Clean Energy For Development: A Call For Action (CEDCA)

Renewable Energy MSMEs operating to modernize agriculture in Sub-Saharan Africa and South-East Asia: *Barriers, opportunities, and implications for an inclusive low-carbon transition*

Stakeholder's Co-creation Workshop

25th April 2024

pep partnership for economic policy

EfD

IDRC · CRDI
International Development Research Centre
Centre de recherches pour le développement international

Canada

Workshop program

- Welcome Remarks
- Self-Introductions
- Remarks from Director EfD-Mak
- Presentation, Project Brief- Dr. Aisha Nanyiti
- Presentation, Diagnostic phase findings- Dr. Florence Lwiza
- Plenary- Stakeholders share innovative ways of propagating a transition to low-carbon agricultural technologies.
- Discussion points & Wrap up

Project Brief

Dr. Aisha Nanyiti

Clean Energy for Development: A call for Action (CEDCA)

Background

- Climate change poses significant risks to farming households around the world.
  - The risk is higher for SSA with about 600 million people living in severe energy poverty (Mukhtar et al., 2023).
  - Households, hence have limited potential to cope with climate risks.
- While not among the big emitters,
  - Uganda's climate action contributes to global climate efforts, and
  - Reduces the country's vulnerability to spatial climate change effects, given the limited coping potential.

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Background

- Uganda's agricultural sector contributes highest to its emissions,
  - Accounts for 53.3% of the GHG emissions (WRI, 2023).
- Low-carbon agricultural energy technologies are hence an indispensable fragment of Uganda's energy transition.
- However, the uptake of these technologies is low.
  - Lack of access, affordability, knowledge of alternatives, and financing are cited as the key barriers to uptake.
- MSMEs can play a central role in driving the uptake of low-carbon ag technologies.
  - The highest proportion of Uganda's MSMEs are engaged in the agricultural sector.
  - Potential for involvement of women and youth.
  - Potential adopters of ag-tech
  - Distribution of ag-tech, through innovative business models.

Renewable Energy MSMEs operating to modernize agriculture in Sub-Saharan Africa and South-East Asia

About the project

- Collaborators:
  - Partnership for Economic Policy (PEP) &
  - Environment for Development Initiative (EfD).
- The project is being implemented in 4 countries.
  - Burkina Faso, Kenya, Uganda, and Vietnam.
- Funded by the International Development Research Centre (IDRC)
- Uganda project team
  - Researchers from the EFD-Mak Centre,
    - Prof. Edward Bbaale, Director, EfD- Mak Centre.
    - Aisha Nanyiti (PhD), Lecturer, School of Economics.
    - Florence Lwiza (PhD), Lecturer, School of Agricultural Sciences.
    - Gyaviira Ssewankambo, Junior Research Fellow, EfD-Mak Centre.

Objectives

- Establish the barriers and opportunities,
  - for the emergence of a vibrant MSME sector to support the use of modern energy technologies in agriculture.
  - for inclusion of women and youth in the ag-tech MSMEs value chains.
- To undertake rigorous tests of context-relevant models to support the transition to low-carbon agricultural technologies.

Approach

- Diagnostic phase
  - To understand the state of affairs on the supply side and the demand side of the renewable ag-tech industry in Uganda.
- Design phase
  - Co-creation with:
    - MSMEs & Stakeholders,
    - an MSME-led model for supporting the transition to low-carbon ag-tech by smallholder farmers.
- Test phase
  - Rigorous impact evaluation of an MSME-led model.

Diagnostic phase

Specific objectives:

- Among other things, the diagnostic phase sought to establish:
  - The type of ag-technologies supplied by the renewable ag-tech industry.
  - The scale of supply-side players.
  - State of women, youth, and other groups involvement on the ag-tech supply side.
  - The type of ag-technologies demanded and needed by the farmers.
  - State of women, youth, and other groups involvement on the ag-tech demand side.
  - Barriers to up-take of low-carbon ag-techs.
  - Opportunities for supporting the emergence of a dynamic MSME-led transition to the use of low-carbon ag-techs.

Findings:

- *Next presentation.*

Design phase

To generate a context-relevant MSME-led model for supporting the transition to low-carbon ag-tech by smallholder farmers-

***For the plenary session, we will ask you to briefly talk about*:**

1. The renewable energy projects/activities of your organization.
2. Your experiences with low-carbon ag-techs like *solar or hybrid water pumps, batteries, generators, driers, fridges, and millers.*
3. Your opinion about the effectiveness of sensitization programs in advancing the uptake of modern ag-technologies.
4. Your opinion of a fairly feasible MSME-led model for enhancing smallholder farmers, women, and youth's uptake of modern ag-technologies.
5. Plus any feedback or questions to the research team.

