



Syngenta Foundation for Sustainable Agriculture / Kilimo Salama

Affordable Insurance Schemes for BOP Farmers in East Africa

Kilimo Salama (KS) is an agricultural social business project in Kenya and Rwanda launched in 2009 by the Syngenta Foundation for Sustainable Agriculture (SFSA). KS insurance schemes cover crop inputs or harvest against extreme weather conditions or certain diseases, cow mortality, agricultural microloans, outstanding credit, and even funeral costs. They are sold mainly via aggregators (e.g., microfinance institutions and farmer cooperatives). As of January 2014, KS was the largest agricultural insurance program in Africa, serving over 187,000 farmers. KS plans to expand to Tanzania by the end of the year and conduct feasibility studies in Zimbabwe and Nigeria.

Role of Broadband and Data Connectivity

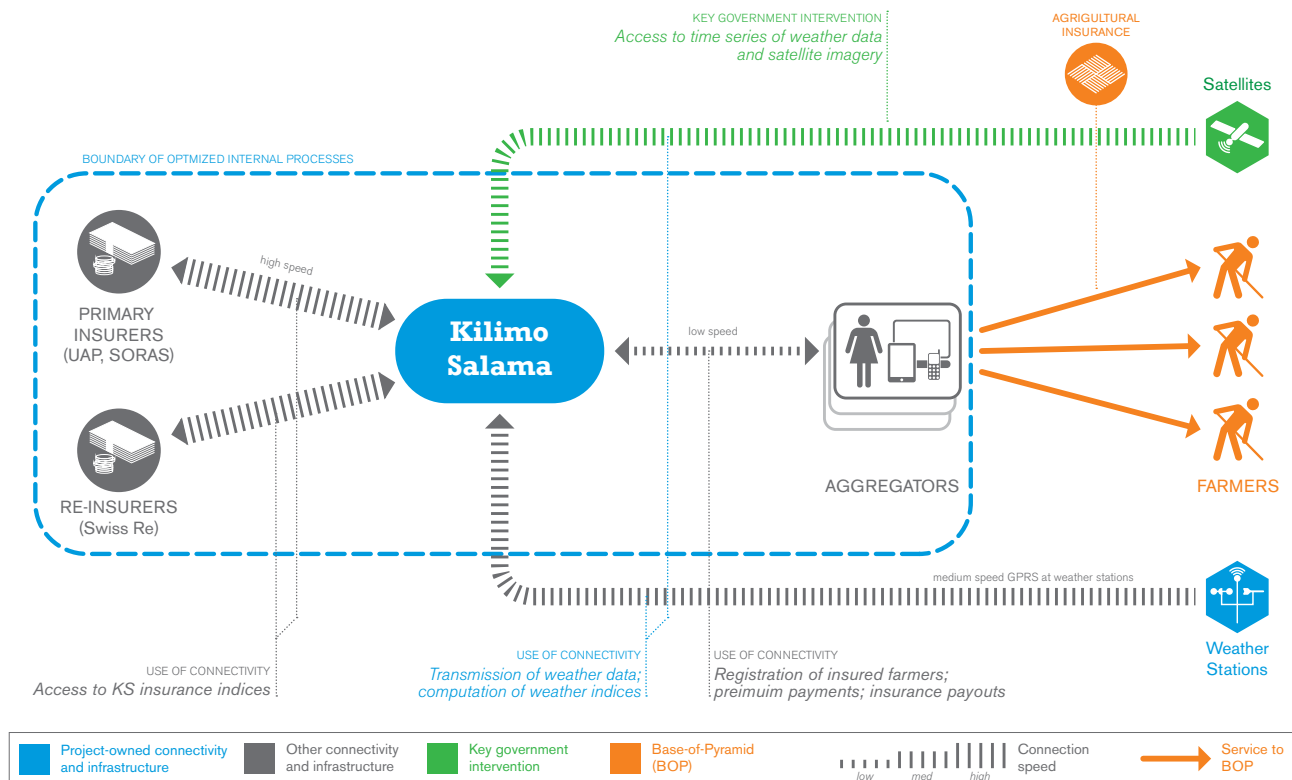
KS manages to provide insurance to smallholder farmers – who cannot be served sustainably via traditional insurance processes that would require visits to their fields – with the

