	<p>GB Farming Ltd is an innovative agricultural company dedicated to combating climate change through afforestation of fruit trees.</p>	<p>Rwanda</p>



ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
<p><b>Isonga Agri-Business Company Ltd</b></p>	<p>Practicing environmentally friendly maize production is essential for the environment, human health, economic stability, and the overall well-being of communities. It ensures that agricultural activities meet the needs of the present without compromising the ability of future generations to meet their own needs</p>	<p>Maize and Kawunga production in environmentally friendly packages</p>	<p>Rwanda</p>
<p><b>Aimee Business Company Ltd</b></p>	<p>The production of tea supports livelihoods, economic growth, environmental conservation, biodiversity, community development, cultural preservation, and human health. When managed responsibly, tea cultivation can have positive social, economic, and environmental impacts</p>	<p>Production of tea</p>	<p>Rwanda</p>
<p><b>Sigomre Organic Agriculture Program</b></p>	<p>Practices aimed at improving soil health, conserving soil water, and ensuring production sustainability</p>	<p>training content encompasses a diverse topic range on organic farming, pesticide use and other related content which ensures that farmers are fed with the helpful information they need</p>	<p>Kenya</p>

<b>ORGANIZATION</b>	<b>MISSION</b>	<b>INNOVATION (KEY ACTIVITIES)</b>	<b>GEOGRAPHICAL REACH</b>
<b>Yna Kenya</b>	Innovations in the realm of distributed renewable energy through its use of battery swapping technology	solution that offers a sustainable and reliable source of distributed renewable energy for electric vehicles (EVs) through battery swapping technology	Kenya
<b>OTG Holdings Limited</b>	Production of disease-free planting material	Allowing farmers to receive disease free planting material at an affordable price	Kenya
<b>FADECO (Family Alliance for Development and Cooperation)</b>	Adding value through increasing shelf life of otherwise, perishable crops	post-harvest innovation (solar fruit drying)	Tanzania
<b>WEDO Innovations Limited</b>	To manufacture & supply bio fire combs to commercial food vendors from organic, fecal, and agricultural waste	Using locally fabricated machines for manufacturing renewable energy for commercial purposes.	Uganda

ORGANIZATION	MISSION	INNOVATION (KEY ACTIVITIES)	GEOGRAPHICAL REACH
Candela Tech Ltd	Distribution of improved cook stoves and we aim to produce wood pellets	We deal with the distribution of electricity generating cook-stoves that allow the user to light their homes when cooking. We are piloting the project in members of IZMGM cooperative grouping small holder farmers in Mareba Sector, Bugesera District in the eastern province of Rwanda. We are currently seeking funding to scale up the project and distribute more cook stoves as per an agreement we have with energy development corporation limited.	Rwanda

## APPENDIX 3

### CLASSIFICATION OF INNOVATION BY AGE OF INNOVATORS

NAME OF INNOVATORS	AGE	ORGANIZATION	COUNTRY	INNOVATION
Carl Norman Bielenberg	Above 65	Village Industrial Power	Kenya	Biomass-fueled energy plants for food preservation.
Mam MK Manneh	55-64	Njawara Agricultural Training Centre	The Gambia and Senegal	Improved cooking stoves using crop residues.
Dr Aghan Oscar	55-64	Green Pavers	Kenya (Mt. Kenya region.)	Recycling waste plastic into construction materials.
Haron Wachira	55-64	Akili Group Ltd	Kenya	(1) grow, dry, pack and sell various high nutrient foods (including moringa oleifera, hibiscus flower petals, lemongrass among others). (2). Solar technology (3) drip irrigation (4) Software for record keeping are integrated in the production process (5) grow, process and sell high altitude arabica coffee as a finished product
Joseph Sekiku Mtabazi	55-64	FADECO (Family Alliance for Development and Cooperation)	Tanzania	post-harvest innovation (solar fruit drying)
Lucy Kirui	55-64	GreenEdge	Kenya	ALLIN Digital platform for farmer-centric agricultural data integration and support.
Irene	45-54	Yawazee Enterprises	Kenya	Fish powder to be added to baby food, soups, etc.

NAME OF INNOVATORS	AGE	ORGANIZATION	COUNTRY	INNOVATION
Francescah Munyi	45-54	KOFAR Kenya Limited	Kenya	Fortified compost and soil conditioners
Muhawemimana Abed Cherif	45-54	Isonga Agri-Business Company Ltd	Rwanda	Maize and Kawunga production in environmentally friendly packages
Isaac Mubashankwaya	45-54	Centre for Agro-ecological Practices and Conservation of Nature	Rwanda	The center cultivates diverse crops such as vegetables, mushrooms, and animal products using organic farming methods and offers training by operating as a hub where farmers, women, and youth learn and create ecological farming solutions.
Jeanne d'Arc Mukantabashwa	45-54	Kimonyi Women Development Group Ltd	Rwanda	Production of organic vegetables using a greenhouse and drip irrigation system.
Hope Mwanake	35-44	InspCorp	Kenya	Organic soil conditioner and biofertilizer.
David Ezra Jay	35-44	Greenstand	Italy, Kenya, Tanzania and 53 other countries	Generating income from agroforestry ecosystem services.
Charles Batte	35-44	Tree Adoption Uganda (TAU)	Uganda	Mobile technology in tree growing efforts.
Charles Mwangi	35-44	Soil Doctors	Kenya.	Microclimate planters and carbon sink planters.
Dave Okech	35-44	Aquarech	Kenya	Fish farming platform for farmers, feed manufacturers, and buyers.
Tharcisse Kajyambere	35-44	Buzana FRM Chaice Ltd	Kenya	Grading and milling in rice production and fish farming.



NAME OF INNOVATORS	AGE	ORGANIZATION		INNOVATION
Emmanuel Chibasa	35-44	Lake Agriculture and Marketing Cooperative Society	Tanzania	Solar system for irrigation system.
Martin Kiyeng	35-44	Ubuni Green	Kenya and Uganda	Extracting fiber from agricultural waste to create high absorbent, degradable diapers
Alexander Wostry	35-44	SAT (Sustainable Agriculture Tanzania) Holistic Group Limited	Tanzania	SAT (Sustainable Agriculture Tanzania) has cooperatives as their shareholders so that farmers can benefit from the value chain
Aaron Nyarkotey	35-44	Burn Design Lab	Ghana	They have developed a roaster that allows them to work with small holder, women farmers in the shea value chain. They are also in the business of developing energy efficient, low carbon cooking systems
Afere Alaba Lawrence	35-44	Springboard	Nigeria	Operatives using a cooperative model to work with farmers so that they can earn more from their value chains
Lydia Owenga	35-44	Byestart International Limited	Kenya	Technology that ensures the byproduct of biogas digester, bioslurry, is effectively used by farmers to increase their crop yield through technology
Ann Tobiko	35-44	Meishan International Merchants	Kenya	Organic Fertilizer