Diagnostic phase findings

Dr. Florence Lwiza

Methodology

Supply-side: MSMEs

- Desk mapping
  - Grey literature and internet- enterprise and industry association websites.
  - Referrals by other MSMEs.
- Field mapping
  - Field search for ag-tech firms in kampala missed or not confirmed via the desk mapping.
- Total of 15 firms listed.
- In total 8 firms were engaged in interviews.

Methodology

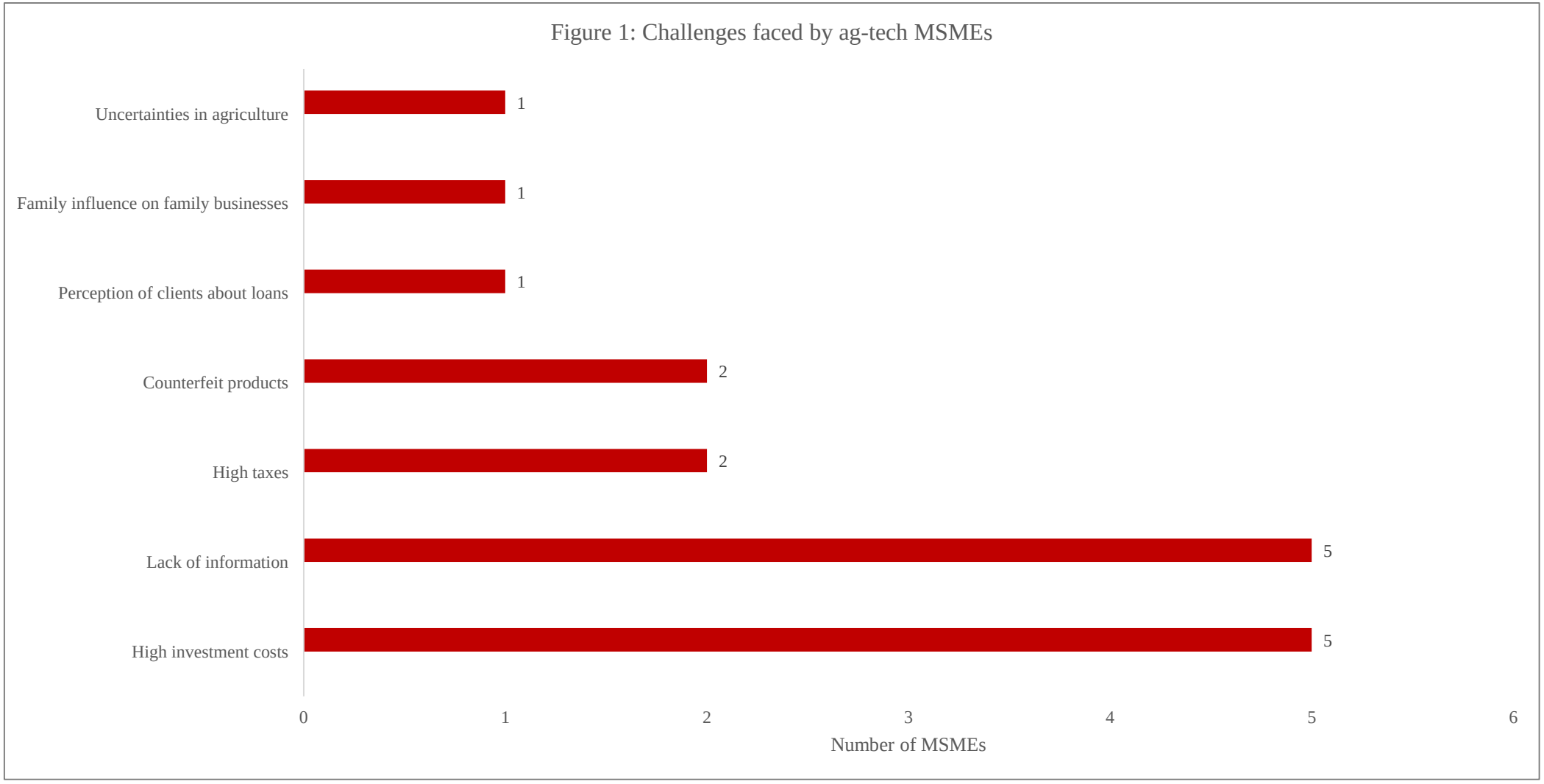
Demand side- users of ag-tech

- Interviews with potential users were conducted in 15 villages in Wakiso district.
  - Village leaders were asked to identify:
    - The relatively big crop and/or livestock farmers from their villages,
    - Any agro-processing MSMEs they know of in their community.
- Total of 101 crop and/or livestock farmers,
- And 18 agro-processors were interviewed.

