REVIEW OF FSD'S INDEX BASED WEATHER INSURANCE INITIATIVES

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FSD Kenya
Financial Sector Deepening

Bankable Frontier Associates

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The index-based weather insurance (IBWI) project was supported by the Rockefeller Foundation and UKaid through the Department for International Development (DFID). The project was implemented through technical support from World Bank for crops pilots and International Livestock Research Institute (ILRI) for livestock pilots.

FSD Kenya
Financial Sector Deepening

The Kenya Financial Sector Deepening (FSD) programme was established in early 2005 to support the development of financial markets in Kenya as a means to stimulate wealth creation and reduce poverty. Working in partnership with the financial services industry, the programme's goal is to expand access to financial services among lower income households and smaller enterprises. It operates as an independent trust under the supervision of professional trustees, KPMG Kenya, with policy guidance from a Programme Investment Committee (PIC). In addition to the Government of Kenya, funders include the UK's Department for International Development (DFID), the World Bank, the Swedish International Development Agency (SIDA), Agence Française de Développement (AFD) and the Bill and Melinda Gates Foundation.

Government of Kenya
UKaid from the Department for International Development
THE WORLD BANK
EMBASSY OF SWEDEN Nairobi
afd AGENCE FRANÇAISE DE DÉVELOPPEMENT
BILL & MELINDA GATES foundation

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Abbreviations

AECF	African Enterprise Challenge Fund
AFC	Agricultural Finance Corporation
APA	APA Insurance is part of the Apollo Group
AYII	Area Yield Index insurance
CIC	Cooperative Insurance Company, Kenya
DFID	Department for International Development
EARS	EARS Earth Environmental Monitoring BV
FSD	Financial Sector Deepening Trust, Kenya
EU	European Union
GIIF	Global Index Insurance Facility
IBCI	Index Based Crop Insurance
IBLI	Index Based Livestock Insurance
IBWI	Index Based Weather Insurance
IFC	International Finance Corporation
ILRI	International Livestock Research Institute
IRA	Insurance Regulatory Authority
KMD	Kenya Meteorological Department
MIF	Microinsurance Innovation Facility
MPCI	Multi Peril Crop Insurance
NPCI	Named Peril Crop Insurance
NDVI	Normalised Difference Vegetation Index
TLU	Topical Livestock Unit
UAP	UAP insurance company
WII	Weather Index Insurance
WRMS	Weather Risk Management Services Ltd

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INTRODUCTION

In 2005, FSD Kenya began sector-wide support for the development of index-based agricultural insurance. The aim was to determine whether viable indexed products could be offered which would reduce the impact of weather-related losses. The idea is that effective insurance makes smallholder farmers and pastoralists less vulnerable to crises caused by weather, allowing greater access to credit and increased investment in agricultural production. FSD's engagement began by supporting the development of insurance products covering maize crops. Dry runs were conducted in three areas of Kenya. Since 2008, a number of live pilot studies have been conducted with the aim of developing a market for index insurance in collaboration with Kenya's insurance sector. FSD worked with a wide range of organisations and individuals in both private and public sector, together with the World Bank's Agricultural Risk Management Team (ARMT) and the International Livestock Research Institute (ILRI) as technical partners. The Rockefeller Foundation and the Department for International Development (DFID) were co-funders in the project. Four insurers were engaged in training and pilots during this phase of the project. Automated weather stations were established in several pilot areas in partnership with the Kenya Meteorological Department. Thirty-five insurance products were designed covering six types of agricultural products. These led to five separate payouts to insurance buyers.

In May 2012, FSD Kenya commissioned Bankable Frontier Associates (BFA) to conduct a review of the project and make recommendations for the next stage of the work. The review was to include:

- Project performance.
- Identifying similar projects and highlighting lessons learned.
- Draw comparisons with products developed under the IBWI (Index Based Weather Insurance) project in terms of appropriateness, pricing, methodologies and commercial potential.

The purpose of the review was to assess the impact of the project on market development and gauge the viability of creating a functioning, sustainable market for agricultural index insurance.

Between May and September of 2012, interviews were conducted with 34 insurance industry players in Kenya and beyond. In addition, focus group discussions and in depth interviews were held with 97 farmers and pastoralists who had taken part in the various pilot programs across the country. **The picture that emerged from the review [suggests that] while FSD has done an admirable job in bringing stakeholders onboard and executing pilots, and while strong demand and impact potential clearly exist, there remain substantial challenges to establishing viable index insurance for smallholder farmers on a retail basis at scale.**

FSD's IBWI initiative has, like many similar pilots, focused on what Porteous (2005)[1] calls the, "supra-national market zone", concentrating on retail index initiatives. This approach deflected attention from addressing some of the fundamental building blocks required for building a market. These include, for example, improved access to inputs, husbandry and irrigation, ensuring reliable access to weather data, and a supportive regulatory framework. While these may have limited immediate or direct impact on poverty reduction, it is unlikely that insurers can take existing retail pilots to scale without them.

We recommend that FSD scale down the retail pilots and take a longer-term view. For example, we suggest they concentrate on meso- and macro- level cover, such as agricultural lending portfolio or area drought cover for NGOs or government agencies responsible for drought response. Further pilots ought to focus on those insurers who have the greatest interest and capacity to engage in this kind of insurance. In addition, an experimental approach should be taken to test the viability of satellite use for product design and payout triggering. Innovative and cost effective client communication strategies need to be developed and incentive structures put in place. These should be sufficiently attractive for the range of players involved in the value chain approach to insurance delivery for both IBCI (Index Based Crop Insurance) and IBLI (Index Based Livestock Insurance).

[1] Porteous D, 2005, *The Access Frontier as an Approach and Tool in Making Markets Work for the Poor.*

ACKNOWLEDGEMENTS

BFA would like to thank FSD management and the external experts and stakeholders (named in the appendix) for the generous amount of time they have given to this project review. This report draws extensively from the wealth of information, insights, lessons and challenges, opinions and new ideas provided so candidly by each stakeholder.

Special thanks are extended to Michael Mbaka of FSD Kenya who has been so generous with his thoughts and insights, and for his passionate determination for making this initiative work. As is clear from the focus groups, the current successes could not have been achieved without the support of FSD. As one respondent reported, *"We knew FSD could not cheat us."* which also highlights how far the industry needs to go to address their reputation.

Jeremy Leach, Director, Bankable Frontier Associates.
Julie Zollmann, Senior Associate, Bankable Frontier Associates.
Anuj Kumbhat, Director, Weather Risk Management Services Ltd.

Chapter 1

INTRODUCTION

FSD began its work on index based weather insurance (IBWI)[2] in 2005, at a time when the World Bank was exploring the potential for this kind of intervention in Kenya. The first phase of the project concluded in 2007 after a dry run using three maize products designed for Eldoret, Kitale and Nakuru. In the second phase, beginning in 2008, FSD ramped up its resources, including providing a full-time project manager.

In October 2009, FSD signed a grant agreement with International Livestock Research Institute (ILRI) to roll out index based livestock insurance (IBLI) in Marsabit. This was "developed to be implemented as a commercially sustainable product" (ILRI progress report 2010) funded by DFID, and built on earlier work by ILRI in the Chalbi and Laisamis clusters of Marsabit. However, the second phase of IBLI was funded directly to ILRI by DFID and EU as an autonomous initiative. This was largely advised by FSD's keen focus of initially reviewing the pilot phase to develop a more commercially sustainable model.

FSD has proved remarkably successful in attracting interest in the potential of index insurance from the private sector. This is reflected in wide-ranging pilots undertaken with the technical guidance of the World Bank and ILRI (see Annex 1). During this period, participating insurers collected KSh 10.6 million in premiums and covered KSh 160 million in assets for 3,398 clients (representing 2,647 pastoralists and 751 farmers).

At the same time, the Syngenta Foundation for Sustainable Agriculture, and more recently Planet Guarantee, together with a number of donors, and another initiative funded by GIZ (which is still in its conceptual stages), have also introduced index insurance initiatives in the Kenyan market. Syngenta is reportedly the most successful, having reached 65,000 farmers. However, it seems their initiative was suspended due to a range of challenges.[3]

The aim of this review is firstly to assess the impact that FSD and partners have had in catalysing the creation of a commercially viable market for Index Based Weather Insurance (IBWI) in Kenya. Secondly, it will make recommendations about how such a market might be achieved through the existing pilots. We used the approach detailed in *"Making [financial] Markets Work for the Poor"* (Porteous 2004)[4] which guides FSD's programme implementation. This approach considers how market systems can be adapted to work for the poor in a sustained manner by examining the broader environment, identifying relevant obstacles and incentives. This review is not intended to be a detailed investigation of how IBWI works or document all that has happened in Kenya. This has been covered in numerous papers and articles by the World Bank, IFAD, ILRI and others.[5]

2 "Index insurance is a financial product linked to an index highly correlated to local yields. Contracts are written against specific perils or events (e.g. area yield loss, drought, hurricane, flood) that are defined and recorded at regional levels (e.g. at a local weather station) Indemnifications are triggered by pre-specified patterns of the index, as opposed to actual yields, which eliminates the need for in-field assessments. In addition, because the insurance product is based on an independently verifiable index, it can be reinsured, thus allowing insurance companies to transfer part of their risk to international markets" - IFAD 2010.

3 Although the suspension of most of the pilots appeared to be for a number of reasons, one of the reasons was that they need to resolve an impasse over how to arbitrate on claims. At present, Syngenta collect the information as well as arbitrate on data anomalies, which may pose a problem if there is legal action. They also have a legal opinion stating that KMD is the legal owner of weather data which means they may need to share their data in return for KMD acting as an impartial arbitrator.