support of technology and connectivity. With KS, field visits to determine payouts are unnecessary because the project uses fully automated weather stations connected to cloud-based servers via general packet radio service (GPRS) and satellites (monthly data volume of 3 Mb per station). Disbursements are made automatically based on the data measured by the weather stations and satellites, eliminating claims and simplifying the payout process for both parties. As a result, operational costs are kept low enough to make micro-insurance affordable to targeted farmers, over 95 percent of whom belong to the BOP.

Key Success Factors

The success of the KS model is strongly connected to its simplicity. At all levels, KS focuses on keeping concepts and processes simple: working with aggregators to sell group insurance and outsourcing administrative tasks to them significantly lowers the project's operational costs. Further, the automation of payout calculations simplifies the process to the point that it makes costly field visits almost unnecessary.

System Diagram: Kilimo Salama



Lastly, the simplicity of the insurance model itself makes it easy to understand for customers and thus increases their trust and willingness to purchase KS products.

Implications for Policymakers

Regulatory frameworks (e.g., for taxes and duties) that distinguish non-commercial insurance from commercial insurance have proven crucial for models like KS to keep operational costs low. Moreover, centralized collection and free provision of long-term weather data (e.g., via databases) can significantly simplify the establishment and replication of models like KS.

Website

<http://kilimosalama.wordpress.com>



Description of Business Model

History of Organization

Kilimo Salama²⁵ ("safe farming" in Swahili) is a project launched in Kenya in 2009 by the Syngenta Foundation for Sustainable Agriculture (SFSA). Kilimo Salama (KS) is a service provider of affordable insurance products for smallholder farmers, protecting them against severe weather conditions and their agricultural and economic consequences. The SFSA developed the KS product in partnership with UAP (a Kenyan insurance company) and Swiss Re (a global reinsurance company). It first launched two insurance products called KS and KS Plus, offering crop insurance to individual farmers through agro dealers (selected input distributors at the village level) at the time of purchase. In 2012, KS started phasing out individual insurance products and focused on insuring groups through aggregators (e.g., cooperatives, savings and credit cooperative organizations, agribusinesses, lending institutions, and NGOs). Since then, it has introduced loan-linked insurance, dairy livestock insurance, and credit life and funeral insurance, as well as insurance for contracted seed-growing farmers. In September-October 2013, KS piloted a replanting guarantee for SeedCo seeds and will roll out the scheme at full scale in 2014, targeting 200,000 farmers.

²⁵ Soon to be renamed the "Africa Climate Risk Enterprise" (ACRE).

KS won the Financial Times/International Finance Corporation (IFC) prize for Technology in Sustainable Finance in 2012. In 2013, the Flextronics Economic Development Award at the Tech Awards, and the Aon Client Innovation Award.

In 2012, KS expanded to Rwanda, and it plans to expand to Tanzania in 2014. It has now become Africa's largest agricultural index insurance program, serving over 187,000 farmers in 2013 alone. KS aims to insure 1.4 million farmers and plans to register as an independent corporation in 2014.

Value Propositions

KS leverages local organizations as aggregating intermediaries between smallholder farmers and insurers, making agricultural micro-insurance affordable to the BOP (over 95 percent of its clientele).

Farmers: KS insures farmers' inputs (e.g., seeds, fertilizers, pesticides, labor, land leasing fees) or harvests against severe weather conditions or diseases. Farmers receiving a payout get on average 30 percent of the sum insured, depending on the insurance product:

Microfinance Loan-Linked Insurance: Farmers using input loans over KES8,500 (US\$100) to buy certified products are insured by UAP. Depending on the microfinance institution, insurance premiums are reflected in higher interest rates or

fully covered by the microfinance institution itself (as part of its risk reduction strategy).

Contract Seed Grower Insurance: Seed companies take over first premium payment for contracted seed-growing farmers, and later deduct the premium from first harvest delivery payments.