NAME OF INNOVATORS	AGE	ORGANIZATION	COUNTRY	INNOVATION
Ngibuini Mwaura	35-44	Kilele Accelerator	Mt. Kenya, Kenya	Recycled plastic posts for fencing
Adebowale Onafowora	35-44	Buc farms Concepts	Nigeria	Hydroponic farming to grow fruits and vegetables for sustainable farming. They also train the farmers, especially women for skill transfer
	35-44	Maison du Paiysan	Gabon, Niger, RDC Cotdivore, Brazzaville,	Solar panels to provide lighting in rural areas, and converting palm kernels and animal waste for biogas production
Samuel Thuita Mwenja	35-44	Swiftcome Systems	Kenya	Solar Technology for agricultural purposes
Charles Batte	35-44	Tree Adoption Uganda	Uganda	Planting and growing trees for farmer empowerment, and training unemployed youth in rural areas for skill transfer
Eliya Jonas	35-44	DSM - Firmenich	Sub Saharan Africa (Tanzania, Rwanda, Burundi, Kenya, Uganda, Kenya)	Improved Poultry value chain by increasing egg production through collaborating with small-scale farmers to address malnutrition challenges in Sub-Saharan Africa
Gatesi Jeanne Françoise	35-44	Food at Home	Rwanda	Promotion of incorporating zucchinis and mushrooms, fast-growing crops, into local diets while utilizing rabbit manure for soil fertility. The company emphasizes raising awareness about the nutritional value of rabbit meat.

NAME OF INNOVATORS	AGE	ORGANIZATION		INNOVATION
Marie Rose Kabagwira	35-44	Aimee Business Company Ltd	Rwanda	Production of tea
George Mimano	35-44	OTG Holdings Limited	Kenya	Allowing farmers to receive disease free planting material at an affordable price
Mariah Kizza	35-44	SWEDO Innovations Limited	Uganda	Using locally fabricated machines for manufacturing renewable energy for commercial purposes.
Jean Claude Itangishaka	35-44	Candela Tech Ltd	Rwanda	We deal with the distribution of electricity generating cook-stoves that allow the user to light their homes when cooking. We are piloting the project with members of IZMGM cooperative grouping smallholder farmers in Mareba Sector, Bugesera District in the eastern province of Rwanda. We are currently seeking funding to scale up the project and distribute more cook stoves as per an agreement we have with energy development corporation limited.
Joseph Muthuyo	25-34	Hopeside CBO (community-based organizations)	Kenya	Distributed improved cookstoves and Home Biogas

NAME OF INNOVATORS	AGE	ORGANIZATION	COUNTRY	INNOVATION
Sebastian Mwaura	25-34	Yna Kenya	Kenya	solution that offers a sustainable and reliable source of distributed renewable energy for electric vehicles (EVs) through battery swapping technology
Joackim Ondiege	25-34	Sigomre Organic Agriculture Program	Kenya	training content encompasses a diverse topic range on organic farming, pesticide use and other related content which ensures that farmers are fed with the helpful information they need
Gilbert Habihirwe	25-34	GB Farming Ltd	Rwanda	GB Farming Ltd is an innovative agricultural company dedicated to combating climate change through afforestation of fruit trees.
Muganyizi Melchior	25-34	Participatory Livelihood Improvement Ecology and Sanitation	Tanzania	Support small and medium farmers in practicing inter cropping for sustainable farming practices. They also train farmers on agricultural best practices, climate change adaptation, and coping mechanism
Dibaba John	25-34	Integrated Humanitarian Aid	South Sudan	Turning maize into flour for food security
Mutoni Patience	25-34	Kozzi Homes	Rwanda	Market support for smallholder farmers in floriculture and fruit growing.



NAME OF INNOVATORS	AGE	ORGANIZATION		INNOVATION
Bukenya George willy	25-34	Kyamaganda community development	Not specified.	Maize processing for value addition and nutritious supplements.
Abdullah dallas zongo	25-34	Avo oil group	Tanzania	Cold screw pressing technology and centrifuge machinery for oil extraction and value addition.
Edwin Mumbere	25-34	Centre for Citizens Conserving Environment & Management (CECIC)	Not specified.	Solar drying and cooling systems for agricultural products.
Samuel Uwihanganye	25-34	Rainbow Health Food Ltd.	Rwanda	Agri Processing with a focus on high-quality nutritious porridge.
Philemon Hatangimana	25-34	Philemon Farm	Rwanda	Mushroom cultivation, organic produce, and waste utilization.
John Wabwire Shikuku	25-34	Bunyala AGR Climate Action Impact Solutions (Vermi-Farm Initiative)	Kenya	Cactus farming with diversified techniques and sustainable livestock feed using smart greenhouses, regenerative fertilizers, green financing, and franchising.
Joyce Wambui Kamande	25-34	Safi Organics	Kenya	Decentralized fertilizer production using locally available waste and solar energy installation.
Vincent Muriithi Muhoro	19-24	Dunia Bora	Kenya and Africa at large	Diversified agricultural farming practices centered around cactus farming and
Johnson Fredrick Rwehumbiza	19-24	Smart Kilimo	Tanzania	AI-driven crop disease diagnosis and farming guidance.

## APPENDIX 4

### THEMATIC AREAS IN THE AGRICULTURAL VALUE CHAIN

#### Empowering Small-Scale Farmers:

These organizations are champions of inclusivity, focusing on empowering small-scale farmers, particularly in underserved communities. They provide essential training, resources, and technology to help farmers improve their livelihoods through sustainable and climate-smart agricultural practices.<sup>13</sup> Organizations among the respondents are empowering smallholder farmers as follows:

- **Njawara Agricultural Training Centre:** Provides agricultural training and support to empower smallholder farmers.
- **Lake Agriculture and Marketing Cooperative Society:** Supports small farmers in marketing their agricultural products.
- **Bunyala AGR Climate Action Impact Solutions:** Focuses on climate-smart agriculture solutions to benefit smallholders.
- **Sigomre Organic Agriculture Program:** Promotes organic farming practices among smallholder farmers. Fruity Schools Africa: Empowers small farmers, including schools, to grow fruit trees for food security. Soil Doctors: Enhances soil health for small-scale farmers, increasing crop productivity.