4 Porteous D, 2004, *Making Financial Markets Work for the Poor,* www.finmarktrustorg.za

5 Just as the report was being finalized, Dr Daniel Clarke of Oxford University published a useful summary of what has been learnt from the index pilots. It is available at: http://blogs.csae.ox.ac.uk/2012/11/what-have-we-learned-from-all-the-agricultural-microinsurance-pilots/

Chapter 2

FSD'S INDEX BASED WEATHER INSURANCE PROJECT

FSD has been involved in index insurance since it was first introduced in Kenya. In 2005, it began working with a consortium of international partners, including the World Bank's Commodity Risk Management Group (CRMG), the International Research Institute (IRI) for Climate and Society, and The Earth Institute at Colombia University. This early work led to the development of three maize contracts covering the crop for drought. The results were somewhat inconclusive. After a dry pilot in 2007, the project was aborted due to the inappropriate choice of product and geographic area (see timeline in Table 1).

This experience led FSD to commit support for index insurance in a more systematic way. They recruited a full-time project manager, Michael Mbaka, and set out to achieve the primary outputs and related targets detailed below:

1. Index-based weather insurance products piloted across a range of agricultural activities:
   - 4 pilot projects initiated
   - 2 products projecting viability
   - 2 pilot projects at or above plan
   - 50% of clients recommending products to others
   - 1 product going to full commercial roll out
2. Sector well-informed on emerging lessons from Kenyan and international experience in index-based weather insurance
   - 7 newsletter/briefings produced
   - 4 dissemination events held
   - 50% awareness levels of key stakeholders
   - 50% of clients with positive livelihood impacts
3. Enabling environment for the development of index-based weather insurance in Kenya
   - 1 policy advice document produced
   - 2 pilots receiving "no objection" from IRA

The project has exceeded initial targets on most fronts though client recommendations, awareness levels of stakeholders, and impact on livelihoods would require survey results to assess properly. In the event, 49 were initiated by Q4 of 2011 (four had been proposed originally), and nine products were introduced commercially. The following time line of the first objective provides a high level view of what was accomplished:

Table 1: Timeline for FSD index initiatives

Timeline	Index Based Crop Insurance (IBCI)	Index Based Livestock Insurance (IBLI)
2005-2007	**Phase1: Dry Run** FSD / WB / IRI / Earth Institute (Colombia) partnered on IBWI which led to a dry run in March 2007 for 3 regions. The pilot found that either the region or contracts designed were not suitable for intended drought coverage	n/a
Phase 2: 2008-2011	**Phase 2: Piloting** FSD / Rockefeller / WB Full time project manager in place. Reinsurer: Swiss Re Insurer: APA / CIC / UAP / Jubilee Aggregators: Equity / K-Rep / AFC / Ntiminiyakiru and Tuungane Tujenge SACCOs 3 x seasons Geography: various (Murang'a, Narok, Meru, Nakuru, Embu, Kibwezi, Machakos) Covered: KSh 34.3m assets (loans) insured) / 751 farmers (equivalent market value of KShs 91.9m) KSh 5.2m premiums at 15% average premium rate (commercial rate) Claims payout KSh 6.6m (199% of seasons premium and 129% of total premiums)	**Phase 1: Piloting** FSD / DFID / ILRI ILRI primary project manager Reinsurer: Swiss Re Insurer: UAP Aggregators: Equity / local agents (shops and individuals) Geography: Marsabit Covered: Livestock (cows, camel, shoats, sheep) Initial pilot: 2,647 policies sold / KSh 124.7m assets protection (value of livestock) KSh 5.4m premiums at 4% average premium rate (subsidized) Claims payout KSh 1.9m (125% of seasons premium and 35% of the total premiums)

Timeline	IBCI	IBLI
2012	▪ Limited roll out due to late completion of product design in some areas; ▪ Equity Bank and AFC paused due to basis risk[6] issues and demanded fallback cover; ▪ Small pilot continues with Jubilee and a small SACCO in Embu testing integrated approach (credit, extension and insurance) ▪ EARS satellite coverage for wheat dry pilot in Narok	▪ Sales window missed – insurer raised concerns around cost of delivery and model, ILRI raising concerns around the insurer's commitment. ▪ Commercial partners (Equity and UAP) raise concerns on the commercialization potential under similar business model. ▪ FSD determines strategic review required. ILRI has launched phase 2 where they plan for multiple insurers to be introduced. Only one insurer appears to have accepted.
Phase 2: 2008-2011	751 policies sold 1918.2 acres covered Premiums KSh 5.2m. Claims KSh 6.62 m	2,647 policies sold Assets covered – KSh 124.7m. Premiums KSh 5.4 million Claims KSh 1.9m (2011)

A summary of pilot activities can be found in Annex 2.

FSD's strong catalyst role in helping to establish considerable piloting activity has led to the crowding of new entrants. While this has generated enthusiasm and a sense of "inclusion" among commercial players, there seems to be a growing sense of competition among donors, especially as new players have started to enter in recent years. A donor involved in funding a number of index initiatives globally, explained that they were hesitant to share since his organization and FSD "are, to some extent, competitors." There are other donor funded pilot projects also implementing retail insurance initiative which has little differentiation from the FSD IBCI initiatives. These experiences highlight the continued need to share lessons learned across initiatives funded from the public purse.

An examination of objectives 2 and 3 shows that targeted outputs have been completed, but have not necessarily been fully achieved. We will consider these objectives in more detail as we look at the ability of the insurers to innovate, internalize and own processes, and assess the broader market.

6 "Basis risk is the potential mismatch between index triggered payouts and the actual losses suffered by the policy holder" (IFAD 2010)

Chapter 3

CONTEXT

3.1. INDEX INSURANCE APPROACHES

Index insurance has shown significant promise in addressing the weather-related risks of small-scale farmers. Theoretically it removes some of the high costs and moral hazard involved in traditional, multi-peril crop insurance. It can also enable access to inputs and credit for farmers otherwise deemed too "risky" for lenders. However, index insurance also suffers from 'pilot-itis': products have been extensively piloted, but generate little evidence that they can become commercially sustainable and scalable. Although some scale has been achieved in India and Mexico – these positive examples are still subject to high subsidies (India – IFAD 2010) and arguments that the societal cost (in the form of government subsidy) outweighs the benefits (Mexico - Fuchs and Wolf, 2011). There is therefore considerable interest in understanding what it would take to make index insurance sustainable, scalable, and efficient in terms of the allocation of scarce resources.

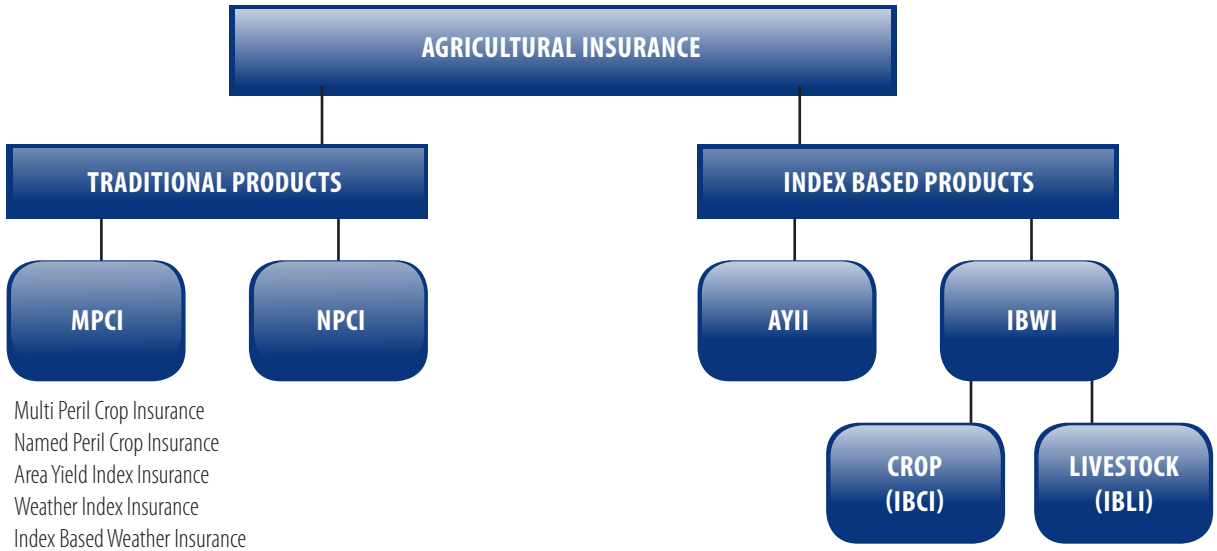
Many agricultural insurance schemes are subsidised in developed countries. However, scarce resources in developing countries mean that a long-term subsidy may not be sustainable without substantial benefits. These include increased income, food security or significant savings in costs from managing disasters. At present, there is need for further investigation and research to find a mechanism which can scale these models effectively and ensure that the benefit of index insurance outweighs the costs at a societal level (notwithstanding the fact that there may be benefits to farmers). There are a range of agricultural and index insurance models available internationally, (see Figure 1) varying from area yield index insurance (AYI) to index based weather insurance (IBWI). As shall be shown, FSD has focused primarily on the latter, both with livestock and crops.