Findings-MSMEs

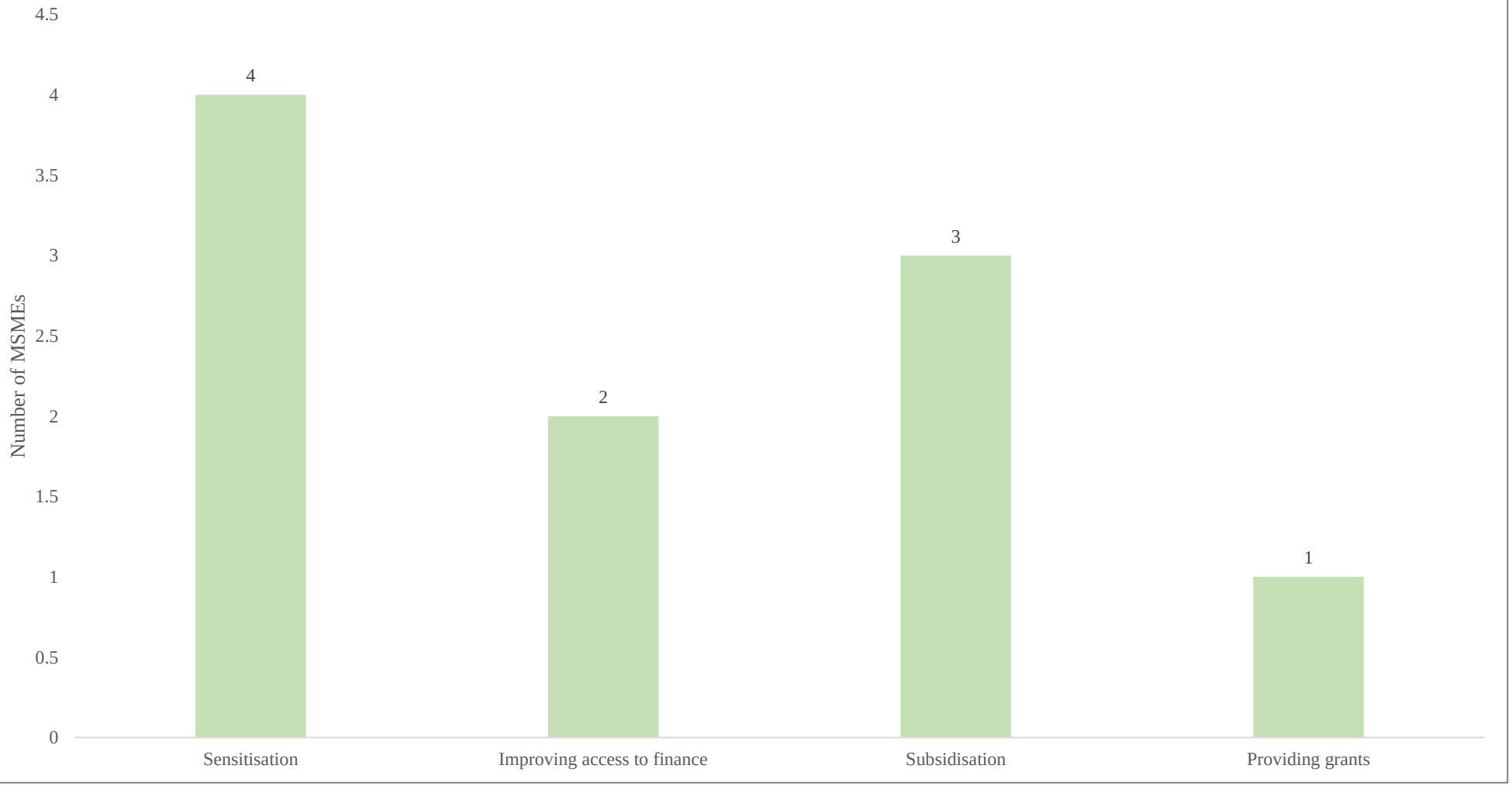
- The Ag-tech MSMEs are private, based in Kampala.
  - Average of about 4 sales outlets across the country.
    - Serve a largely rural-based clientele classified mostly as an average class.
  - All MSMEs engage in crop and livestock production sub-sector.
    - Supply irrigation equipment and exploit solar energy.
    - Very few MSMEs also engage in agro-processing- exploiting hydro, wind, and solar energy.
    - Very few MSMEs exploit bioenergy.
- The Ag-tech MSMEs have been in operation for an average of 24 years.
  - Serving about 2315 clients p a, with annual revenue of 639 billion, employing about 58 people on average.
- Most owners of Ag-tech MSMEs are male aged 38 on average.
  - Employing mainly youth and very few persons with disabilities.
- Only half of the Ag-tech MSMEs reported having payment packages.
  - Commercial bank credit schemes, funding partners, pay-go schemes.