Dairy Livestock Insurance: A dairy cooperative advances farmers' premium payments and deducts costs from the final milk delivery payments. Payouts depend on preventability of the animal's cause of death (e.g., by vaccination) and vary from 50-80 percent of the cow's value.

Replanting Guarantee: Seed bags include an insurance voucher that allows farmers to avail themselves of a replanting guarantee, through which they can get a new bag of seeds in case of lack of rain for three weeks after planting.

Credit Life and Funeral Insurance: The insurance is available in two main formats:

Funeral insurance: Covers the primary insurance member and his/her spouse for one year, at US\$2-\$3 on average. Potential payouts are around US\$230. It can also cover any number of dependents.

Credit life insurance: Can cover the primary member, his/her spouse, and any number of dependents. The insurance covers credits that remain unpaid in case of the primary member's death, as well as funeral costs for the other family members. Premiums vary by the size of the loan and the number of dependents.

Insurers: Through KS, primary insurers (UAP in Kenya, SORAS in Rwanda) can reach smallholder farmers who cannot afford traditional insurance schemes. KS lowers the cost to insurance providers by outsourcing administration to the aggregators (e.g., for client registration, payment collection, payout dissemination), and by utilizing rainfall measurements from fully automated weather stations and satellites to calculate losses and corresponding payouts. Insurers obtain 80 percent of the insurance premium and are responsible for transferring payouts to farmer aggregators.

Aggregators: For established groups or organizations, partnering with KS and insuring their farmers is usually in their interest. In the case of microfinance institutions, it minimizes risks that farmers cannot repay their debts following droughts and other devastating weather events. For NGOs, it helps them reach their social objective. In exchange, the organizations are fully in charge of administering insurance policies, collecting and transferring premium payments, and distributing payouts.

Input manufacturers (e.g., Syngenta, MEA, SeedCo): KS is an opportunity for input manufacturers to be more attractive to consumers and to differentiate themselves from their competitors by offering insurance schemes. Some manufacturers choose to carry the insurance premiums without increasing their prices, as they expect these extra costs to be covered by extra sales.

Previous weather insurance schemes on inputs were not available to small-scale farmers. Since insurance adjustors had to visit each farm to determine payouts, and their transaction cost to insure a 200-acre farm was as high as for a one-acre farm, making it unsustainable to serve smallholder farmers.



Technology Aspects

Connectivity and ICT are at the heart of the KS insurance model. Fully automated weather stations are set up throughout served areas and are equipped with SIM cards. They measure climate information every 15 minutes and send the data (six numbers) to a central server over a GPRS network (amounting to 3 Mb per month). At headquarters, the KS actuarial team compares the data to a set of pre-defined weather indices to determine if weather conditions were severe enough for insured farmers to be entitled to an insurance payout. Long-term databases covering 20-30 years of historical weather data serve to estimate the likelihood of severe weather conditions and the financial risk for the insurer. Where no historical data are available (e.g., due to wars or lack of equipment), satellite data and imagery are used (e.g., from third parties like the U.S.-based National Oceanic and Atmospheric Administration). In new markets, KS increasingly uses satellite data and installs only a few weather stations for ground-proofing.

At the customer level, farmers wanting to register for the Replanting Guarantee use SMS to indicate the insurance code featured inside the seed bag. The SMS allows KS to define the planting date and establish the farmers' GPS locations via satellite. Refunds under this scheme are also handled via SMS by sending farmers a mobile payout that can be used to purchase another bag of seed.

While construction costs for weather stations are quite high (~US\$5,000), maintenance is not very costly and is done by a single KS team member. Data are sent via a secured server of KS partner ADCON telemetry in Austria.

Business Design

Operations and distribution: When farmers purchase an input product or loan-linked insurance, the respective aggregator registers them, their inputs/loans, and their farms' locations with the KS database. To finalize registration, the aggregator collects or advances premium payments and transfers them to KS's insurance company partner (UAP in Kenya and SORAS in Rwanda). When weather stations and satellites indicate adverse weather conditions, there is an automatic payout of an amount based on the deviation from the crop's rainfall needs over the season and the value of the insured input/loan. At the end of each period, farmers receive the potential payouts directly through their aggregators.