In addition to the distinction between indices based on area yield versus weather, the level of aggregation of the "covered" unit can also vary in different approaches. As is noted in the IFAD framework in Figure 2 below, IFAD distinguishes three layers:

- Macro, in which a government or NGO insures an area in order to ensure pay-outs are available for disaster assistance.
- Meso, in which a lender, inputs provider, farmer, or NGO purchases portfolio or group cover policies in order to retail to members (IFAD's definition), particularly against default. It should be noted that meso is often a term used to describe cover which is bought by an aggregator on their own account and not retailed to an end client.
- Micro, in which a policy is sold directly to an individual farmer who receives an individual pay-out in a trigger event.

Many of these models are being piloted in different countries.

Figure 1: Agricultural insurance models



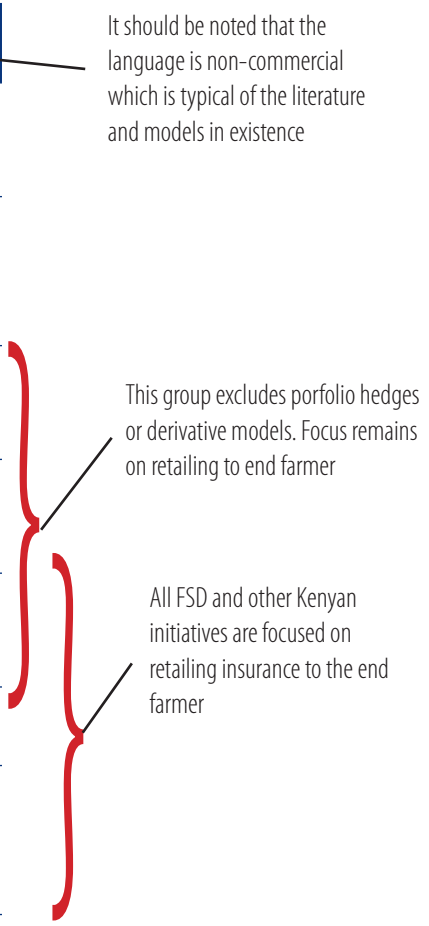
MPCI	Multi Peril Crop Insurance
NPCI	Named Peril Crop Insurance
AYII	Area Yield Index Insurance
WII	Weather Index Insurance
IBWI	Index Based Weather Insurance
IBCI	Index Based Crop Insurance
IBLI	Index Based Livestock Insurance

Source: Adapted from MicroEnsure

7 While the intention of this review is not to provide an overview of index insurance, there is a considerable number of resources available that can be drawn on should one want an overview of academic theory on the subject. A good starting point is IFAD, 2010, The Potential for Scale and Sustainability in Weather Index Insurance.

Figure 2: IFAD framework for index insurance points to a range of models but mainly focuses on retail models

	Index insurance for disaster relief	Index insurance for development
Macro Government	Government protects itself against shocks: early liquidity/ first relief outlays	Government reinsures insurers
Relief agency	Funds its operations through an index-based risk transfer contract or provides coverage through an index trigger contigent voucher	
Messo Financial service provider (FSP)	Government could used banks, FSPs, input suppliers, farmers' associations and NGOs to distribute vouchers for catastrophe insurance	FSP buys porfolio insurance or group insurance to retail to farmers, linked to credit
Farmer association		Farmers' associtaion buys group insurance to retail to farmers, linked to credit
Input supplier		Input supplier buys group insurance to retail to farmers, linked to input purchases
NGO		NGO buys group insurance to retail to farmers
Micro Farmer	Farmer receives explicit redeemable, predictable coverage against a well-defined shock and premium is apid for mostly by government	Farmer buys insurance as part of a package (e.g. credit and other financial services, technology, agricultural information)



Source: IFAD, 2010, the potential for scale and sustainability in weather index insurance for agriculture and rural livelihoods

FSD has focused its attention on "retail" models, in which the product is sold to individual farmers. This might be either independently, as in the case of the Index Based Livestock Insurance, or attached to a loan, as with many of the index-based crop insurance products they have supported. This demarcation is important, because any form of retail product requires that each farmer is made aware of the benefits and risks of the product. This increases the cost of delivery in terms of communication, marketing material, administration and training and oversight of intermediaries. It should be noted that IFAD tends to refer to retail in both the meso and micro categories even though they are essentially similar in terms of cost to service.

FSD has not focused on macro cover (e.g. government programmes) or "non-retail" meso initiatives. The latter includes what is called 'portfolio cover', where the lender protects their own risks, so that the farmer in question may not necessarily be aware of the cover[8]. Even when bundling the insurance with credit, the partners have still taken a retail approach in selling the cover (with the loan) to the end farmer. This entails significant challenges, because the sale is still individual and has higher transaction costs for the provider than more aggregated schemes. In the case of credit life insurance - which is comparable to index insurance when offered by a lender - the client often does not know what cover they have. Although this still effectively protects lenders' risks, it is typically in breach of market conduct regulations which requires that the client is informed of the cover. While we note that the IRA does not provide guidance on the sales process, there are provisions that require the broker or agent to provide advice to the client (Cenfri 2010).

FSD has engaged a range of local underwriters and technical providers in its work, but Swiss Re has always been the lead re-insurer (ignoring compulsory cessions). This reliance on a single re-insurer seems to be inhibiting both adjustments in pricing and innovation, resulting in what has become a more-or-less standardised approach across pilots. Unfortunately, this is more a reflection of the current re-insurance market for index insurance than a failure of FSD to engage multiple providers. There are very few re-insurers

[8] The project did attempt to introduce meso insurance, but found limited interest due to the fact the index was new and needed to be tested first. The other reason is that the starting premium rates were as high 17.9% making it difficult to bundle with the already expensive credit product. In fact, since our interviews, one of the participating bank has contacted a couple of reinsurers looking to get quotes on portfolio cover.

and technical contract design personnel operating in this space.[9] Reliance on a single reinsurer (Swiss Re) and just two not-for-profit technical support teams (World Bank and ILRI), has meant that while there have been a large number of pilots, there has not been much diversity in approach, with all the pilots following similar models. There is great diversity in region and product covered, but not much in the approach of providers and structure of the retail contracts. This limits our ability to make a comprehensive statement about the success or viability of index-based insurance as a whole based solely on the retail pilots undertaken in Kenya over the past four years. The lack of variety in retail products appears to stem from the insurers' lack of ability to internalise the concepts which inhibits innovation.

FSD has attempted to take a commercial market development approach to index insurance. This is somewhat rare internationally, as the language of the industry tends to be donor driven and motivated by the need to mitigate the risks faced by the poor, rather than to ensure a sustainable (or profitable) and scalable product. The only real exception to the donor-driven approach that we could find is that used by the Climate Corporation (see box) in the US which raised US$60 million in private funding. They rolled out index insurance which addresses the gap between the (subsidised) multi-peril crop insurance and yield losses. The Climate Corporation product is also an example of how index

THE CLIMATE CORPORATION

The Climate Corporation was founded by two Google employees to address the gap in cover from the state subsidized multi-peril crop insurance (MPCI) and the yield loss from weather. It has raised over US$60 million in capital investment to provide 'index insurance' to US farmers and intends to roll this out to developing countries. It uses automated weather stations, complemented by soil samples and massive computing power to manage the index. Its success is still questionable but it is an interesting outlier of a private sector initiative in the index field.

See www.climate.com

can supplement the existing MPCI in Kenya. In our view, there are certainly good reasons for long-term subsidies in some cases, but they must be managed appropriately with long-term sources of funding. This is not always the case in Kenya, especially with minimal government focus on agriculture financing (access to credit and insurance) policy. Addressing the need for subsidy would require strong engagement with government and a coherent agricultural policy - which is not apparent at present.

To recap, FSD has supported a number of pilots whose core objective is finding commercially viable solutions. They have all focused on micro-level retail solutions, following a single model outlined by the World Bank and ILRI and reinsured by Swiss Re. All - but particularly the livestock component - have been motivated by donor interest. Despite FSD focusing on commercializing index insurance, extensive market-oriented innovation is limited by the contextual restrictions. These include significant challenges of coordination, the long process of developing and introducing products, and the large number of players involved. The fact that donor aid for IBLI is tied to high cost, remote geographical areas, and that the technical partners focus explicitly on uplifting poor, small-scale farmers, present additional constraints.

3.2 KENYAN EXPERIENCE

Kenya offers a high-potential environment to reach the holy grail of scalability and sustainability for index insurance which has escaped so many other initiatives that have been piloted elsewhere. The country has a relatively well-developed and capacitated insurance sector for Africa. There is also a strong banking sector with leading organisations such as Equity Bank making efforts to reach the low income and rural markets. Kenya is also home to the world's leading mobile money deployment, M-PESA, and has strong demand-side information (e.g. FinAccess and a number of other research initiatives). It also has strong institutions, such as FSD, to support pilots and innovations. These key ingredients have put Kenya in an excellent position to attract a range of international donors and practitioners to invest in index insurance initiatives. Pilots are supported by the World Bank, EU, DFID (with FSD and ILRI), and the International Finance Corporation (IFC), as well as the Syngenta Foundation for Sustainable Agriculture, and Planet Guarantee. GIZ is also preparing to start a pilot (see Table 2). FSD has played a strong role in trying to facilitate and coordinate many of these initiatives, particularly in the early days, and Kenya Meteorological Department (KMD) continues to see them as the primary conduit for all weather related queries. However, the IFC and ILRI are now running initiatives independent of FSD.

[9] Swiss Re is the major player, but there is some activity from Partner Re, Liberty Syndicates (part of Lloyds) and Mitsui. Whilst Munich Re has invested significantly in index insurance related to catastrophic events, they have made a management decision not to invest in IBWI as they do not feel that it is a viable or appropriate product due to basis risk amongst other matters (interview with Junior Ngulube, CEO: Munich Re of Africa).