- **Integrated Humanitarian Aid:** Encourages small-scale farming as an income-generating activity. Bejaiethio.com: Supports local farmers in sustainable packaging campaigns and technology-enabled farming.
- **Safi Organics:** Empowers small farmers through the production and sale of organic fertilizers.
- **Tree Adoption Uganda:** Engages smallholder farmers in tree planting for environmental and economic benefits.
- **GreenEdge Digital Africa Ltd:** Provides farmer-centric digital solutions to enhance yields and incomes.
- **Aquarech Ltd.:** Facilitates trade and business opportunities for small and medium-sized fish farmers.
- **Participatory Livelihood Improvement Ecology and Sanitation (PALES):** Empowers small and medium farmers through diversified agricultural practices.
- GreenEdge Digital Africa, KOFAR Kenya Ltd, Integrated Humanitarian Aid, OTG Holdings Limited, FADECO (Family Alliance for Development and Cooperation), Swiftcom Systems, DSM-Firmenich
- Centre for Agro-ecological Practices and Conservation of Nature, GB Farming Ltd, Buzana FRM ChaiCe Ltd, Smart Kilimo



## **Disseminating Agricultural Technologies:**

Technology is harnessed as a force for good. Several organizations are leveraging innovative solutions, such as digital platforms, solar-powered systems, and IoT applications, to enhance agricultural efficiency, reduce waste, and increase market access for farmers. The work of the following companies fits within this thematic area:

- **GreenEdge Digital Africa Ltd:** GreenEdge implements the ALLIN Digital platform, providing comprehensive data-driven support to farmers for increased crop yield and income.
- **Aquarech Ltd:** Aquarech is building Africa's first fish farming platform, connecting fish farmers, feed manufacturers, and fish buyers to enhance the aquaculture value chain and improve incomes for farmers and traders.
- **Swiftcom Systems:** They install solar technology to augment agricultural production and processes for cost reduction purposes
- **Byestar International Ltd**
- **Swiftcom Systems Smart Kilimo**

## **Promoting Environmental Sustainability:**

A commitment to environmental stewardship is evident. Many organizations prioritize practices like agroforestry, waste recycling, and energy efficiency, demonstrating their dedication to eco-friendly and regenerative agriculture. Here are the organizations in this space (17 in total)

- Greenstand, Green Solutions, Dunia Bora, Ubuni Green, Soil Doctors, Burn Design Lab, Springboard, Meishan International Merchants
- Akili Group (Akili Holdings Ltd), FADECO, Kilele Accelerator, Buc Farms Concepts, CEPROEMIR / Maison du Paysan, InspCorp, Safi Organics
- Tree Adoption Uganda, GreenEdge Digital Africa Ltd, Aquarech LTD, Yna Kenya, Dunia Bora, Lake Agriculture and Marketing Cooperative Society
- Bunyala AGR Climate Action Impact Solutions, KOFAR Kenya Ltd, Safi Organics, Yna Kenya, Tree Adoption Uganda, Centre for Citizens Conserving Environment & Management (CECIC), GB Farming Ltd, Isonga Agribusiness Company Ltd, Candela Tech Ltd, Philemon Farm
- Kimonyi Women Development Group Ltd

## **Enhancing Community Engagement and Education:**

These organizations believe in the power of community. They actively engage with local communities, prioritizing education and training. By empowering farmers with knowledge and economic opportunities, they contribute to building resilient rural areas.

- Akili Group, Buc Farms Concepts, Tree Adoption Uganda, Centre for Agro-ecological Practices and Conservation of Nature
- Participatory Livelihood Improvement Ecology and Sanitation (PALES), Sigomre Organic Agriculture Program



### **Value Addition and Market Access:**

Beyond primary production, many organizations focus on value addition and market access. They understand that creating products from agricultural produce not only increases income but also reduces waste and fosters economic growth.

- Philemon farm Limited, Kyamaganda Community Development Organization, Dunia Bora, Akili Group, Burn Design Lab, Springboard, Yawazee enterprises
- Burn Design Lab, Village industrial Power, SAT (Sustainable Agriculture Tanzania) Holistic Group Limited, Integrated Humanitarian Aid, DSM-Fermanich, Buzana FRM Chalice Ltd
- Kozzi Homes, Kyamaganda community development organization, Avo oil group, Rainbow Health Food Ltd

### **Promoting Mitigation and Adaptation in Climate Change:**

Climate change is addressed head-on. These organizations develop climate-smart technologies, resilient crops, and water-saving methods to help farmers adapt to changing weather patterns and mitigate climate impacts on agriculture.

- Soil Doctors, Bunyala AGR Climate Action Impact Solutions, Greenstand, Dunia Bora, CEPROEMIR/ Maison Du Paysan, Njawara Agricultural Training centre
- Fruity Schools Africa, Burn Design Lab, Byestar International Ltd, Dunia Bora, Integrated Humanitarian Aid, FADECO, Buc farms Concepts, Green Pavers
- Safi Organics, Swiftcomm Systems, Tree Adoption Uganda, Centre for Citizens Conserving Environment & Management (CECIC), GB Farming Ltd
- Candela Tech Ltd, Philemon Farm

### **Social Enterprises and Cooperatives:**

Collaboration and shared benefits are central. Some organizations operate as social enterprises or cooperatives, fostering equitable and collaborative relationships within the agricultural value chain.

- SAT (Sustainable Agriculture Tanzania) Holistic Group Limited
- Springboard

### **Involvement in Waste Management and Recycling:**

Waste is seen as a resource. A few organizations focus on waste management and recycling, turning agricultural waste into valuable products like organic fertilizers, construction materials, and animal feed.

- Meishan International Merchants, Kyamaganda Community Development Organization, Green Pavers, Ubuni Farm, Kilele Accelerator
- CEPROEMIR/ Maison Du Paysan, Green Pavers, InsCorp, Food at Home, Philemon Farm, Buzana FRM Chalice Ltd
- Avo oil group, SWEDO Innovations Limited

## APPENDIX 5

### INNOVATIONS THAT INTERSECT BETWEEN AGRICULTURE AND RENEWABLE ENERGY

ORGANIZATION	LOCATION OF INNOVATION	FOCUS	TARGET GROUP	REACH
Njawara Agricultural Training Centre	The Gambia & Senegal	Dealing with cookstoves	Rural groups	Wider geographical reach across Africa
Lake Agriculture and Marketing Cooperative Society	Tanzania	Solar energy for agriculture	Smallholder farmers in rural areas.	Regional focus in East Africa
Bunyala AGR Climate Action Impact Solutions	Kenya	Smart technology for agricultural innovation  Energy efficient Cookstoves	Rural communities and small holder farmers	Regional focus in East Africa
Village Industrial Power	Kenya	Biogas technology for dehydrators	Smallholder farmers and food processors	Regional focus in East Africa
Byestar International Limited	Kenya	Biogas technology	Farmers	Regional focus in East Africa
Dunia Bora	Kenya and Africa at large	Technology for agricultural innovation  Promotion of renewable energy education/ awareness Eco-friendly practices and reducing environmental impact	Marginalized communities such as women	Wider geographical reach across Africa

ORGANIZATION	LOCATION OF INNOVATION	FOCUS	TARGET GROUP	REACH
Meishan International Merchants	Kenya	Converting animal waste to produce organic Fertilizer	Not specified	Regional focus in East Africa
Akili Group	Kenya	Dealing with cook stoves Access to markets for small-scale farmers Agroforestry or tree planting	Small scale farmers	Regional focus in East Africa
FADECO (Family Alliance for Development and Cooperation)	Tanzania	Energy efficient cook stoves Solar fruit and green vegetables dehydrator		Regional focus in East Africa
CEPROEMIR/ Maison Du Paysan	Gabon, Niger Codiverge, Benin, Togo Brazzaville, RDC, Cameroon,	1) Solar panels to provide lighting in rural areas, 2) Converting animal waste for biogas production	Supports workers, students, and artisans	Wider geographical reach across Africa
Green Pavers	Kenya	Plastic Recycling	Developers	Regional focus in East Africa
InspCorp	Kenya	Organic soil conditioner and biofertilizer	Smallholder Farmers, local trash collectors	Regional focus in East Africa
Swiftcom Systems	Kenya	Installing Solar Technology for agricultural purposes	Farmers	Regional focus in East Africa
GreenEdge Digital Africa Ltd	Kenya	Technology for agricultural innovation	Not specified.	Regional focus in East Africa
Philemon Farm Limited	Rwanda	Converting agricultural waste for renewable energy innovation	Not specified.	Regional focus in Eastern/ Central Africa