For the Replanting Guarantee, see "Technology Aspects" in the section above.

Staff training: KS has developed tools to provide aggregators with training on related topics (e.g., farming risks, index insurance). Depending on the aggregator, there are also training-for-trainers courses (KS has developed a training manual) to enable aggregators to conduct workshops for their customers (e.g., microfinance institution customers).

Marketing and consumer education: KS is mainly promoted through the aggregators and local radio programs that explain the benefits of KS and tell consumer where to purchase the insurance products. Further, KS runs a phone helpline in Kenya for both clients and potential customers. Operating daily from 6 a.m. to midnight, the helpline has handled over 50,000 calls since the inception of KS.

While KS does not train farmers directly, it offers a farmer manual on weather index insurances (including illustrations and exercises) to train their customers.

Business model: KS receives a margin of around 20 percent of the premiums on each insurance product. The premium is roughly 5-10 percent of input prices (6 percent on average) depending on local conditions and estimated risk. Farmers generally insure their seed and fertilizer (e.g., worth ~US\$100 for one acre of maize). The aggregator collects payments, and (as the policyholder) is in charge of all administration and distribution tasks, including premium transfers to KS and payouts.

Policy and regulations: In Rwanda, KS is working with the government to develop a new regulatory framework that does not cluster BOP-oriented insurance under the same scheme as commercial insurance.

The Kenyan government has launched its "National ICT Master Plan 2017" that sets a national goal to connect "every citizen, resident, home and institution... through countrywide, robust, accessible, and affordable ICT infrastructure."²⁶ Broadband-related regulations have not affected KS so far.

Other ecosystem aspects: In Kenya, KS benefits from the existence of 20-30 years of national weather data at the Meteorological Department. KS can make use of the data free of charge, as long as the data are exclusively used for calculating the weather indices.

²⁶ The Kenya National ICT Masterplan, Kenya ICT Board, Ministry of Information, Communications, and Technology, 2014, available at <http://www.kenet.or.ke/sites/default/files/Final%20ICT%20Masterplan%20Apr%202014.pdf>.



Evaluation Framework

Is the project solving the problem?

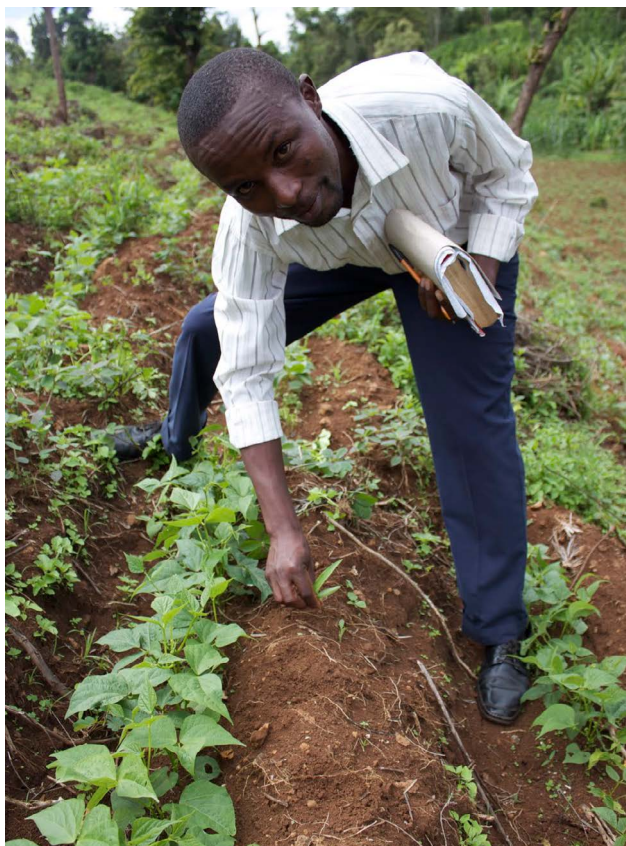
Problem Magnitude

In Kenya, minor droughts occur on average every two to three years and major droughts every six to 10 years. Farmers' ability to pay for seeds directly depends on their previous harvest. A bad harvest due to drought can lead to a poverty trap affecting farmers' lives for years. Because of the fixed costs of traditional insurance schemes (claims and expert visit procedures), the premium demanded of smallholder farmers is much higher (in proportion to the size of their land) than that required from large-scale farmers. Consequently, most smallholder farmers have no way of mitigating the risk of severe weather conditions.