Table 2: There are four Kenyan index models being rolled out, all making different but limited progress

	IBCI (FSD)	IBLI (ILRI plus FSD initially)	Syngentaand Syngenta Foundation	Planet Guarantee
Started	2005 (dry run season 2007) and 2008 for current phase	2009-2010	2009	2011
Type	Base stations and currently satellite (RE by EARS Earth Environmental Monitoring BV)	Satellite (NDVI)	Base stations	Satellite (RE by EARS Earth Environmental Monitoring BV)
Lead	FSD with World Bank Technical Support and Rockefeller co-funding	ILRI, originally led by FSD with DFID funding	Syngenta Foundation, latterly with funding from IFC	Planet Guarantee with Africa Enterprise Challenge Fund (AECF) funding
Lead reinsurer (excl compulsory cessions)	Swiss Re	Swiss Re	Swiss Re	Swiss Re
Insurer/s	APA / CIC / Jubilee	UAP (round 1-3), APA (round 4)	UAP	Jubilee (round 1) APA (round 2)
Product retailer / aggregator	Equity / K-Rep (Juhudi Kilimo) / AFC / 2 x SACCO (Embu and Meru), Bwana Shamba (input supplier)	Equity (non-credit model, round 1-3), shops, agents, trainers	Syngenta Ltd, Kenya Seed, MEA Fertilizer	SACCO
Farmer / groups – total to date	+/- 751 farmers	+/- 2,647 pastoralists	+/- 65,000 farmers	+/- 400 farmers
Other partners	International Research Institute (IRI) for Climate and Society and The Earth Institute at Colombia University–for dry run pilot phase in 2005/2006 only.	ILRI, Universities, IFC's Global Index Insurance Facility (GIIF), Microinsurance Innovation Facility (MIF)	Syngenta Foundation, GIIF-IFC	AECF
Subsidy	None	10-60% randomised discounts coupons; Subsidy at 40%	100% initially down to 50%	Unknown

Source: interviews and background research. GIZ's IBCI has not taken off.

Four local insurers have made substantial efforts to offer agriculture and index products. Much of the early interest in agricultural insurance was stimulated by a Swiss-Re investigation into multi-peril crop insurance (MPCI) in the early 2000s. This led to a number of insurers introducing MPCI with the backing of Swiss Re. Initial success is shown in Figure 3 below. The focus has been on large scale farmers as the cost of managing MPCI makes it difficult to reach small scale farmers.

Index insurance was adopted by the insurers at a later date, and it appears from our conversations that interest was very much driven by the subsidies and support of donors, such as FSD, World Bank and ILRI. Despite FSD's best efforts to achieve internal ownership of the indexed products, many of the insurers exhibit little concrete and long-term business thinking around the products, which may be exacerbated by a lack of technical expertise.

This has been particularly apparent in the IBLI initiative, in which insurers sold livestock insurance in Marsabit, an arid district in the north of Kenya. None of the insurers we met with seemed to have a firm, internally developed business case or had examined the distribution costs analysis completed by ILRI. Apart from the comments about the high cost of travelling to Marsabit, it

was apparent that they were committing to the initiative with little considered research of their own. This raises the concern that when they realise the time and cost involved in servicing this low density area with poor infrastructure, and appreciate the difficulty of breaking even, they may pull out and further destabilise the market.

In our analysis, the major impediment is the commission structure for the Village Insurance Promoters (VIPs). They are likely to make a significant revenue shortfall on insurance sales once the travel costs and required income have been taken into account. As detailed in Annex 4, the VIP revenue shortfall at the current commission of 6% (KSh 29 per Tropical Livestock Unit) is KSh 2,430 per VIP.[10] This raises concern about the viability of the model even if the optimistic sales figures projected by VIPs are achieved.[11]

While the IBLI example is particularly stark, there is other evidence that the internal capacity of all the insurers remains limited and demonstrates little ability to analyse products and innovate beyond models delivered by World Bank consultants. As the World Bank also highlighted, the "capacity [of the insurers] to implement operations and carry out contract design is extremely varied and on average somewhat limited" (Bryla and Stoppa, 2012). This view was echoed by Swiss Re and was very apparent in the interviews, in which insurers demonstrated general understanding but little or no ability to create new products or delivery models (see Figure 4). This means that there is little or no ability to differentiate themselves in the market. Unless there is some local capacity to innovate and differentiate, it will be extremely difficult to create a market.

Even though some of the insurers have now invested in permanent staff dedicated to agricultural insurance, it is not clear that they have all the tools they need to make a successful business. It is clear that insurers do not yet have the skills needed to innovate or create products independently, though some state they are there with MPCI (Figure 6). We heard from several frustrated stakeholders that the initiatives "are academic pilots, not business pilots. "While this was mostly focused on IBLI, similar comments were made about IBCI as well. This may reflect the target market of small scale farmers but also the long drawn out process, and the lack of concrete business cases to show the potential return on capital. Unfortunately, until insurers and their aggregator partners see a larger scale, positive demonstration of index insurance, they are unlikely to pay sufficient attention to allocating the required skills and capacity to their initiatives, admittedly a bit of a catch 22.

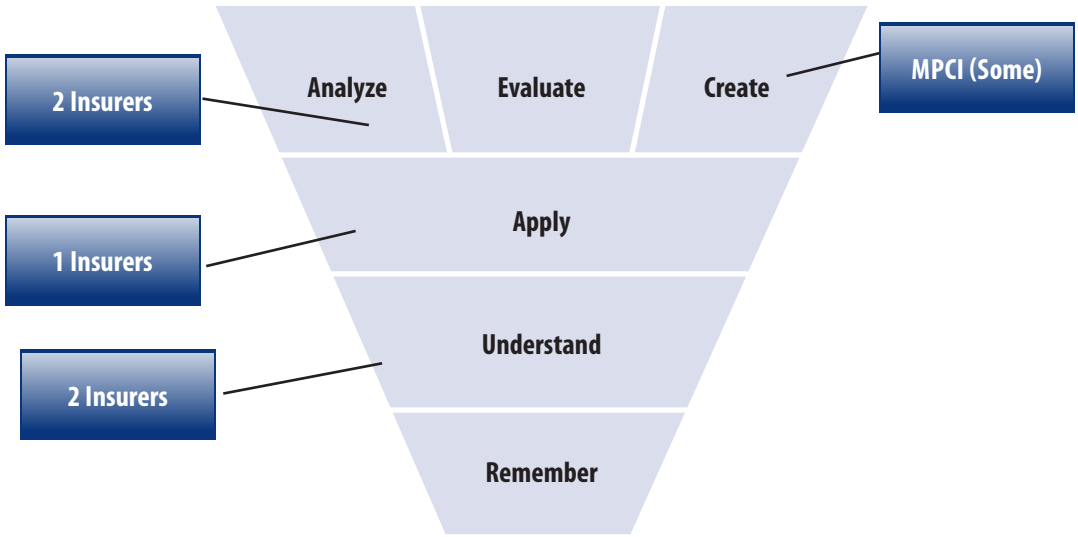
These capacity limitations call into question whether bringing competition into Marsabit (a high cost, remote district where IBCI is piloted), will achieve its aims. Insurers appear to be fully reliant on donor driven consultants for the business case, advice and outreach strategies, rather than differentiating themselves by undertaking their own research. As insurance itself is so unknown in this area, we would go as far as saying that without a "hero brand" (essentially a well trusted and known brand) to drive sales, index insurance is unlikely to be properly developed without considerable cost.[12]

[10] Assumes VIP receives 6% of total premium, inclusive of subsidy, of KSh 813 per TLU in Lower Marsabit. If they are paid only 6% of the portion of the premium paid by farmers, this revenue shortfall raises to over KSh 11,000 using a weighted average of all three cases.

[11] The five VIPs we interviewed estimated their maximum sales to reach 80-120 clients. Limits imposed by low population density make it difficult to imagine dramatic increases in sales needed to make this model viable, especially as the VIP's incentives have in fact reduced. Even at maximum sales level of 490 (a very optimistic projection) the VIP is just about breaking even (breakeven is 451). And 368 TLU itself is almost three times the existing level of sales by VIPs.

[12] For South Africa, a general rule of thumb is that it costs in the region of $1m to $1,2m to create a new brand.

Figure 3: Insurers demonstrate some understanding of index insurance but limited ability to innovate without external support is a major obstacle to growth and scale



Source: Cognitive model based on Blooms Cognitive Domain, Wikipedia

Chapter 4

THE POTENTIAL OF RETAIL IBWI: CONSUMER PERSPECTIVES

4.1 CONSUMER INTERVIEWS

In May and August 2012, we visited several of the pilot sites for index-based crop and livestock insurance. The primary aim was to take stock of the experiences of buyers and non-buyers, and also of the on-the-ground service providers in each area. In total, we spoke with 68 buyers and 29 non-buyers of insurance across a range of product offerings and pay-out experiences. Our conversations highlight the value that producers place on this type of insurance. They were particularly appreciative of the access to credit or the input goods it enables, despite imperfections in their experience with product delivery.

We see that farmers like the concept of IBCI. In some areas it has successfully catalysed investment in agricultural productivity in ways that were not previously possible. Small farmers had been unable to access credit or improved inputs until the insurance was offered and made them appear more credit worthy to financial institutions. If all goes well, these farmers can achieve transformative boosts in productivity. Box 1 highlights the potential that IBWI can achieve as part of an effective value chain approach.