ORGANIZATION	LOCATION OF INNOVATION	FOCUS	TARGET GROUP	REACH
Kyamaganda Community Development Organization	Uganda	1) Biogas technology	Smallholder Farmers	Regional focus in East Africa
Centre for Citizens Conserving Environment and Management	Uganda		Not specified	Regional focus in East Africa
Hopeside CBO (community-based organizations)	Kenya	Dealing with cookstoves Biogas technology	Households	Regional focus in East Africa

## APPENDIX 6

### LIST OF INNOVATORS PURELY INVOLVED IN AGRICULTURAL VALUE CHAINS

The innovations documented through the survey demonstrate a diverse range of approaches, ranging from technology-driven solutions to sustainable farming practices. The listed innovations are as follows:

<b>Organization</b>	Njawara Agricultural Training Centre
<b>Product</b>	Improved cooking stoves using crop residues.
<b>Working With</b>	Groups
<b>Location of Innovation</b>	The Gambia and Senegal.
<b>Analysis</b>	This initiative provides eco-friendly cooking solutions while supporting local communities, promoting cleaner cooking practices, and generating income
<b>Organization</b>	Lake Agriculture and Marketing Cooperative Society
<b>Product</b>	Solar system for irrigation system.
<b>Working With</b>	Smallholder farmers in rural areas.
<b>Location of Innovation</b>	Tanzania
<b>Analysis</b>	This innovation leverages solar energy to improve agricultural practices, enhance crop production, and address rural energy needs while contributing to sustainable farming.
<b>Organization</b>	Hopeside CBO (community-based organizations)
<b>Product</b>	Distributed improved cookstoves and Home Biogas
<b>Working With</b>	Households
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Hopeside's solutions tackle clean cooking and biogas utilization, promoting environmental sustainability, reducing indoor air pollution, and improving energy access for households.
<b>Organization</b>	Village Industrial Power
<b>Product</b>	Biomass-fueled energy plants for food preservation
<b>Working With</b>	Smallholder farmers and food processors
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This innovation enhances food preservation, reduces post-harvest losses, and promotes renewable energy usage, contributing to sustainable agriculture and reducing waste.



<b>Organization</b>	Village Industrial Power
<b>Product</b>	Biomass-fueled energy plants for food preservation
<b>Working With</b>	Smallholder farmers and food processors
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This innovation enhances food preservation, reduces post-harvest losses, and promotes renewable energy usage, contributing to sustainable agriculture and reducing waste.

<b>Organization</b>	Soil Doctors
<b>Product</b>	Microclimate planters and carbon sink planters
<b>Working With</b>	Marginalized communities in drylands
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Soil Doctors' technology aids tree planting in water-scarce settings, enhances soil fertility, and contributes to climate change mitigation, benefiting communities and ecosystems

<b>Organization</b>	Bunyala AGR Climate Action Impact Solutions (Vermi-Farm Initiative)
<b>Product</b>	Cactus farming with diversified techniques and sustainable livestock feed using smart greenhouses, regenerative fertilizers, green financing, and franchising.
<b>Working With</b>	Marginalized communities in drylands
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This initiative focuses on sustainable farming practices, resource efficiency, and economic empowerment of farmers through innovative greenhouse techniques, regenerative fertilizers, and value chain development.

<b>Organization</b>	Grow, dry, and sell various high-nutrient foods (Undisclosed Entity)
<b>Product</b>	High-nutrient foods and solar technology for agriculture.
<b>Working With</b>	Not specified
<b>Location of Innovation</b>	Not specified.
<b>Analysis</b>	This initiative contributes to food security by producing high-nutrient foods and enhancing agriculture through solar technology adoption, potentially reducing post-harvest losses.

<b>Organization</b>	Green Pavers
<b>Product</b>	Recycling waste plastic into construction materials.
<b>Working With</b>	Developers.

<b>Location of Innovation</b>	Mt. Kenya region.
<b>Analysis</b>	Green Pavers addresses waste management, access to energy, employment, and deforestation challenges by recycling plastic into construction materials, benefiting developers and the environment.
<b>Organization</b>	InspCorp
<b>Product</b>	Organic soil conditioner and biofertilizer.
<b>Working With</b>	Smallholder Farmers, local trash collectors
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	CNF contributes to sustainable agriculture by providing organic soil amendments, potentially reducing fertilizer costs, and supporting smallholder farmers.
<b>Organization</b>	Safi Organics
<b>Product</b>	Decentralized fertilizer production using locally available waste and solar energy installation.
<b>Working With</b>	Not specified.
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This initiative promotes localized fertilizer production and renewable energy usage, potentially enhancing agricultural sustainability.
<b>Organization</b>	Tree Adoption Uganda (TAU)
<b>Product</b>	Mobile technology in three growing efforts.
<b>Working With</b>	Ugandan Government
<b>Location of Innovation</b>	Uganda
<b>Analysis</b>	TAU's use of mobile technology for tree planting aims to benefit smallholder farmers and leverage carbon markets to support tree growing initiatives.
<b>Organization</b>	GreenEdge
<b>Product</b>	ALLIN Digital platform for farmer-centric agricultural data integration and support.
<b>Working With</b>	Not specified.
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	GreenEdge's ALLIN platform enhances farmer support, promotes data-driven farming, and addresses climate and economic challenges in agriculture.

<b>Organization</b>	Aquarech
<b>Product</b>	Fish farming platform for farmers, feed manufacturers, and buyers.
<b>Working With</b>	Smallholder Fish Farmers.
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Aquarech's platform promotes fish farming, market access, and financial inclusion for smallholder fish farmers.
<b>Organization</b>	Centre for Citizens Conserving Environment & Management (CECIC)
<b>Product</b>	Solar drying and cooling systems for agricultural products.
<b>Working With</b>	Not specified.
<b>Location of Innovation</b>	Not specified.
<b>Analysis</b>	This initiative enhances food preservation and market access for agricultural produce through solar technology.
<b>Organization</b>	Philemon Farm
<b>Product</b>	Mushroom cultivation, organic produce, and waste utilization.
<b>Working With</b>	Not specified.
<b>Location of Innovation</b>	Rwanda.
<b>Analysis</b>	Philemon Farm promotes sustainable agriculture, waste utilization, and economic empowerment through mushroom cultivation and organic produce.
<b>Organization</b>	Buzana FRM Choice Ltd
<b>Product</b>	Grading and milling in rice production and fish farming.
<b>Working With</b>	Individual farmers
<b>Location of Innovation</b>	Tanzania
<b>Analysis</b>	This initiative aims to improve rice processing and fish farming practices, potentially enhancing food security and income generation.
<b>Organization</b>	Smart Kilimo
<b>Product</b>	AI-driven crop disease diagnosis and farming guidance.
<b>Working With</b>	Not specified.
<b>Location of Innovation</b>	Not specified.
<b>Analysis</b>	Smart Kilimo leverages AI (Artificial Intelligence) technology to improve crop disease diagnosis and provide personalized farming guidance, potentially boosting agricultural productivity.
<b>Organization</b>	Kozzi Homes