Findings-MSMEs



Findings-MSMEs

Figure 2: MSMEs recommendations for policies to improve use of renewable energy



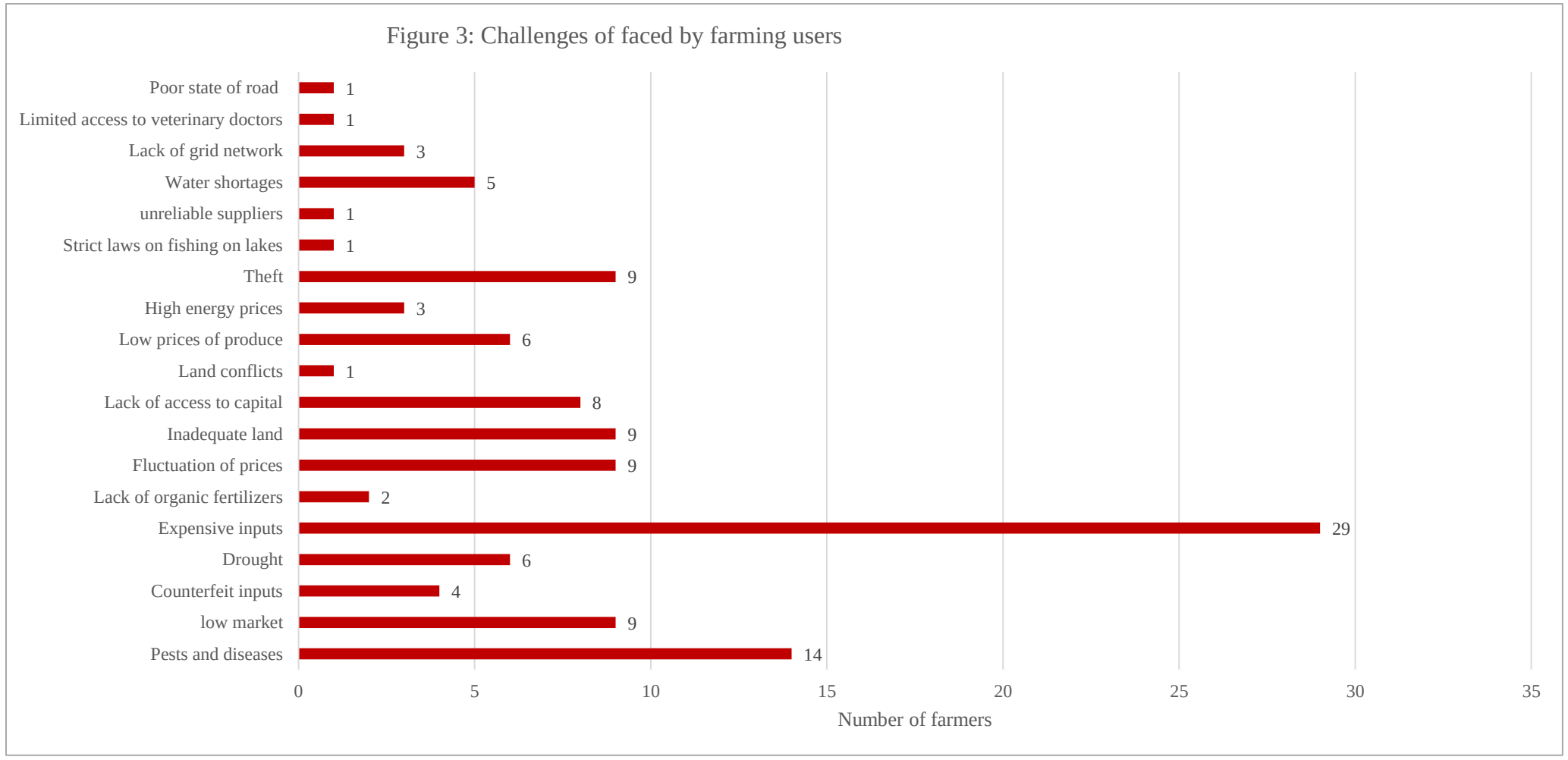
Findings-Ag-tech Users

Farmers

- Have an average farm acreage of 6.17 acres.
  - Engage mainly in crop farming.
  - Have estimated average annual revenue of 168 million.
  - Employ about 5 people on average.
- Majority of the farm owners are male, aged 49 years on average.
  - Employing mainly youth.
- Only 23% of the farmers use renewable energy, mainly solar energy.
  - Very few of the farmers report to have farm equipment.
- Majority of farmers with equipment, used cash to acquire the equipment.
- Farmers desire mainly irrigation equipment.