> *"If the rains are good, you harvest. If the rains are bad, they pay. It was 100%. If you have insurance, you can't lose. You can invest in coffee knowing your investment is covered."* Meru coffee farmer.

Farmers generally find the cost of insurance a good investment. In fact, we found that cost does not appear to be as much of a barrier as insurers, financiers, and donors have assumed. The pure costs of insurance however, are obscured among those who view the insurance, credit, inputs, and in some cases extension as a single package. Even farmers receiving no premium subsidy felt the protection received for their investment was "a good deal" and "worth it." All, of course, welcome lower price alternatives, but price was not the main barrier to uptake, particularly in the case of IBCI where the insurance opens access to credit for these farmers, often for the very first time. Further barriers to taking out insurance included lack of awareness of the product, and the inability to arrange paperwork for credit approval in time to meet insurance purchasing deadlines.

Understanding price sensitivity is fairly complex and was beyond the scope of our review. However, we observed that very few non-buyers cited cost as a reason for not taking up the product or as a factor that might inhibit future purchases.[13] Sixteen out of 20 non-buyers of crop insurance were eager to purchase the insurance when it was next offered. Demand appears to be strong even at current, relatively high prices.[14]

Basis risk can jeopardize farmers' trust in index insurance in the early years, though it appears that farmers are open to an acceptable level of risk:

> *"We are happy. It's fair, even if we don't get paid this year."* Embu group 2 (positive experience)

> *"You aren't paid based on the number of animals you lose. It's a district average. You may lose more than average, but you'll get something."* Marsabit pastoralist.

However, this risk tolerance requires that buyers understand the terms of the product clearly in advance. Misunderstandings can destroy the nascent trust that underwriters and other partners are working to build, jeopardizing demand:

> *"They came and lied to us."* Narok farmer.

> *"We only found out we wouldn't be paid by insurance when the bank came to collect the loan - We told them to go get their money from the insurance."* Embu group 1.

Basis risk may not be as much a barrier to uptake and customer loyalty as one might expect. However, the potential that IBWI represents is only partially fulfilled. Farmers understanding is incomplete and seems to be improved mostly through negative experiences with insurers. This might include a rejected claim, questioning integrity and "governance" in farmers' minds. Educating farmers and pastoralists sufficiently well to understand how the insurance works has been a major challenge in every area and adds substantial costs to delivery. Payment of claims remains the most effective form of marketing.

The complexity of delivery models leaves farmers uncertain about how to fix problems. They feel powerless and unable to seek recourse when the product does not work the way they anticipated it should.

The retail model of IBWI requires a high degree of coordination and alignment of incentives of all parties to maximise the benefits from the value chain approach. However, not only has this alignment not been achieved, it can also inhibit uptake and jeopardize both consumer trust and the brand of the aggregator. In our experience, alignment works best where there are dedicated people, whose sole responsibility is to drive sales of insurance. This should include, inter alia, responsibility for marketing, training of their 'agents', quality control and overseeing profitability. If these responsibilities are left to the insurer to drive from outside, it is unlikely that the initiative will succeed - thus requiring a strong partnership between the insurer and the aggregator.

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[13] We did, however, observe that many people partially insured their crops/animals, purchasing cover for only a fraction of their land/animals. But, this could actually be a positive sign of willingness to test a product before investing more heavily (or taking minimum cover to access the loan?). There could be potential for insurers to sell more cover to the same clients.

[14] One component of ILRI's research agenda is to estimate demand elasticity quantitatively. While their results are not yet public, in our conversations they suggested that demand in Marsabit is relatively inelastic, less than one.

A partnership approach between the insurer and the aggregator is critical for success.

Hollard Insurance, a South African based international insurer, was highlighted by the Microinsurance Innovation Facility as a leading proponent of the partnership philosophy:

> *"Hollard believes that the partner knows the client better than the insurer and may also have stronger brand recognition with the client – but that Hollard can bring its expertise or intellectual capital to support them in a unique product offering. This approach requires a high level of compatibility and similar values as well as full commitment from all levels in the partner's corporate structure. Collaboration on product development is a key success factor in order to arrive at a product that the partner needs and supports, and is attractive to the client. This process can be slower, and may require tweaking and adjustments during the process, which can make it harder to move to scale as quickly, however the result is a better product and more invested partner."*

". . . ..if it becomes clear that the partnership is not going to serve the joint interests of the partners, or if commercial interests are not aligned, then it might be better to pull out early than to continue."

Source: Rendek, 2012, Managing Microinsurance Partnerships. International Labour Office.- (Microinsurance Paper; no. 15).Underlining by the author.

(See the example of Hollard in the box above.)

While this value chain approach seems to be very attractive to buyers, it is more difficult for consumers to know what happened when something goes wrong, and to get answers. This is exacerbated by the lack of effective intermediary models, and to some extent the failure of insurers to impose sufficient quality control on partners and agents. This can lead to concerns around poor disclosure of the product features. For example, in Embu, where late loan disbursements led to late supply of inputs and therefore late planting, farmers were not sure where the breakdown was, why the seeds arrived late, and to whom they should complain.[15] It would be easy for the input supplier, the insurer and the bank all to point fingers at each other, creating a messy, frustrating client experience. Buyers also expressed confusion over where and who to turn to if the system breaks down or they wanted answers to their questions. Disentangling the roles of the credit provider, input supplier, and insurer was difficult. This also suggests the need for the aggregator to take ownership of the process so that the client experience is similar whoever they are engaging with.

Increasing accessibility of experienced insurance personnel to the farmer is important for building trust, though it also increases costs. It may still be a worthy investment as part of a brand building exercise. A discussion needs to be held between the insurer and aggregator over who funds these resources. Clients and non-clients alike express doubts and concerns about the reliability of insurers in many pilot areas.

> *"Insurance brought seeds late."* Embu farmer

> *"Insurance is like a rhino: when the rhino goes through the forest, it clears everything in its path. You come back and see you're left with dust."* Meru farmer

> *"Insurance people are very cunning. When there's a claim, they disappear. They leave you with things you do not understand."* Embu farmer

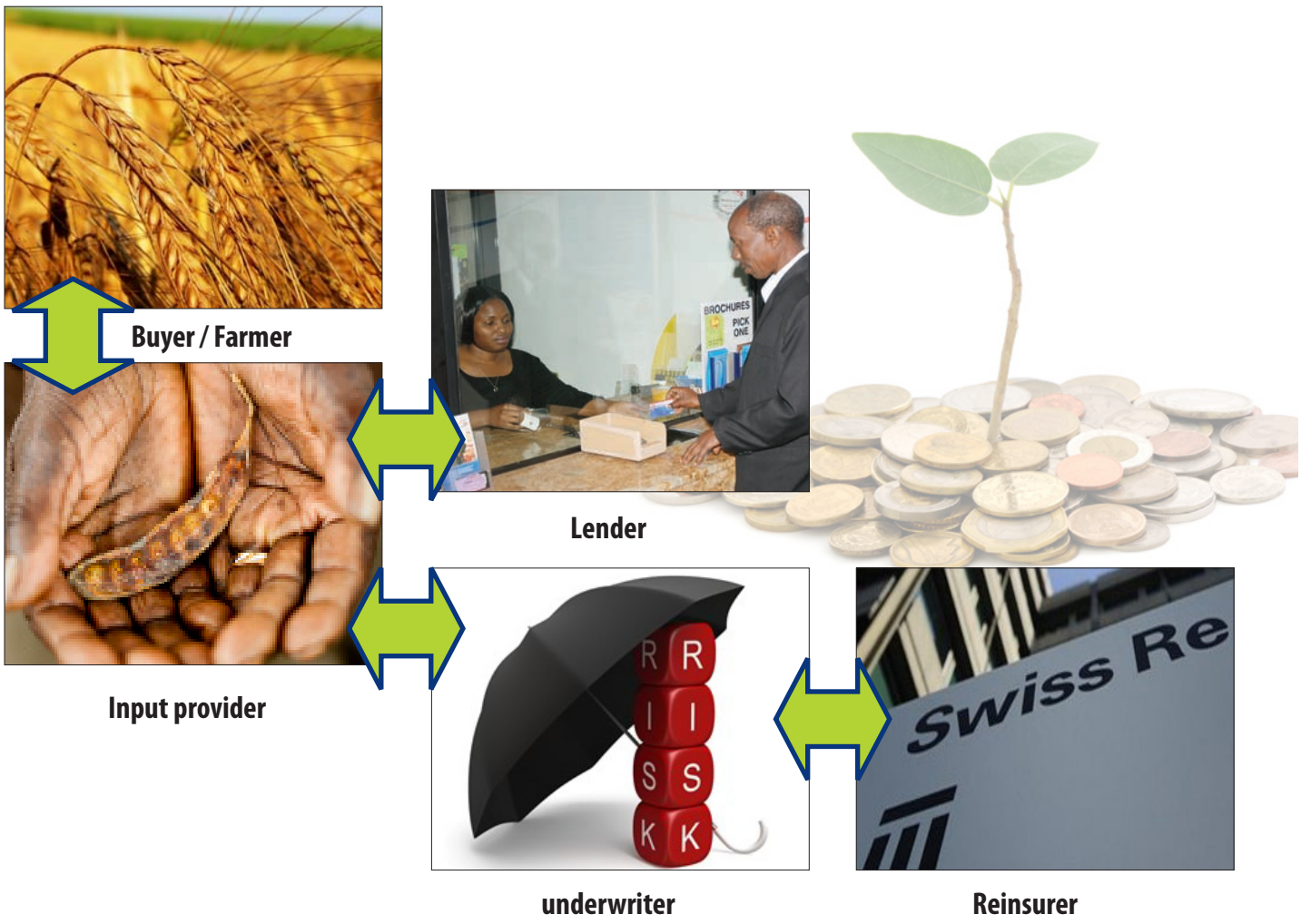
This lack of trust was only counteracted by the non-insurer brands involved, such as FSD and, in one case, the Ministry of Agriculture:

> *"We knew [FSD] could not cheat us."*

> *"We didn't get training last time; we just trusted the branch manager, since she's a representative of government. . . We thought it was the usual tricks of the insurance companies."* Narok farmer

[15] The value chain was essentially the same when there was a positive as when there was a negative experience. In the positive experience, however, all the players were aligned.