Solution Provided

Tool quality: Good hardware quality and robust weather stations requiring little maintenance. Satellite data require little follow-up, since they are obtained directly via reliable institutions.

Service quality and comprehensiveness: KS products offer a holistic and affordable solution to smallholder farmers and their families, with insurances schemes covering inputs, harvest, higher-yielding cows, agricultural loans, outstanding credit, and funeral costs.



Scale and Reach

Number of users: Almost 300,000 users since inception and 184,000 in 2013 (65,000 in Kenya, 115,000 in Rwanda and 4,000 Tanzania) with:

Loan-Linked Insurance: 182,000 farmers

Credit Life and Funeral Insurance: 56,000 farmers

Replanting Guarantee: 2,200 farmers (in pilot stage in 2013)

Contract Seed Grower Insurance: 879 farmers

Dairy Livestock Insurance: 58 farmers, insuring 97 cows (in pilot stage in 2013).

Number of weather stations: 78 in Kenya and 38 in Rwanda (covering 15-20 square km each).

Number of aggregators: 22 in total (19 in Kenya and three in Rwanda).

Geographical coverage: Insurance schemes are available in Kenya (Bungoma, Busia, Oyugis, Homa Bay, Migori, Eldoret, Embu, Nanyuki, and Kital), and Rwanda (Huye, Nyanza, Nyaruguru, Gisagara, and Karongi).

Growth rate: Since its inception, KS has doubled its customer base every year and expanded to one new country, with another planned for launch by mid-2014. Feasibility studies are also planned for two additional countries in 2014. After starting with 185 insured farmers in 2009, KS increased its number of customers to 11,700 in 2010 and to 23,600 in 2011. When KS refocused mainly on group sales, its customer numbers started growing significantly, reaching 73,600 in 2012, and 187,000 in 2013. KS aims to serve 1.3 million farmers by the end of 2014. By 2016, it plans to more than triple the number of countries in which it operates.

Acceptance and Usage

Acceptance: Since many farmers are initially reluctant to pay for a regular insurance scheme, certain KS products (e.g., the Replanting Guarantee) offer the possibility of testing the insurance on small amounts of input before opting for larger schemes. Working through trusted aggregators can further enhance trust in the scheme.

Usability: Feasibility studies are conducted in each new market to assess the viability of agricultural insurance. The studies assess market potential, including field visits, discussions with potential clients/government, the collection of weather data sources, etc. Payouts are kept simple and without claim processes, so clients are automatically and directly refunded in case of losses or damage.

Retention rate: 23 percent in 2012, and 42 percent in 2013.

Socio-economic Impact

Social outcomes: Thanks to KS insurance schemes, farmers can better cope with climate change and weather-related

disease, as well as dairy cow mortality. Additionally, they have easier access to loans linked to insurance (in Kenya, over 30,000 farmers were able to access US\$5.5 million in financing thanks to the insurance).

Economic impact: Compared to their uninsured neighbors, insured farmers invest 20 percent more in their farms and generate 16 percent more income. Because of risk mitigation, microfinance institutions acting as aggregators for their clients can extend loans to more farmers with the same amount of cash in the bank.

Gains in efficiency due to technology: Thanks to fully automated and GPRS-connected weather stations, farm visits are only needed in rare case where there is a dispute.

Environmental impact: Most KS weather stations are solar-powered.

Economically sustainable?

KS has not yet reached sustainability. Due its not-for-profit status it was not able to collect margins. To change this, KS plans to register as a corporation in 2014 and aims to break even in 2016/17. With KS, farmers get access to insurance previously unaffordable via traditional channels.

