African Studies (MA)

The master's in African Studies at Leiden University is an advanced area studies qualification that combines world-class scholarship with practice-based learning. Every year, around 20 students participate in the programme. An important part is a ten-week research internship at an organisation in Africa or an African related setting in Europe/The Netherlands. Here, students get the opportunity to test new skills and ideas in practice while gaining invaluable cultural and professional experience. The research data feed into the Master's thesis and other output, such as policy briefs.

Policy Brief by Willem Jansink

Accelerating Agricultural Transformation: The Potential for Remote Sensing in West African Greenhouse Farming

Introduction

The global diffusion of digital technologies has the potential to lower the entry-level for farmers in West Africa to become engaged in agricultural innovation and transformation. New production technologies and techniques are much needed in the region for a number of reasons.

First, population dynamics imply the need for boosting agricultural production to guarantee future food security. Second, climatic and environmental factors are expected to become a more limiting factor for traditional production methods and call for higher sustainability standards. Third, technological innovation in agriculture can enable farmers to transform and grow their businesses, boosting productivity and incomes.

At the same time, the Dutch agri-tech sector is facing a saturated market in the Netherlands and is actively looking to expand its customer base in new and currently still underserved markets in West Africa. To stay ahead of the competition, companies have to understand the key risks and opportunities in regard to exporting their production systems.

A user-based approach is needed to understand the underlying motivations for, and constraints to, technological innovation as perceived by potential customers.

Findings

- The vast majority of farmers are driven by techno-economic considerations, aimed at boosting efficiency and therefore profitability. Next to these, they are incentivized by more social objectives, such as creating employment for the youth and proving affordable, nutritious, and year-round available produce within their communities. Furthermore, the larger agri-entrepreneurs aim to fill in self-perceived institutional voids, focusing on import substitution and overall food security, which they feel the government not providing.

- Issues related to access to finance are perceived by farmers to be the main constraints to innovation. Other important constraints include knowledge gaps (most notably due to a lack of technical assistance), harsh climatic and weather conditions, and poorly functioning infrastructure.

What is Remote Sensing?
This technology can monitor various climatic variables (e.g., temperature, humidity) in the greenhouse and use this data to control certain parameters (e.g., fogging, carbon dioxide levels). This enables remote crop monitoring and control, giving the farmer a tool to boost productivity.

What is Frugal Innovation?
In the most general sense, frugal innovation consists of two elements. It is concerned with introducing something new or different (innovation) while operating in a context in which resources are scarce (frugal). Instead of referring to a specific type or outcome of innovation, it is rather defined as an approach to the process of innovation as a whole. The concept's distinguishing criteria are substantial cost reduction, concentration on core functionalities, and optimized performance level, and should all be met simultaneously. Furthermore, they are deemed to be embedded in innovative business models to make them affordable for price-sensitive customer groups in emerging and developing countries.

SUMMARY POINTS
- There is **significant and growing market potential** for remote sensing technology in West-African greenhouse farming, of which demand is currently not met by domestic suppliers. This is caused by numerous agronomic constraints that will rise in significance in the short to medium term.
- **A user-based approach**, taking account of underlying motivations and constraints perceived by interested agri-entrepreneurs, is **crucially important** to understand how high-tech devices can be adapted to the local farming context and develop a viable business case.
- **Setting up a local subsidiary** to demonstrate the technology and provide servicing on the ground can bring in the necessary customer base.
- **Affordability and reliability** are key criteria as perceived by agri-entrepreneurs looking to innovate and expand.
- **Innovative financing** schemes and on-board **technical assistance** can greatly enhance the value proposition.

Policy and Advocacy Recommendations

RECOMMENDATION 1 — Set up a local subsidiary to demonstrate your solutions and be able to provide servicing on the ground.

- Build a presence on the ground by setting up a demonstration center to showcase the benefits of remote sensing technology. This can provide proof of concept to local farmers and shows that the technology is adapted to work in tropical climates. Have local personnel able to train local farmers and provide after-sales support for maintenance.

- Farmers do not regard remote consulting as the desired option, mostly due to cultural reasons that attach high value to direct and personal contact. Demonstration centers with practical training sessions or agronomic support on-site are by far the preferred options, also due to the relatively high occurrence of illiteracy among interested smallholder farmers.

- Work together with respected institutions such as the West African Centre for Crop Improvement to showcase the technology. Stakeholders like these have vast networks of potential customers and are experienced in organizing workshops, developing training programs, and setting up demonstration centers.

RECOMMENDATION 2 — Focus on affordability and reliability as the key criteria for adapting your technology.

- Farmers identified affordability as the number one criterion for adapting high-tech remote sensing technology to the West-African farming context. Equal importance is given to upfront capital expenditure and operational costs.

- Scalability is more important than reaching the levels of optimization we strive for in the Dutch greenhouse farming system. The vast majority of greenhouse farmers are still using very basic, low-tech production systems, and suitable land for expansion is often readily available. This means most value-added can be realized by focusing on entry-level equipment which can be scaled quickly. In short, drive efficiency to 80% instead of 100%, but over a larger area.

- Reliability is another key concern for farmers, who often have to cope with power shortages and limited internet connectivity. A feasible solution for overcoming these constraints is to rely on hub stations with internal memory boards that are capable of running on local networks (LoRaWAN).