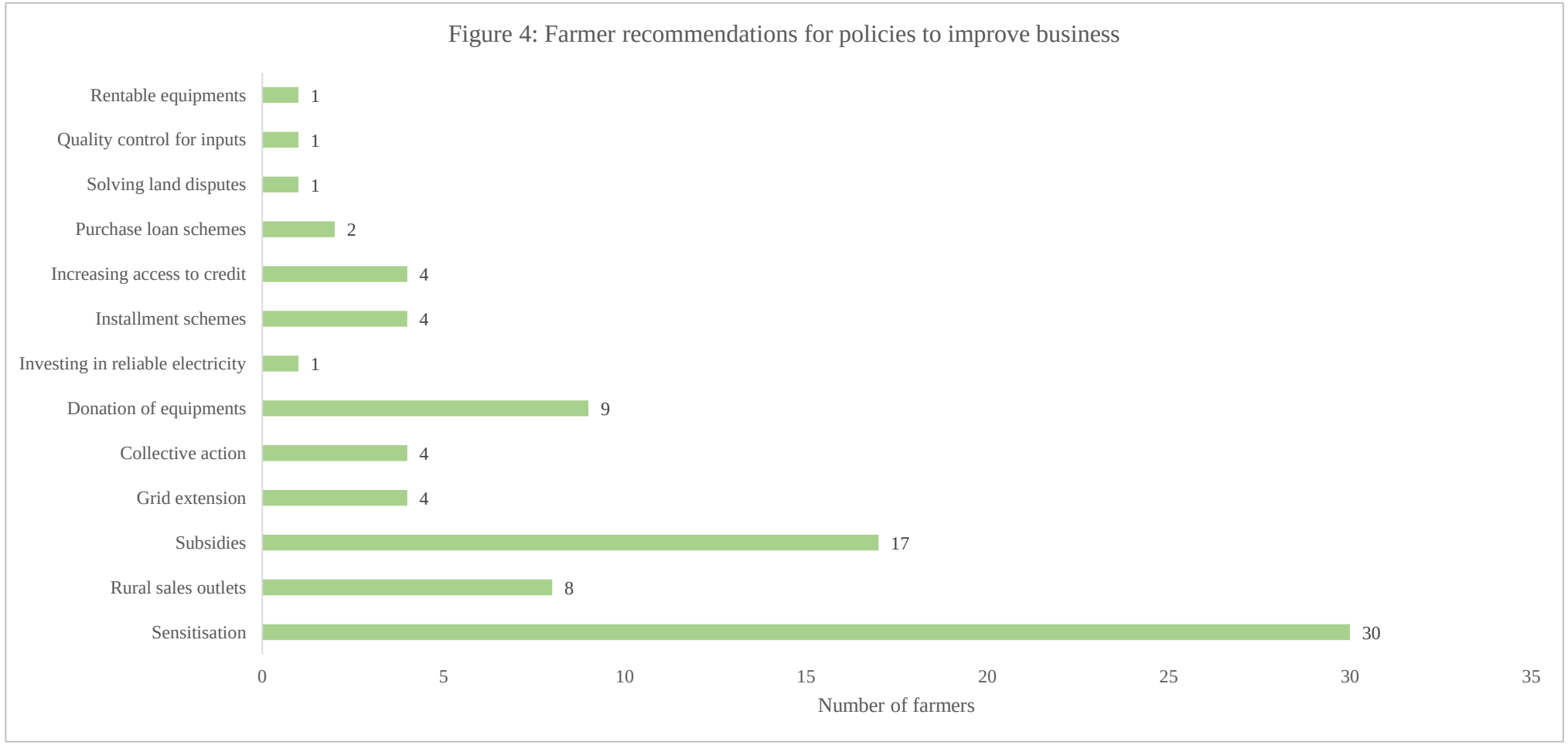
Findings-Ag-tech Users

Farmers



Findings-Ag-tech Users

Farmers



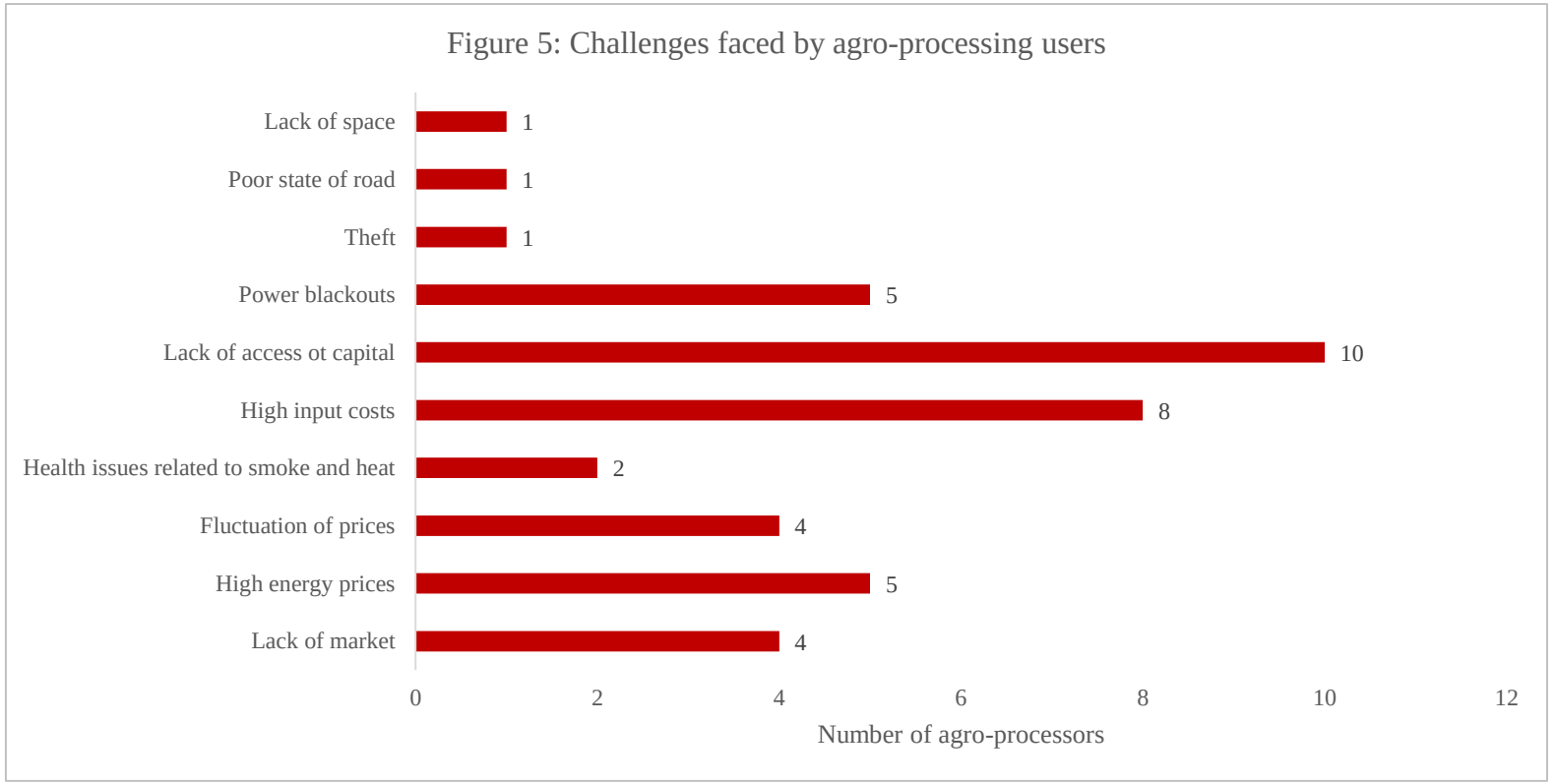
Findings-Ag-tech Users

Agro-processors

- Have firm acreage of 1.03 acres.
  - Engage mainly in maize milling.
  - Employing about 12 people on average.
- Most owners of the firms are male, aged 44 years on average.