At the BOP end-user level:

Service cost: Farmers pay a premium of roughly 5-10 percent (6 percent on average, though in some regions it can be higher) on their inputs/loans to get the insurance, although sometimes their aggregator pays it for them.

Income increase: Farmers generate 16 percent more income than their uninsured neighbors.

Ability to reach the poorest: Over 95 percent of customers belong to the BOP.

At the aggregator level (microfinance institutions, cooperatives, seed companies):

Revenues: Aggregators do not receive any commission or share of the premium. The amount of additional revenues depends on the aggregator, product and the number of additional customers reached (e.g., thanks to loan-linked insurance, one large NGO in Kenya was able to increase its number of loans from 19,000 farmers in 2011 to 45,000 in 2012).

Cost: Aggregators collect premiums from farmers, advance the premiums, or bear their full cost, as this allows them to minimize their financial risk.

At the insurer level (UAP, SORAS):

Revenues: The insurer receives 80 percent of the insurance premiums.

Payouts in 2013: US\$356,000.

Scale and BOP Reach

Since inception, Kilimo Salama has installed over 110 weather stations in Kenya and Rwanda, covering almost 187,000 farmers in 2013 under weather index-based insurance schemes. All farmers covered belong to the BOP.

Sustainability

KS has not yet reached sustainability. Due its not-for-profit status it was not able to collect margins. To change this, KS plans to register as a corporation in 2014 and aims to break even in 2016/17. With KS, farmers get access to insurance previously unaffordable via traditional channels.

Replicability

Comprehensively automated processes make this model highly replicable in places where historical weather data are accessible and existing entities can play an aggregator role (e.g., microfinance institutions, farmers' cooperatives).

At the central level (Kilimo Salama):

Employees: 33 in total (15 in Nairobi headquarters, 15 field operators in Kenya, and three in the Rwanda country office).

Cost-recovery level: KS aims for operational sustainability in 2016/17, when it aims to reach 2.2 million farmers. To date, KS has not been allowed to collect margins due to its not-for-profit status as a project of the SFSA. In order to get closer to breaking even and make KS financially sustainable, KS plans to register as a corporation in February 2014 under the name of "Africa Climate Risk Enterprise" (ACRE).

Initial and ongoing funding: KS has been mainly grant-funded to date (by the SFSA, IFC's Global Index Insurance Facility, and the Lundin Foundation). Grant funding is used to cover operational costs, feasibility studies, weather stations, and salaries. In the Rwandan market, KS is partly funded by Access to Finance Rwanda.

Scalable?

What have been the key challenges and success factors to date for the project?

Weather data infrastructure: Significant investment in automated weather stations and satellite technology is key to the KS model. Working with fully automated, reliable, and

representative data on local weather patterns means insurers can feel comfortable with measurements. However, using rainfall measurements as a proxy for farmers' losses inherently has a "basis risk." For example, the rainfall measurements collected by a weather station or estimated by a satellite may not be the same as what farmers experience on their farms due to micro climates (e.g., if the farm is on the other side of a hill). Basis risk can also result from the insurance covering drought risk, but not diseases. One way to mitigate this issue is to allow aggregators to redistribute the payouts within a certain group of farmers according to their internal evaluations.

Regulatory framework: One of the main constraints KS has faced is linked to a lack of legal frameworks for micro-insurance in many countries. In Rwanda, for example, farmers are required to pay a value-added tax and duties of 30 percent on top of the premium because the tax system was originally designed for commercial insurance. KS is cooperating with the Rwandan government to develop a more suitable framework, and is currently covering the 30 percent tax with a subsidy from the IFC until the new regulation becomes law.

Identification and development of relevant distribution networks: Since the costs of reaching out to farmers in rural areas can end up being higher than the actual amount of the insurance premium, KS partners with established structures, such as farmer cooperatives. In this way a broader client base can be reached while leveraging channels with which farmers are already familiar.