Figure 4: Value chain for index insurance for maize in Embu



Overall, IBWI has the potential to have a positive impact on small farmers, but experiences are rarely wholly positive. Rolling out a retail product at scale before all the complex delivery challenges have been thoroughly worked out, could backfire leaving clients disgruntled and unwilling to try insurance again. The boxes below outline both the worst and best case scenarios from among the pilot projects.

4.2 CONTRACT PRICING

Pricing of the various pilot contracts is also generally reasonable and appropriate, although in a few cases, it was a bit high. This may have been because the reinsurer was exercising caution in a new area based on some uncertainties in pay-off trends and the distance of settlement station from historical data station. Premium cost corrections were made in the subsequent season in Embu after the reinsurer became more confident with the datasets and geography.

However, insurance is helping the farmers gain access to credit. If the product was perfect (zero design and basis risk), the maximum premium a farmer should pay is equal to the incremental gain he could achieve with access to the loan capital. It is possible to prepare a model to calculate this gain if the data for farmers' income in credit and non-credit scenario is available. Unfortunately we do not have this data but would recommend that this is collected.

It appears that a further reduction in premium costs is possible if a larger number of locations is covered and the reinsurer acquires a decent risk spread within the country. The reinsurer would then be able to pass on the portfolio

Box 1: Best case scenario: The promise of IBCI

Jubilee insurance, in partnership with Tuungane Tujenge SACCO Embu, FSD, and agro-dealer Bwana Shamba introduced a pilot initiative to a small group of about 30 farmers in 2012. As with previous pilots, the product development and pricing was driven by the World Bank and Swiss Re, but this is an interesting example of some minor adaptation in delivery. Farmers are offered an agricultural loan for inputs along with crop insurance. Loan principal was disbursed directly to Bwana Shamba, who selected appropriate seeds and fertilizer based on soil analysis undertaken and delivered inputs directly to farmers. The farmers, who had been organized as a group since 2008, maintained a demonstration plot where Bwana Shamba showed them the proper timing and application of all inputs.

From Jubilee's perspective, this attention to crop husbandry was essential to isolate the risk of losses to weather events only, in hopes of building farmer trust in their index product. Production is excellent and rainfall has been substantial. There will be no payout this year, but farmers are quite satisfied and are looking forward to buying the package of credit, extension, and insurance again next year.

All 30 farmers took loans for their inputs for the first time ever this season. In the past they would often underinvest in their farms using very little or no chemical inputs and recycled seeds from neighbours. Their yields have grown from around 5 bags per acre of maize to more than 20 bags per acre. They are astounded by the results and are looking forward to selling their crop to pay school fees and invest in livestock.

The major driver of the improved yields appears to be the use of fertilizer that complements the farmers' acidic soils. However, those fertilizers would not have been possible to purchase without the credit, made possible largely due to the insurance extended by Jubilee. However, the SACCO, insurer, and agro-dealer had to work in clock-like harmony to achieve these results. Can this model be expanded from 30 to 30,000 farmers?

Note: Jubilee intends to proceed with the next season regardless of FSD's support, which is a positive sign.

Box 2: Worst case scenario: Farmers suffer and market deflates

An earlier experiment in Embu was much less successful. An insurer, a bank, and an agro-dealer had offered farmers a similar package of insurance, credit, and inputs, but did not include extension. The bank was to disburse loans directly to the agro-dealer, who would deliver inputs to farmers. Most of the loans were disbursed late and inputs arrived after the optimal planting time. The start date for insurance had already passed by the time most of the farmers planted. Farmers suffered further losses associated with pest and diseases risks and suspected crop nutrition deficiency resulting from use of inputs unsuitable for their location.

Without late rains to help these farmers compensate for late planting, they experienced significant losses. But rainfall was adequate according to the insurance product and rainfall monitoring. Angry farmers were told the bank to go after the insurance company for their repayments since yields were low. They weren't prepared to absorb the losses. Farmers are left with debts they could not service:

"We are scared the bank is going to come and take our houses. We still owe a lot of money."

And these farmers, though they now understand the insurance is based on rainfall alone, are no longer interested in purchasing and tell their friends and relatives the same. This is despite the fact that they can no longer access input credit and have downgraded to low cost farming methods with much smaller yield expectations. They feel cheated and betrayed:

"Insurance is like a hyena. It walks around with you like it's your friend, but when you fall, it will eat you."

"When you go to a butcher and get bad meat, you won't go back there again."

When IBCI goes badly, farmers are left indebted and bitter. Potential for scale reduces with widespread negative experiences.

diversification benefits to the farmers. The Indian experience suggests prices could also be reduced by:

1. **Covering large number of locations that have no significant correlation.** This would help reduce the overall portfolio value at risk and hence the price. The deals would be offered for reinsurance as a portfolio. In addition, a small reinsurance treaty from the reinsurer can allow pricing leeway for the insurers to build a reasonable portfolio without getting into a feedback loop for each deal. Many deals in India are offered as a portfolio to reinsurer even without treaty support.

2. **Increasing the number of settlement stations to address basis risk issue.** Apart from improving the product for the farmers, this would also help the reinsurer to spread the risk to more locations rather than concentrating it on a few stations. However, the extent of benefits in pricing would depend upon size and concentration of the portfolio on each station.

3. **Scaling up the overall premium collection.** There are more potential reinsurers who might be interested in competing for this business if overall reimbursable premiums were upwards of US$ 2 million. In India's Weather Market, the number of reinsurers has grown from 4-5 in the first year to 6-7 now. The differing pricing approaches of these reinsurers has helped lower the cost of reinsurance from all providers.

4. **With greater experience, insurance companies also gain the confidence to retain more risk.** This is generally viewed positively by reinsurers who are willing to offer more aggressive rates both in quota share as well as stop loss reinsurance arrangements if the insurance companies can prove their underwriting capabilities by retaining more risk.

The table below (Table 3: Pilot product pricing and comments on pricing) comments on the pricing for each of the marketed pilot products.

Table 3: Pilot product pricing and comments on pricing

Product	Average Payoff (% of Sum Insured)[18]	Reinsured Premium	Final Premium for Insured	Remarks
Embu – Maize (March 2010)	8%	14.2%	17.5%	Margin for administration and marketing cost seems reasonable (around 18% of the premium. However, reinsured premium is high (77.5% loading). Factors contributing to the higher loading: a. Distance of historical data station from settlement station (around 15-16 kms b. Large notional pay-outs in recent past increased recent years' average, significantly contributing to the premium hike. Small pilot in 2012, premiums fell to 11.67%.
Murang'a Maize (Oct 2010)	9.7%	N.A.	14.48%	Premium looked reasonable considering historical burn cost (average of historical payoffs on the basis available data) and last 5 years' average pay-offs.
Murang'a Banana (Oct 2010)	4.6%	N.A	8%	Rates looked reasonable considering two large pay-outs in recent years. Average of last 5 years payoff is more than the premium charged.
Machakos Maize (Oct 2010)	9.5%		14.7%	Premium looked reasonable considering historical burn cost and last 5 years average pay-offs.
Meru Coffee (Mar 2011) T 295mm	6.9%	N.A.	14%	High variability in pay-off and high Value at Risk (Max historical payoff = 89% of SI) has contributed to the high premium.
Meru Coffee (Mar 2011) T 260mm	5.2%	N.A.	10%	Though there were no significant recent pay-offs, high variability in payoff and high Value at Risk (Max historical pay-off = 86% of SI) has contributed to the high premium.
Meru Coffee (Mar 2011) T 235mm	3.8%	N.A.	8%	Though there are no recent pay-offs, high variability in pay-off and high Value at Risk (VAR) (with max historical payoff of 84% of Sum insured) has contributed to the high premium.
Narok Wheat (Mar 2011)	8.2%	N.A.	14.4%	Pricing is reasonable considering VAR (83%) is high.

[16] This is the average of payoff, calculated on historical data .

Chapter 5

CONSTRAINTS TO SCALE

5.1 SHARED CHALLENGES

Despite the attractiveness of the product to consumers, the challenges of getting it right at scale are significant. Reviewing FSD-supported pilots, (see Appendix), we saw that both IBCI and IBLI face some shared and important constraints to scale:

Basis risk

Basis risk continues to prove a challenge: the experience of the farmers is not matching the index, creating reputational damage for the stakeholders.[17] This is not the universal experience of farmers and not necessarily the farmers' biggest concern about the project. However, the reputation risk to partners and their willingness to market products at scale is reduced if this cannot be effectively contained. The World Bank has noted that "supporters of the index approach tend to underestimate [basis risk's] potential consequences." Satellite imaging can assist by extending coverable areas and tailoring products to smaller areas. However, applications are still in research and development phase and more experience is needed to actually determine the potential role of remote sensing in micro-level index insurance. In the IFC's view, accuracy is limited below 100km^2 area (10km by 10km) due to the quality of imaging (despite comments to the contrary).[18] Areas of that size still contain a wide range of diverse weather. The Indian experience, supported by MicroEnsure and the World Bank's work on mNAIS in India, suggests that satellites should be supported by weather stations. Also, while NDVI index can be more effectively used for monitoring pastoral forage and livestock losses, its use for crops like coffee and bananas would be limited, because losses often do not correlate with extent of vegetation.