  - Employing mainly youth.
- Forty-four percent of the farmers use renewable energy, mainly hydroelectricity.
- Some of the agro-processors, report to have firm equipment.
  - Majority of those with equipment, used cash to acquire the equipment.
- Mainly desire processing equipment.

Findings-Ag-tech Users

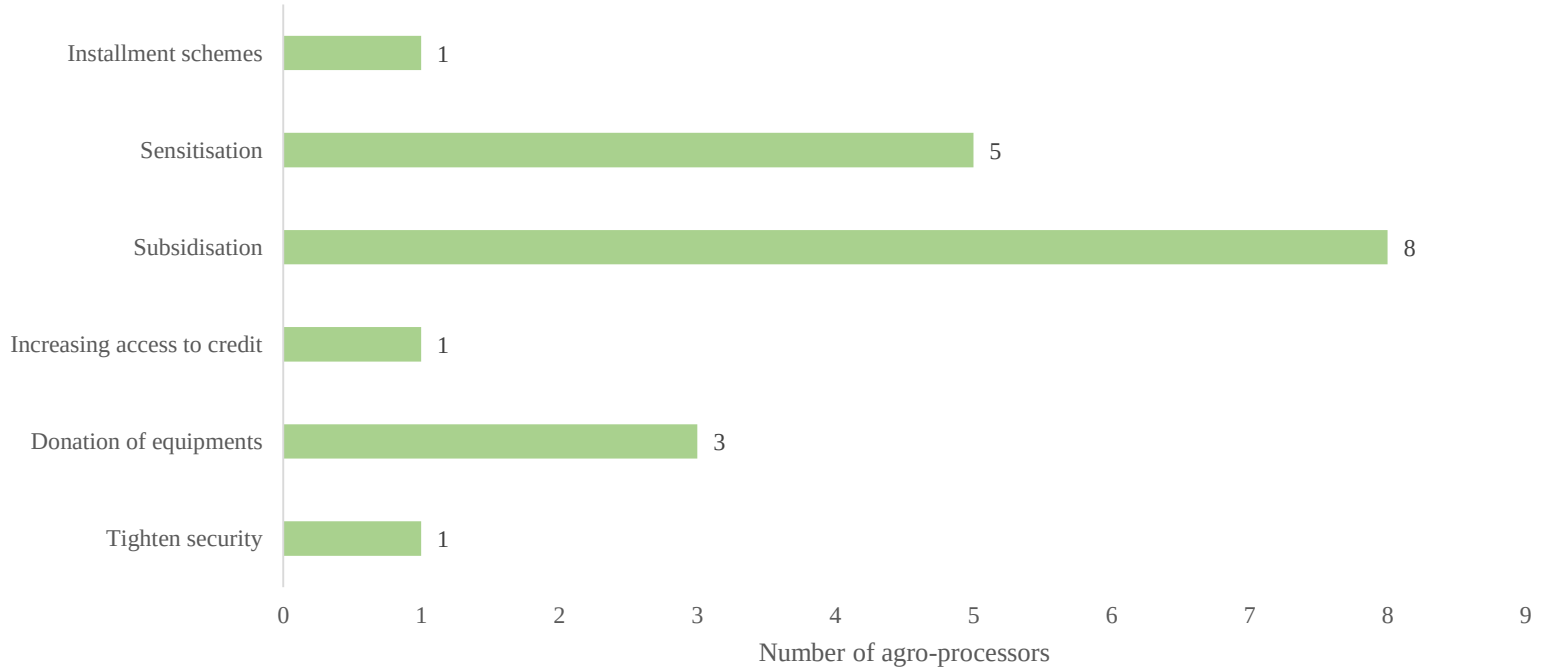
Agro-processors



Findings-Ag-tech Users

Agro-processors

Figure 6: Agro-processors recommendations for policies to improve business



Plenary session

Plenary

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We Thank you so much for your time.

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