<b>Product</b>	Market support for smallholder farmers in floriculture and fruit growing.
<b>Working With</b>	Smallholder farmers
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	This initiative focuses on market access and support for smallholder farmers in floriculture and fruit growing, potentially enhancing their income and livelihoods.
<b>Organization</b>	Kyamaganda community development organization
<b>Product</b>	Maize processing for value addition and nutritious supplements.
<b>Working With</b>	Smallholder farmers
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Kcdo's initiative adds value to maize and provides nutritious supplements, potentially improving food security and income for smallholder farmers.
<b>Organization</b>	Avo oil group
<b>Product</b>	Cold screw pressing technology and centrifuge machinery for oil extraction and value addition.
<b>Working With</b>	Farmers and youth
<b>Location of Innovation</b>	Tanzania
<b>Analysis</b>	This initiative enhances oil extraction and value addition, potentially benefiting oilseed farmers and the agricultural value chain.
<b>Organization</b>	Kimonyi Women Development Group Ltd
<b>Product</b>	Production of organic vegetables using greenhouse and drip irrigation system.
<b>Working With</b>	Women smallholder farmers
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	This initiative promotes organic vegetable production and efficient water use through greenhouse and drip irrigation systems.
<b>Organization</b>	Rainbow Health Food Ltd.
<b>Product</b>	Agri Processing with a focus on high-quality nutritious porridge.
<b>Working With</b>	Unclear
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	This initiative focuses on Agri processing to produce nutritious porridge, potentially enhancing food security and nutrition.
<b>Organization</b>	Greenstand

<b>Product</b>	Generating income from agroforestry ecosystem services.
<b>Working With</b>	Reforestation and tree planting industries and small-scale farmers
<b>Location of Innovation</b>	Kenya, Tanzania and 53 other countries
<b>Analysis</b>	This initiative uses technology to make data available to industries within the carbon credit market, to help make carbon funding possible
<b>Organization</b>	Ubuni Green
<b>Product</b>	Extracting fiber from agricultural waste to create high absorbent, degradable diapers
<b>Working With</b>	Unclear/Not Stated
<b>Location of Innovation</b>	Kenya and Uganda
<b>Analysis</b>	This innovation seeks to extract fiber from agricultural waste and create biodegradable diapers to reduce plastic waste, protect the environment and shape consumer behavior
<b>Organization</b>	SAT Holistic Group Limited
<b>Product</b>	SAT has cooperatives as their shareholders so that farmers can benefit from the value chain
<b>Working With</b>	Farmers
<b>Location of Innovation</b>	Kenya and Uganda
<b>Analysis</b>	This initiative seeks to empower farmers by making them co-owners.
<b>Organization</b>	Burn Design Lab
<b>Product</b>	They have developed a roaster that allows them to work with small holder, women farmers in the shea value chain. They are also in the business of developing energy efficient, low carbon cooking systems.
<b>Working With</b>	Small holder farmers (particularly women). They also work with manufacturers and partners in the development of energy efficient, climate gentle cooking systems.
<b>Location of Innovation</b>	Ghana
<b>Analysis</b>	Their innovative cookstoves are designed to be fuel-efficient and reduce harmful emissions, improving the lives of people who rely on solid fuels for cooking.
<b>Organization</b>	Springboard
<b>Product</b>	Operatives using a cooperative model to work with farmers so that they can earn more from their value chains
<b>Working With</b>	Small scale farmers



<b>Location of Innovation</b>	Nigeria
<b>Analysis</b>	Springboard is a social enterprise that operates using the co-op model to engage small scale farmers and introduce them/their products to the market.
<b>Organization</b>	Byestart International Limited
<b>Product</b>	Technology that ensures the byproduct of biogas digester, bioslurry, is effectively used by farmers to increase their crop yield through technology.
<b>Working With</b>	Farmers
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Byestar uses technology to help farmers effectively use bioslurry for improved crop production
<b>Organization</b>	Yawazee Enterprises
<b>Product</b>	Fish powder to be added to baby food, soups, etc.
<b>Working With</b>	Unclear/Not stated
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Yawazee Enterprises specializes in adding value to fish through dehydration and grinding processes. This innovative approach transforms fish into powder, significantly extending its shelf life. The resulting product finds versatile applications in various sectors, including the food industry and beyond.
<b>Organization</b>	KOFAR Kenya Limited
<b>Product</b>	Fortified compost and soil conditioners
<b>Working With</b>	Unclear/Not stated
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This initiative seeks to recycle agricultural waste for the creation of fortified compost and soil conditioner to benefit farmers and protect the environment
<b>Organization</b>	Dunia Bora
<b>Product</b>	Diversified agricultural farming practices centered around cactus farming and other resilient plant varieties. They also use solar energy in their production processes.
<b>Working With</b>	Marginalized communities such as women
<b>Location of Innovation</b>	Kenya and Africa at large

<b>Analysis</b>	They employ diverse agricultural methods, with a core focus on cultivating cacti and other robust plant species to promote sustainable farming. Additionally, they integrate solar energy into their production processes. Integrating solar energy into production processes reduces reliance on fossil fuels, decreases greenhouse gas emissions, and contributes to the reduction of the carbon footprint.
<b>Organization</b>	Integrated Humanitarian Aid
<b>Product</b>	Turning maize into flour for food security
<b>Working With</b>	Refugees and disaster affected communities in Abyei and Ruweng
<b>Location of Innovation</b>	South Sudan
<b>Analysis</b>	Collaborating with refugees and conflict-affected regions in South Sudan to process maize into flour, ensuring food security.
<b>Organization</b>	Meishan International Merchants
<b>Product</b>	Organic Fertilizer
<b>Working With</b>	Not specified
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This initiative focuses on converting animal waste, like manure, into organic fertilizer and is crucial for agricultural sustainability. This process gains added significance by utilizing energy derived from waste plastic, thereby promoting eco-friendly practices and waste recycling.
<b>Organization</b>	Akili Group Ltd
<b>Products</b>	(1) grow, dry, pack and sell various high nutrient foods (including moringa oleifera, hibiscus flower petals, lemongrass among others). (2). Solar technology (3) drip irrigation (4) Software for record keeping are integrated in the production process (5) grow, process, and sell high altitude arabica coffee as a finished product.
<b>Working With</b>	Not specified
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	Akili Group focuses on implementing last mile inclusive value chain projects for the empowerment of a rural community.
<b>Organization</b>	Kilele Accelerator
<b>Products</b>	Recycled plastic posts for fencing
<b>Working With</b>	Small scale farmers
<b>Location of Innovation</b>	Mt. Kenya, Kenya