Insurers in India have addressed basis risk by increasing the density of Automatic Weather Stations. They have installed stations every 10-15 km, building a dense network, which assists in limiting, although not eliminating, spatial basis risk problems.[19]

Some also hope that hybrid index / claims assessment (fall-back) approaches, in which inspections at sentinel farms provide ground-truthing to the index and serve as a fall-back mechanism when farmers incur losses, despite the lack of an index trigger. However, this approach does add costs and is open the vulnerabilities to human judgment and corruption. According to the World Bank, "There is still a long way to go before the problem is addressed in full."

MiCRO[20] in Haiti follows a similar hybrid model as they try to set up basis risk insurance, although their product is aggregated, and costs are carried by donors. In an Indian example, an on-account payment is made up to some percentage (perhaps 50%) of the policy limit immediately based on a weather parameter (high loss strikes). Final settlement can be made on the basis of crop cutting experiments where one considers actual yields on the ground - although this of course increases the costs. Over time, ground-truthing of NDVI data can be undertaken to replace the crop cutting experiments with NDVI. The accuracy of the data will be improved by taking samples to assess actual yields. This kind of product should have a lower basis risk. It would also pay some amount to compensate for time so that the farmer can work on salvaging the rest of the crop.

The reality is that basis risk cannot be eliminated due to the challenge of localized weather patterns. Kenyan farmers and pastoralists appear to recognize this. As Dr. John Corbett, CEO of aWhere recalls, Kenyans even developed a phrase "Njia ya mvua" or "paths of rain" denoting how extreme weather can be isolated to one particular area. Corbett, whose organization specializes in location intelligence for development, further states that the more arid an area, the less likely it is that one can predict or track the climate. This is due to the high incidence of convection cells - one of the reasons index insurance can be seen as a "spatial lottery". Part of scaling up index may therefore require more marketing time spent on helping the target market understand that it is more like a lottery[21] than a typical form of insurance.

The WRMS Indian experience also provides evidence that the product needs to be explained to the farmer as a rain lottery: pay-outs are made if the rainfall is less than the specified trigger, without linking it with any crop. Explaining Index Insurance products as compensation for crop yield losses can cause distrust and dissatisfaction in the minds of farmers in a scenario of uncertain basis risk. In some insurance programs farmers are even encouraged to set their own triggers based on affordable premium levels.

Complexity of the product

Theory suggests that one might develop a "McIndex" - a simple, standardized consumer product with a complex back end, as typified by McDonalds. Their delivery of a standardised "high quality" product is often given by young, relatively uneducated staff (except in university towns). However, the index products in FSD's portfolio of pilots are not yet there. The client may buy something relatively simple, but when things go wrong with any of the players in the complex background, they do not understand what happened or where to turn.

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17 "One of the significant events of the piloting tests carried out in Kenya was the failure to trigger payouts of the drought index contract for wheat in Narok. Despite the good performance of the index in matching the historical drought losses experienced in the area, the conditions of the February – June 2011 rain period were not captured by the index and no payout was triggered."

18 There is some debate about the accuracy of satellite, but we adapt the IFC's view as one of the larger current investors in index insurance.

19 Anuj Khumbhat comments that it would likely not take more than two seasons to identify the relationship between the historical data generated from the existing weather base stations and the network of new stations which are installed for assessing the claims.

20 " See http://www.microrisk.org/

21 This view has also been expressed by Anuj Khumbhat from his experience in large scale programs in India

KilimoSalama index insurance: innovation in process design and distribution

Background: the Syngenta Foundation in partnership with UAP Insurance, developed a weather-index based agricultural input insurance product, Kilimo Salama (Safe Agriculture). The product was launched by Syngenta Foundation and UAP and insures farmers' seed and/or fertilizer inputs against adverse weather conditions (flood and/or droughts).

Policy, premium and benefits: the policy insures agriculture seed/fertilizer (initially seeds from Syngenta) against failed harvest by compensating farmers for adverse rainfall specific to the weather station relevant to the policy holder. The policy premium is calculated as a percentage of the cost of the insured seed/fertilizer (5% of seed value). Total cost of the cover is 10% of the value of the seed. Initially fully subsidised, the premium is now partly paid by the agro-business (5%) and the other half by the famer (5%) as Syngenta felt the free product was not trusted.

Delivery channels, premiums collection and claims: the insurance policy is delivered to farmers through agro-dealers who sign up new policy holders, their selected insurance product, and appropriate weather station. They do so by using Syngenta-distributed camera phones capable of scanning bar codes and allowing for paperless policy registration and activation. Agro-dealers are responsible for collecting the premium and transferring it to the insurer using the M-PESA mobile money transfer service. Pay-outs are triggered by data generated through automated weather stations and paid to farmers using M-PESA.

Performance to date: Kilimo Salama was piloted in 2009 and is currently in its second phase of roll-out. The product has reportedly achieved take up of +/- 65,000 farmers.

Comments: the focus on 'embedding' the cover in the seed is an elegant way to address scale and align incentives. There have been some concerns that this ties the client to Syngenta in an inappropriate way and that it has been blamed for "bad insurance seed" when the wrong seed has been sold. However, this should be self-correcting over time; if farmers have been mis-sold seed due to insurance, the brand of Syngenta will suffer a negative impact which will affect sales. Retailers are often far more brand sensitive than insurers, so we would expect these concerns to be addressed. Overall, we think this model holds some promise if the basis risk can be eliminated or at least addressed.

Arbitration challenges are present, however. Syngenta is the owner of the weather data as well as arbitrator of any claims which could be seen as a conflict of interest. There is currently discussion with KMD on this matter. If this is managed transparently we do not believe this to be a major issue or impediment to the model should the more usual challenges around basis risk be addressed.

Source: Cenfri 2010, BFA and authors own

The levels of client understanding about the inherent risks in the product remain varied. This can lead to mis-selling, as agents may highlight issues which are easy to sell while skimping on other important but more complex data, e.g. where the trigger is set. While a huge amount of effort has been placed on simplifying the product, it is still both complicated and risky. It could therefore be targeted at more financially sophisticated customers e.g. financiers or large scale farmers. New dry day / dry month products have been simplified to a certain extent and therefore should be tested, although they come with their own challenges. After intensive (and expensive) education sessions, we see some evidence that clients learn about the features and gain in depth understanding. Together with negative experiences with the product, this has helped clarify how the product does and does not function.

Cost of distributing the product

The value chain for both IBLI and IBCI is complex and expensive to manage. It is also difficult to ensure quality control in terms of the sales process (as well as intermediary payments and back office procedures). While IBLI aims to simplify this through more focus on insurance agents, the high cost of servicing this market remains. Mobile payments can help reduce costs for collecting premiums and disbursing pay-outs, but they are not a panacea. They cannot for example, replace investments in consumer education/ promotion or mobilize sales and submit documentation. Distribution partners need to be held to account: more training and better quality control is required. Lessons can be learned from the Syngenta Foundation model (see box below) where they have embedded sales into their agro-dealer value chain, although even so, challenges remain.

Internal capacity and lack of innovation

While the insurers have shown considerable interest in selling indexed products, their ability to innovate is limited (World Bank, Swiss Re and interviews). The challenge is that until there is commercial success, there is little incentive for private companies to invest adequate time and resources in building internal capacity and funding "experiments" in new models. In essence, FSD needs to continue what they are already doing in order to keep the existing products in the market and build local skills.

5.2 CHALLENGES FACING IBCI

Focusing on crop insurance in Kenya, we see that basis risk is present and that it is affecting the involvement of lenders. In a basis risk event, they not only have angry clients, but also unpaid loans. Banks have limited interest in lending in agriculture - particularly to small farmers, and the retail product has not been sufficient to quell fears of delinquent borrowers in this segment. There are high costs here, as with IBLI, but there are also some unique challenges, such as poor farming practices, which can also jeopardize yields. Farmers need appropriate farming practices to make efficient use of credit-funded inputs and to isolate their risk as much as possible to insured weather risks. Another major constraint for IBCI is data availability. KMD's data is allegedly inconsistent and challenging to access on a timely basis.[22] This leaves pilots largely dependent on FSD-funded automated weather stations for monitoring purposes. Satellite imagery may help mitigate this, but more work will be needed to capacitate KMD which could be a very challenging task.

[22] One interviewee pointed out that the KMD data was sometimes inaccurate and they had received different data from one station. The World Bank were more positive about KMD data, particularly as they pointed out that index is particularly demanding in terms of weather data which organizations like KMD were not set up to address.

Table 4: Challenges facing IBCI

Challenge	Explanation	Potential to mitigate
Basis risk	▪ Basis risk always occurs in index insurance. However, it has paralysed the initiative in one case (Narok) due to the bank's concerns around reputation risk. A fall-back mechanism has been requested by lenders but the corresponding premiums increase is too high.	▪ Develop fall-back mechanism whereby index can be reviewed. NB This is subject to fraud and abuse and undermines the cost effectiveness of the index. ▪ Reorient to a portfolio insurance type of cover (where farmers are unaware of the cover which limits brand risk for the banks). Claims are paid to the owner of the portfolio and they determine how claims are adjudicated or whether it just informs their write - off policy.
Bank commitment and concerns	▪ While banks have shown some commitment, their concern around basis risk has stopped the program. Their appetite for agri-lending to small scale farmers is also questionable due to conservative lending criteria.	▪ Load premium for basis risk and allow banks to assess and distribute claims (if the banks are sufficiently trained and capacitated). Otherwise, the banks could just treat it as a derivative to offset their losses and thus improve their overall profitability. This may be acceptable if it stops the banks pulling back from this market. ▪ This is more of an art than a science and requires donor funding due to the uncertainty of the losses. MiCRO[23] is piloting this model in Haiti.