Outsourcing administrative processes: Insurance products need to be affordable for farmers, without reverting to subsidies, in order to make KS a sustainable business solution. By delegating tasks and costs of distribution and administration to the aggregators, operational costs can be significantly reduced and premiums minimized.

Replicable at scale?

What are external prerequisites for the project to be replicated in a new country?

Access to historical weather data: Availability of historical weather data is a key criterion for KS to decide on potential expansion to a new country. In its feasibility studies, KS identifies and collects monitoring data for each new market (among other information), and evaluates the accessibility of such data (e.g., through meteorological departments or public databases). If the data do not exist or are not publicly available, KS looks for third parties that can provide weather databases and/or satellite imagery (e.g., international meteorological centers).

Regulatory environment: KS needs to set up partnerships with insurance companies, banks, and input manufacturers, and has to deal with country-specific laws and regulations

(e.g., licenses or taxes) that affect its ability to keep products affordable. It is critical that regulations, not only for insurance but for the whole agro-sector, allow such a scheme to work.

Agricultural sector: Before expanding, KS analyzes how well the agricultural sector is developed, i.e., how agricultural value chains are set up. A rather well-organized and developed sector can strongly simplify market entry and partnership with aggregators. Further, KS takes into account the potential market for various crop types and calculates the respective insurable risks (e.g., maize has a very high insurable risk, while cassava does not).

Interested reinsurance company: KS depends on reinsurance companies that are open to carry the risks and create products for smallholder farmers. However, most reinsurance companies are only looking for US\$500 million premium markets (at a minimum), which is still rather out of reach for KS.

Additional Information

Exchange rate used for this case study:

1 USD = 86 KES

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Nila Uthayakumar

Product Development Advisor

Nila Uthayakumar is the Product Development Advisor for the Syngenta Foundation's Kilimo Salama index insurance project. In this role she has managed the funeral, credit life, and life insurance products, and has been leading the development of a tea frost risk product and a price risk insurance product. She also previously led the project's impact assessment effort to measure the influence of the insurance on its smallholder farmer clients. Nila previously served as a consultant to East African microfinance institutions BRAC Uganda, Faulu Kenya, and Juhudi Kilimo. She has worked in East Africa for over four years and holds a B.S degree in business administration with a minor in African studies from the University of Florida.



What are your next steps and future plans?

We want to further grow the aggregator distribution channels that we have developed in our markets in Kenya and Rwanda. Further, we want to focus on new high-potential markets. For that purpose, we are finalizing our feasibility study for Tanzania and will go on to conduct feasibility studies in Nigeria and Zimbabwe. Kenya was our testing ground, so we tried out different models and products. But in new countries we want to be very particular on the clients and distribution channels we target. We plan to expand to three new countries in the next two years, and four by the end of 2016. Our overarching goal is to break even by 2017.

What recommendations would you give to an entrepreneur willing to replicate your model in Latin America?

First, focus on how to distribute the insurance. Distributing the insurance through aggregators of farmers can build a sustainable business, as opposed to selling individual policies to farmers one by one.

Second, keep your insurance scheme as simple as possible. Keep contracts simple, so they are easy to explain to farmers (in the beginning of KS, when selling insurance directly to farmers we explained the cover on a single sheet of paper using simple calculations and diagrams).

Finally, for the historical weather data, look for cheaper ways to create the weather index. Instead of solely relying on weather stations, look into satellite imagery. Satellite data are available for entire continents and will give time series of historical weather data going back 30 years that can be used to build an index for new countries. Weather stations are still very useful to ground proof the satellite data.

What recommendations would you give to a Latin American policymaker who wants to encourage replication of your model?

Governments could adapt their tax regulations and make sure there is no unreasonable tax on non-commercial insurance targeting the BOP. This would make insurance premiums affordable for smallholder farmers. Further, governments could provide great support by collecting and organizing historical weather and yield data, and making it easily accessible (e.g., by creating public databases).

What support would you request from a public or private donor?

We have been lucky to work with key donors like Syngenta Foundation, IFC, the Lundin Foundation, and Access to Finance Rwanda, which have great networks and experience.