<b>Analysis</b>	Recycling plastic into useful items like fencing posts to help in waste reduction but also supports sustainable agriculture, community development, and environmental conservation.
<b>Organization</b>	Buc Farms Concepts
<b>Product</b>	Hydroponic farming to grow fruits and vegetables for sustainable farming. They also train the farmers, especially women for skill transfer
<b>Working With</b>	Farmers, with a focus on shifting the mindset of youth towards
<b>Location of Innovation</b>	Nigeria
<b>Analysis</b>	This initiative focuses on hydroponic farming and upskilling which plays a vital role in ensuring food security, conserving resources, empowering communities, and promoting sustainable agricultural practices, making it crucial in the face of global challenges such as population growth, climate change, and environmental degradation.
<b>Organization</b>	Maison du Paiysan
<b>Product</b>	Solar panels to provide lighting in rural areas, and converting palm kernels and animal waste for biogas production
<b>Working With</b>	Supports workers, students, and artisans
<b>Location of Innovation</b>	Gabon, Niger Cotdivore, Brazzaville, RDC, Cameroon, Benin, Togo
<b>Analysis</b>	Utilizing solar panels for lighting in rural areas and converting palm kernels and animal waste for biogas production has the potential to improve access to energy, reduces environmental impact, promotes sustainable agriculture, creates jobs, and enhances overall community well-being. These initiatives play a significant role in fostering both social and environmental sustainability.
<b>Organization</b>	Swiftcom Systems
<b>Product</b>	Solar Technology for agricultural purposes
<b>Working With</b>	Farmers
<b>Location of Innovation</b>	Kenya
<b>Analysis</b>	This initiative focuses on installing solar technology to help ease agricultural production for farmers. Solar-powered agricultural systems reduce reliance on fossil fuels, lowering greenhouse gas emissions and mitigating climate change. Additionally, these systems provide farmers with a reliable and sustainable source of energy, powering irrigation, machinery, and processing equipment. This not only increases agricultural productivity but also reduces operational costs, fostering economic sustainability for farmers while promoting eco-friendly practices.

<b>Organization</b>	Tree Adoption Uganda
<b>Product</b>	Planting and growing trees for farmer empowerment, and training unemployed youth in rural areas for skill transfer
<b>Working With</b>	Farmers and youth in rural communities
<b>Location of Innovation</b>	Uganda
<b>Analysis</b>	This initiative not only supports sustainable agriculture but also addresses youth unemployment, contributing significantly to community development and environmental conservation.
<b>Organization</b>	DSM - Firmenich
<b>Product</b>	Improved Poultry value chain by increasing egg production through collaborating with small-scale farmers to address malnutrition challenges in Sub-Saharan Africa
<b>Working With</b>	Small scale farmers
<b>Location of Innovation</b>	Sub-Saharan Africa (Tanzania, Rwanda, Burundi, Kenya, Uganda, Kenya)
<b>Analysis</b>	This initiative focuses on enhancing egg production in collaboration with small-scale farmers, helping address malnutrition challenges in Sub-Saharan Africa. By improving the poultry value chain, this initiative ensures a consistent supply of protein-rich and nutritious eggs. This not only boosts community health but also supports local economies and sustainable agriculture, playing a crucial role in addressing food security and well-being in the region.
<b>Organization</b>	Centre for Agro-ecological Practices and Conservation of Nature
<b>Product</b>	The center cultivates diverse crops such as vegetables, mushrooms, and animal products using organic farming methods and offers training by operating as a hub where farmers, women, and youth learn and create ecological farming solutions.
<b>Working With</b>	Farmers
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	By combining agricultural practices with education and training, the organization plays a crucial role in creating a more resilient, self-sufficient, and environmentally conscious agricultural sector.
<b>Organization</b>	Participatory Livelihood Improvement Ecology and Sanitation (PALES)
<b>Product</b>	Support small and medium farmers in practicing intercropping for sustainable farming practices. They also train farmers on agricultural best practices, climate change adaptation, and coping mechanism
<b>Working With</b>	Small and medium farmers

<b>Location of Innovation</b>	Tanzania
<b>Analysis</b>	The organization's work is crucial for economic stability, food security, environmental preservation, and the empowerment of farmers. By equipping communities with knowledge and sustainable farming techniques, they contribute significantly to the overall well-being and resilience of both farmers and the environment.
<b>Organization</b>	Food At Home
<b>Product</b>	Promotion of incorporating zucchinis and mushrooms, fast-growing crops, into local diets while utilizing rabbit manure for soil fertility. The company emphasizes raising awareness about the nutritional value of rabbit meat.
<b>Working With</b>	Rural farmers
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	This initiative aims to improve both agricultural practices and nutritional awareness in the community.
<b>Organization</b>	GB Farming Ltd
<b>Product</b>	GB Farming Ltd is an innovative agricultural company dedicated to combating climate change through afforestation of fruit trees.
<b>Working With</b>	Farmers
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	GB Farming is dedicated to sustainable horticulture production and quality assurance while actively addressing climate change effects. Their initiative aligns with Sustainable Development Goals, particularly focusing on climate action, life on land, and zero hunger, aiming to contribute to a sustainable reduction in the effects of climate change.
<b>Organization</b>	Isonga Agri- Business Company Ltd
<b>Product</b>	Maize and Kawunga production in environmentally friendly packages
<b>Working With</b>	Not stated
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	Practicing environmentally friendly maize production is essential for the environment, human health, economic stability, and the overall well-being of communities. It ensures that agricultural activities meet the needs of the present without compromising the ability of future generations to meet their own needs.



<b>Organization</b>	Aimee Business Company Ltd
<b>Product</b>	Production of tea
<b>Working With</b>	Not stated
<b>Location of Innovation</b>	Rwanda
<b>Analysis</b>	The production of tea supports livelihoods, economic growth, environmental conservation, biodiversity, community development, cultural preservation, and human health. When managed responsibly, tea cultivation can have positive social, economic, and environmental impacts.