- Most demanded devices by farmers are hygrometers (pH, EC), battery-powered irrigation and fertigation systems, light sensitivity and UV sensors, and automated pest monitoring and tracking sensors.

RECOMMENDATION 3 — Include innovative financing schemes and accompanying technical assistance as part of your value proposition.

- Take away the barrier of high upfront expenditure by providing a financing scheme that stretches over multiple harvest cycles. A credit system like this allows smallholder farmers with little investment capital to use the returns on sales as payments.
- Take the business model of leading greenhouse manufacturer Dizenhoff Ghana as an example, by providing contract farming schemes to reduce high upfront costs. Having technical support on board the financing program reduces risks for banks and serves as extra leverage for increasing productivity.
- Another interesting de-risking mechanism for finance providers is the geo-mapping service provided by fintech startups such as mFarmpay. Satellite- or UAV-derived data can provide easy and affordable risk analyses by doing digital soil profiling and yield predictions.

Policy Brief by Layla Farah

IIDA
WOMENS DEVELOPMENT ORGANIZATION

The Kenyan-Somali paradox: Kenyan, or Somali?

This brief is for IIDA Women's Development Organisation. This NGO focuses their development work on ethnic Somalis in North-Eastern Kenya and Somalia. This organisation has had previous work focusing on the access of health services in the north-eastern province, supporting businesses in Nairobi, and supporting the youth who have been recruited by terrorist organisations. By focusing their work on the development of ethnic Somalis, this policy brief will be of importance to them as it demonstrates other areas of concern that exist for this community and that require immediate attention.

EXECUTIVE SUMMARY
- *Many Kenyan-Somalis do not feel that they belong to the Kenyan state as a result of the state perception that exists. This results in major consequences for Kenyan-Somalis in the legal and social sphere.*
- *The findings of the research illustrate areas of concern for the Kenyan-Somali community. Thousands of Kenyan-Somalis are unable to register for identity cards leaving them with the inability to be given basic support and rights, and Kenyan-Somalis are victims of ethnic profiling by police as a result of the Kenyan state deterring terrorism.*
- *This brief is a call for action and recommends a quick and rapid response in both obtaining the identity cards through implementing more space and time for the registration, and the police sector reform through engaging with governments about the pressing issue of ethnic profiling.*

KEY FINDING 1: Kenyan-Somalis face issues in accessing identity cards

- **Kenyan-Somalis have a harder time accessing identity cards.** The northeastern part of Kenya that borders Somalia has thousands of people that struggle obtaining identity cards which are also known as the Kipande. These areas host a majority of ethnic Somali people in places such as Garissa, Mandera and Wajir. In these cities, it is only possible to register for identity cards at a specific time of the year, and the registration ends when the authorities deem that their threshold goal is reached. Therefore, others are left waiting and have to come back when the next registration occurs the following year.
- Not everybody is able to attempt to register because they are not targeted for the registration time. This poses a lot of issues for the ones unable to register because many face unjustly arrests due to not having an identity card on show when asked for it by authorities, as it is then presumed that they are residing in Kenya illegally. These individuals are therefore fearful of leaving their homes.
- Furthermore, many are unable to meet basic needs and services as a result. They are unable to apply for university, open a bank account, vote, or be provided basic public or governmental services.

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METHODOLOGY
- This study was conducted in Kenya and investigated feelings of belonging and citizenship amongst Kenyan-Somalis.
- Participants were recruited through a snowball sampling method.
- The study consisted of key informant interviews and in-depth interviews with Kenyan-Somalis.
- The data has been analysed through a thematic analysis of the interviews conducted.

KEY FINDING 2: Ethnic Somalis in Kenya are victims of ethnic profiling

- **Kenyan-Somalis are targets of ethnic profiling.** Kenyan-Somalis have become targets for security measures and for ethnic profiling. This predominantly happens more in ethnic Somali neighbourhoods in Nairobi. "Operation Sanitise Eastleigh" which is also referred to as Operation Usalama Watch took place consequent to the number of violent terrorist attacks occurring in Kenya, and focused on deterring terrorism that was present as a result of Al-Shabaab, which is a Somali born terrorist organisation. Officers were deployed and began sweeping, placing roadblocks and arresting thousands of Somalis from Eastleigh, a Somali hub in Nairobi. Consequently, they were detained and required to demonstrate valid identification. The perspective was that those who were unable to demonstrate identification or were in the country illegally, were responsible for the ongoing terrorism.
- **Kenyan-Somalis feel like they are more likely to get stopped and searched.** This creates feelings of anxiety for the Kenyan-Somali population. There are general fears of mistrust against the Kenyan police force, and are expected to pay large bribes in order to receive good treatment from the officers.

POLICY SUGGESTIONS
1. **Implement more spaces for Kenyan-Somalis in the north-eastern province to register for identity cards to respond to the thousands who cannot access basic health and services.**
   - Ensure that identity card registration in the north-eastern province does not occur once a year through more awareness and political attention.
   - Provide support to those who lack basic health and amenities due to the lack of identity card through a grassroots level.
   - Provide education and spread knowledge on the process of accessing identity cards.
2. **Engage with governments about the necessity of police reform in order to prevent ethnic profiling of those of Somali descent.**
   - Obtain political momentum on the ethnic profiling and police brutality in the police and security sector and spread social awareness.
   - Create community groups to teach individuals about their rights and inform them about their options if they are detained unjustly by police.