## APPENDIX 7

### LIST OF RENEWABLE ENERGY INNOVATORS AND THEIR IMPACTS

ORGANIZATIONS NAME	DO YOU HAVE AN INNOVATION AROUND THE AGRICULTURE VALUE CHAIN?	INNOVATION PRODUCT	IMPACT
Njawara Agricultural Training Centre	Yes	Product: improved cooking stoves Organized as: groups Solution: uses crop residues	Products supplied to the group for sale get their sales taxed directly to ease access to the stoves.
Lake Agriculture and Marketing Cooperative Society	Yes	Product: solar system for irrigation system Solution: supply renewable energy equipment Organized as: to smallholders' farmers in rural area	Renewable energy for agriculture and entrepreneur work to community members
Bunyala AGR Climate Action Impact Solutions	Yes	Product: We distribute improved cook stoves Organized as: to households	The innovative approach to financing generates attractive returns for investors while mitigating environmental risks and promoting social impact, enabling us to create a sustainable and equitable food system for all.
Village Industrial Power	Yes	Biomass fueled energy plants to supply heat and electricity for dehydrators and other applications.	These are used for providing electricity and heat to dehydrators and supplying hot showers and electric light to tea pickers on commercial farms
Greenstand	Yes	Product: A third of our planet cooks on wood - it is the ultimate renewable energy if it is renewed. We fixed this.	Climate fin tech, in the land restoration and reforestation space,

ORGANIZATIONS NAME	DO YOU HAVE AN INNOVATION?	INNOVATION PRODUCT	IMPACT
Green Solutions	Yes	The main work is a vertically integrated solutions for plastic waste	Benefits: as we want to collect(post-consumer) transform (construction material) and track (plastic credit system)
Byestar International Limited	Yes	Product: We are working on a business model that will ensure biogas technology is easily adopted.	Desire: That the impact of my innovation will improve health, livelihoods, and overall climatic conditions.
Dunia Bora	Yes	Dunia Bora is committed to incorporating distributed renewable energy solutions into its operations to promote sustainability and reduce environmental impact.	This approach aligns with SDG (Sustainable Development Goals) 12 (Responsible Consumption and Production) by promoting efficient resource utilization.
Meishan International Merchants	Yes	Product: We recycle waste plastic to generate energy to be used in our waste animal manure processing, we also produce several by products from both animal and plastic waste as alternative sources of energy	Benefits: It is very impactful because the entire process helps in protecting our environment and hence mitigates climate change and improve livelihood through creation of income and alternative and cheap sources of energy
Akili Group (Akili Holdings Ltd)	Yes	Product: We use solar energy in power generation to pump water, lighting and powering small processing capacity (through inverter-based transformers).	Improvement of the livelihoods of small-scale farmers through innovative financing, solar and other technologies, agronomy education, financing and other facilitations
FADECO (Family Alliance for Development and Cooperation)	Yes	Product: I am working on renewable energy wood fuel efficient and clean cooking stoves. The most recent is locally fabricated clay wood stoves and the smokeless hot box	Benefits: Low cost, affordable, utilizes local materials. It is cheap, conserves the environment and is friendly. It is gender adaptable and nondiscriminatory.

ORGANIZATIONS NAME	DO YOU HAVE AN INNOVATION?	INNOVATION PRODUCT	IMPACT
CEPROEMIR / Maison du Paysan	Yes	Lighting through Solar Panels Biogas from animals and palm kernels	Contributes to the profitability of traditional livestock farming, setting up new standards for their farming together. Improving the living conditions of the poor and the creation of sustainable and comfortable jobs in rural areas.
Green Pavers	Yes	Product: We have integrated a solar panel into our roof tiles	Address Waste Management access to Energy employment Deforestation
InspCorp	Yes	Product: The third product of the CNF process is a gaseous biofuel used for renewable energy production.	Combined Nutrient and Fuel plant will market the renewable electricity generated from the gaseous biofuel product to a localized mini grid and thus create a distributed renewable energy network around multiple CNF plants.
Swiftcom systems	Yes	Product: Automated solar systems that help on production and processing of agricultural products	By providing green energy to farmers, we can help them reduce cost of production

ORGANIZATIONS NAME	DO YOU HAVE AN INNOVATION?	INNOVATION PRODUCT	IMPACT
Yna Kenya	Yes	Product: Use of battery swapping technology and IoT (Internet of Things) technology. The E-Go Charging Network, powered by solar energy and equipped with battery swapping stations, is a prime example of this innovation.	By co-hosting all electric vehicle (EV) companies in Kenya, Yna Kenya has created a collaborative and sustainable ecosystem that provides a reliable and renewable source of energy for EVs. This network effectively contributes to the distribution of renewable energy in a decentralized manner, reducing reliance on non-renewable energy sources and promoting cleaner and more sustainable mobility options. Through the integration of IoT technology, Yna Kenya ensures efficient monitoring and management of these distributed renewable energy resources, optimizing their use and environmental impact.
GreenEdge Digital Africa Ltd	Yes	Works with: Within the ALLIN embedded digital inputs provides opportunity for farmers to access affordable pay-as-you-go solar-driven products that include affordable solar-based irrigation solutions	Work directly to reach farmers in remote locations to access affordable services by leveraging digital technology to build last mile distribution networks. Also, by leveraging 360 degrees data points to support farmers access affordable credit beyond traditional collateral.





## **APPENDIX 8**

### **IMPROVING LIVELIHOODS FOR SMALL-HOLDER FARMERS IN EAST AFRICA A RESPONDENT**

#### **RESPONDENT QUESTIONNAIRE**

- Full Name
- Email address
- Gender
- Age
- Organizations Name
- Country of residence
- Does your organization work within the agricultural value chain?
- Does your organization work within the distributed renewable energy sector?
- Which country is your innovation being utilized?
- Do you have an innovation around the agricultural value chain?
- Please expound
- Do you have an innovation around distributed renewable energy?
- Are you interested in using distributed renewable energy?
- How would you articulate your work's main innovation?
- What are you most proud of regarding your work's direct, indirect, or systemic impact?
- Are you a small-holder farmer?
- Are you a small-holder farmer supporter?
- If you are a small-holder farmer utilizing distributed renewable energy, what challenges do you currently face?

- If you are a small-holder farmer/supporter, what challenges regarding renewable energy solutions do you face?
- What do you see as opportunities for distributed renewable energy use for smallholder-farmers?
- Are you aware of any government policies or initiatives promoting distributed renewable energy use in your country?
- State the government policy below.
- Are you aware of other innovations around the agricultural value chain in your locality, country, or region?
- Name the innovation (s) below
- Would you wish to be part of a network of peers who will support, share learning, and pursue opportunities for co-creation and collaboration in the agricultural value chain and renewable energy sectors?
- In your opinion, how can the use of distributed renewable energy solutions be encouraged?
- How can small-holder farmers be best supported to use distributed renewable energysolutions?
- In your opinion, rank the following stakeholders in order of who bears the most to the least responsibility in ensuring uptake of distributed renewable energy (Government/ Funder/ Small holder farmers/ Other)
- Explain your answer to the above question

## APPENDIX 9

### 12 INNOVATOR PROFILES

Name  
ANN TOBIKO



**Organisation**  
MerchantsInternational Merchants

**Country**  
Kenya

**Brief**

Meishan International Merchants is a social enterprise dedicated to improving the economic prospects of women and youth in Kajiado by addressing the challenge of livestock waste mismanagement. Meishan introduces an innovative solution by employing heat energy from recycled waste plastics to expedite the composting process. This approach reduces composting time from 14 days to just 5 days, yielding valuable byproducts like methane gas, liquid and pelletized fertilizers, and solid fiber. Through this environmentally conscious initiative, Meishan not only tackles waste mismanagement but also enhances the overall sustainability of the community's practices.

Name  
DAVID  
MUPENZI



**Organisation**  
Dairy Qaulity Assurance Lab

**Country**  
Rwanda

**Brief**

David Mupenzi is unlocking the potential of Rwanda's dairy sector by facilitating the application of a price differentiation program that allows dairy farmers to know exactly how much more money they will earn if they invest in producing higher quality milk. This predictability, combined with a new support system to enable investing, is reviving the economic possibilities for one of Rwanda's most neglected groups.

12 INNOVATOR PROFILES

**Name**  
DIBABA JOHN



**Organisation**  
Integrated Humanitarian Aid

**Country**  
Uganda and South Sudan

**Brief**

IHA aids smallholder farmers by adding value to their produce, reducing dependence on middlemen, and boosting income. Focused on maize farmers. This initiative enhances income, emphasizing small-scale farming. IHA facilitates market access for farmers, fostering group collaboration for better bargaining power. The organization strengthens farmers' savings through Village Savings and Loan Association (VSLA) groups, promoting value addition. In urban areas, IHA encourages kitchen gardening, particularly targeting public schools to diversify learners' menus. Recognizing the interdependence of agriculture and the environment, IHA believes in a holistic approach for sustainable results.

**Name**  
EDWIN  
MUMBERE



**Organisation**  
Center for Citizens Conserving Environment and Management

**Country**  
Uganda

**Brief**

CECIC is a grassroots non-profit advocating for environmental policies that benefit vulnerable communities, especially youth and women in Africa. Through lobbying, research, and community engagement, CECIC works to ensure equitable development, environmental conservation, and respect for human rights in the use of natural resources. Their mission is to empower citizens to actively engage in environmental conservation, promote sustainability, and advocate for responsible natural resource management. CECIC envisions a world where every citizen serves as a steward of the environment, fostering a sustainable and harmonious relationship with nature.



**Name**  
EMMANUEL  
CHIBASA



**Organisation**  
Lake agriculture

**Country**  
Tanzania

**Brief**

The community based organization embarked on agricultural activities, marketing of agricultural products and crops, community development projects, agree biasness to conduct capacity building to improve and safe guard natural vegetation. Farming, Animal husbandry, Acquire culture are some of its daily activities

**Name**  
HOPE  
MWANAKE



**Organisation**  
InspCorp

**Country**  
Kenya

**Brief**

InspCorp's CNF Process integrates sustainable solid waste management with enhanced food security by converting the organic fraction of Municipal Solid Waste into renewable energy, a liquid biofertilizer concentrate, and an organic soil conditioner. The mission is to reduce fertilizer costs for smallholder farmers in developing countries through the cost-effective CNF process, making regenerative biofertilizer and soil conditioner products highly affordable. Additionally, as InspCorp scales, it aims to utilize the renewable energy generated to establish localized distributed energy networks, promoting the adoption of green circular energy. The CNF process is currently in the prototyping phase.



**Name**  
JOHN  
WABWIRE



**Organisation**  
Bunyala Agri Climate Impact Solutions

**Country**  
Kenya

**Brief**

Bunyala Agr Climate Impact Solutions target the climate and environmental challenges faced by smallholder farmers and fisher communities in Busia County, Western Kenya. These solutions aim to enhance community resilience and adaptability to climate variations such as unpredictable rainfall, flooding, and droughts. Key strategies include implementing Climate Smart Agriculture, capacity building, water harvesting, and promoting sustainable fishing practices. These initiatives offer approaches to addressing climate impacts, providing access to finance, resilient farming practices, and techniques for water harvesting. The goal is to empower communities to sustainably manage natural resources, improve food security, and enhance livelihoods in the face of climate change.

**Name**  
JOSEPH  
SEKIKU



**Organisation**  
FADECO

**Country**  
Tanzania

**Brief**

FADECO is dedicated to enhancing the sustainable livelihoods of grassroots communities through information sharing via radio programs, targeted workshops, experience sharing, and participatory learning. With a predominant focus of 65% on sustainable agriculture, FADECO strives to build the capacity of farmers, guiding them from basics to marketing and value addition. The organization identifies and addresses the key challenges faced by farmers through various interventions, aiming not only to overcome obstacles but to empower farmers to rise above challenges and prosper in their endeavors.

**Name**  
LUCY KIRUI



**Organisation**  
Green Edge

**Country**  
Kenya

**Brief**

GreenEdge Digital Africa Ltd, is a social enterprise with over 15 years of experience in the Agri-Food sector. The organization's mission revolves around promoting technology startups to foster digital-driven growth and market systems transformation for small-holder farmers and Micro and Small Enterprises (MSMEs) across Kenya and the African continent. GreenEdge actively supports small-holder farmers and agriactors, enabling them to leverage technology for streamlined access to supplies, expanded market reach, and efficient management of last-mile distribution, all while cost-effectively handling operations.

**Name**  
LYDIA  
OWENGA



**Organisation**  
Byestar

**Country**  
Kenya

**Brief**

Byestar International Limited, a provider of renewable energy solutions, specializes in biodigester installation, waste management, water treatment, and construction training for biogas systems. The company also offers training on utilizing bioslurry as organic fertilizer to boost crop production. With a dedicated extension unit, Byestar actively supports smallholder farmers in adopting sustainable, cost-effective, and clean energy practices.

The organization's commitment to a green future is evident through its efforts to enhance sustainable production and consumption. To date, Byestar has successfully installed 258 biogas systems across Kenya and is currently implementing a pay-as-you-go model with the goal of installing close to 5,000 units countrywide.

**Name**PHILEMON  
HATANGIMANA**Organisation**

Philemons Farm

**Country**

Rwanda

**Brief**

Philemon Farm is dedicated to establishing a sustainable and environmentally responsible agricultural enterprise, focusing on mushroom and organic produce cultivation. Key components of their initiative include the mushroom value chain, environmental responsibility through Biochar technology for charcoal production using expired mushroom seeds and agricultural waste, community engagement with training and mentorship programs for farmers, access to international markets, and holistic sustainability.

The primary objective is to address the rising demand for eco-friendly charcoal by investing in cutting-edge technology such as Carbonize, Extruder, and dryer machines. Additionally, Philemon Farm is streamlining logistics by acquiring vehicles to efficiently collect agricultural waste and distribute charcoals, aiming to significantly reduce prices and attract a broader market currently reliant on traditional tree-based charcoals.

**Name**SAMUEL  
THUITA**Organisation**

Swiftcoms Systems

**Country**

Kenya

**Brief**

Hybrid Solar Solutions addresses the challenges of high costs and unreliability associated with the Kenya Power and Lighting Company (KPLC). Their innovative solution, the Hybrid Solar System, intelligently integrates multiple power sources, including wind, solar energy, fuel generators, and lithium/gel batteries. This versatile system ensures a consistent and cost-effective energy supply by dynamically switching between sources, particularly when sun or wind is insufficient. The inclusion of lithium/gel batteries allows for efficient energy storage, invertible back into AC appliances. Beyond solving energy challenges, this innovation holds scalability potential, providing a sustainable power source for various agricultural systems and tools. Hybrid Solar Solutions marks a significant advancement in overcoming energy hurdles in Kenya and has the potential to revolutionize energy solutions on a broader scale.





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**ASHOKA** EVERYONE A CHANGEMAKER™