[23] See http://www.microrisk.org/. Alex Bernhardt of Guy Carpenter, one of the designers, notes the following on basis risk insurance ". . . performing basis risk transfer on an insured population about which very little is known in terms of loss history or exposure characteristics is a decidedly non-commercial proposition. We have applied the commercial and social expertise of MiCRO's collective co-founders/owners to develop a donor-supported basis risk transfer mechanism that protects institutional insured against basis risk losses. Inbuilt into the basis risk transfer policy agreement are several components encouraging interest alignment. Short-term MiCRO expects with new clients to engage in a good deal of capacity building and hand-holding to embed the necessary loss administration function locally and get it off the ground. Long-term MiCRO would like to better solve for the loss administration problem and is working on ways in which to do this presently".

Challenge	Explanation	Potential to mitigate
High costs of marketing, distribution	▪ The current retail models require high levels of marketing and education of the end client which is expensive. This is because the clients are new to insurance, or have a negative view of insurers not paying, the product remains quite complex and it further tends to be a grudge purchase (as in the old adage, "insurance is sold, not bought" which essentially means that one needs an active sales approach to inform and educate the client.)	▪ Redirect to portfolio cover. ▪ Greater focus on mobile phone in terms of marketing, communication, potentially sales and premium collection. The mobile platform exists but needs to be deployed effectively.
Data availability	▪ Automated weather stations purchased by FSD are the only effective source of data for settling claims. KMD continues to have some challenges and, similar to other countries, was not set up for the demanding needs of index insurance. ▪ Lack of a clear framework and policy support for IBWI means KMD is also concerned around sharing commercially valuable data with private sector data users, which is inhibiting the market.	▪ Proposed risk mapping project by World Bank with KMD capacity building. ▪ Greater use of Satellite. ▪ Weather data to become more publicly available on the basis that KMD charges for new data and arbitration services.
Poor farming practice	▪ Farmers experiences losses from the use of incorrect inputs, improper application of chemicals, and inappropriate timing. They complain that government "extension officers don't do much" which, whilst perhaps just a perception, should be a concern for government.	▪ Need clear government focus on agriculture and the need for effective risk mitigation ▪ Need to pilot private extension officers whether funded by and through index insurance or as part of a broader agricultural initiative. For example, the pilot with Bwana Shamba could be extended.

5.3. CHALLENGES FACING IBLI

The IBLI product introduced through ILRI is a voluntary index product aimed at pastoralists in an arid and low population density environment, with low levels of telecommunication. The barriers to a successful roll out appear significant. In fact this is reflected in the research, highlighted in Table 5 below. Many of these challenges relate to the difficult environment in which this product is being used. The high costs of IBCI are even more pronounced here where every touch point with the client is much more costly.

Table 5: Challenges facing IBLI

Challenge	Comments	Mitigation
High cost location	▪ Marsabit's remote and low population density make it a very expensive location to service. Nairobi-Marsabit travel is expensive by air and some raised concerns that it is dangerous by road with the car of a bank having been hijacked recently. Serving customers in the area is extremely high cost due to low density and poor infrastructure. In one season, the intermediary noted that the cost of travel to disburse a claim was often higher than the claim itself.	▪ ILRI has developed an alternative mobile platform that can be used by all insurers. It is being used by APA this season for the first time. Whether it will be seen to serve its purpose across insurers and provide adequate privacy protections for consumer data remains to be seen.
Cost of collecting premiums through POS is currently high ($12,500 per POS)	▪ Potential to use alternative mobile mechanisms is certainly possible. IBLI shifted to Kilimo Salama mobile platforms ($250) "scanners," in the latest seasons. But, once UAP stopped selling, these could no longer be used. ▪ FSD also considering investing in a new solution which should bring cost down significantly.	▪ Need clear government focus on agriculture and the need for effective risk mitigation ▪ Need to pilot private extension officers whether funded by and through index insurance or as part of a broader agricultural initiative. For example, the pilot with Bwana Shamba could be extended.
Lack of effective distribution infrastructure	▪ Distribution of micro-insurance typically needs a strong distribution partner with a strong brand – which most insurers do not have. Equity, through the HSNP, has that brand but is losing interest. Individual agents are expensive and it is difficult to maintain and ensure oversight. ▪ When considering the matter of density, it is clear that this is a major challenge. The more successful programmes in India operate at a density of 386 per square kilometer, the IBCI initiatives vary from 59 (Narok– Ololunga) to 743 per square kilometers (Murang'a South- Sabasaba) whereas IBLI varies from 2 (Marsabit Chalbi) to 9 per square kilometer (North Horr).	▪ Move to macro programme is one alternative to consider. This would require the donor or government agreeing to cover the larger area with a disaster insurance cover that could pay out at time of drought, and those agencies would be responsible for managing distributions and/or other relief. ▪ Reinvigorate master the agent through higher commission and develop sub-agents that leverage off their brand. It may be difficult to be able to increase these enough to make this attractive to master agent given the lack of a perceived opportunity due to the high cost of doing business.

Challenge	Comments	Mitigation
Poor incentives	▪ Hunger safety net model used by the agent but little incentive for sales due to the very low commissions. They saw the additional commission for sales as limited compared with the guaranteed daily payment for participation in the sales process.	▪ Need to increase commission for agents to more sustainable levels. Note at these levels of premium, an appropriate commission is typically 10-20% of premium and one may need to factor / advance the premium to pay a tranche upfront. E.g. one could advance the estimated annual premium to the agent, thus providing a decent lump sum. Should the client lapse, one can structure the arrangement to recover the commission against future commissions. ▪ While the agents are currently paid KSh 500 / day, irrespective of sales, this model should align interests more closely.
Voluntary product	▪ Voluntary product dependent on insurance agents which is typically high cost.	▪ Due to the lack of financing and inputs, this is difficult to mitigate without moving to a macro scheme. However, a new location may allow one to try and identify a more effective aggregator.

A number of partners also expressed concern about "fatigue amongst the partners." There is an effort by project implementers to "trying to reinvigorate [IBLI] through bringing in other insurers" but it is not clear that the main underlying problems of location, low density areas, product design and lack of a clear marketing approach are being solved. In our view, competition could actually be quite harmful at this stage. In a market and area where there is limited or no knowledge of insurance, an already limited client base, limited availability of distribution points, limited ability to differentiate and create new products and often negative perceptions about insurance, it would be difficult for insurers to build brands. Additional competition in the market under these conditions would not necessarily lead to increased efficiency.[24]

Overall, it is essential that scaling up of this initiative is based on a sound business case for the insurer. An insurer considering the viability of index insurance needs to think through the following issues:

- **Size of potential client base** - and whether the product will be embedded, compulsory or voluntary. An embedded or compulsory product is preferable from an insurer's perspective as it guarantees sales and lowers the costs of distribution considerably. A voluntary product is a far more challenging proposition; typical take-up of voluntary products varies between 2-15% of the target base.[25] This means that to achieve take up of 20,000 clients (probably the minimum for a viable scheme), a target client base of between 300,000 and one million would be needed, depending on the level of confidence. In practice, Swiss Re has been accepting premiums of US$200,000 (approximately 20,000 TLU at KSh 825). However, their expressed preference[26] would be for premiums of US$500,000, approximately 55,000 TLUs or 15,000 acres, which would mean approximately 23,000 farmers (if using Embu as a proxy). As the

[24] t is noted that premiums for IBLI in Marsabit are subsidized on the backend at a rate of 40%. Pastoralists are not aware of this subsidy, which is currently provided by donors. And, pastoralists would at the same time like to see a lowering of the "trigger level" of losses that induce a pay-out. They would prefer a pay-out triggered by predicted losses of 10% of the herd rather than the current 15%. This would entail an increase in premiums as it would increase cost of administration and servicing as well as the size of claims. Donors would have to either increase the total funding going to subsidy or pastoralists would experience a disproportionate increase in premium as a result (because the marginal increase in premium would not be subsidized).

[25] Based on the author's experience, this take up is the general rule of thumb for commercial insurers selling voluntary products. WRMS' Indian experience (in a more mature market) is that the uptake of non-subsidized insurance program has always been less than 10% of the target client base even in a good season (season right after a payout). WRMS takes a conversion rate of around 2 to 5% of total potential market size while preparing its business plan as a rural insurance intermediary.

[26] Email correspondence with Christina Ulardic, Swiss Re.

longer term viability of the scheme will be dependent on a diverse pool to ensure cost effective reinsurance, any business case will need to take these volumes into consideration.

- **Affinity with distribution partner.** The client of the distribution partner should have a high level of trust in the products suitable to the distribution channel. Insurers tend to have very low brand resonance with the end clients. The best way to address this is to have a very hands-on agent based model (bearing in mind the old adage of "insurance is sold, not bought"). However, this can be costly. The distributor needs to have suitable mechanisms for ensuring effective sales with disclosure or advice if required.
- **Cost effective means of distribution.** The costs of distributing products should be commensurate with the revenue they bring. Costs range from marketing (often the highest cost), commission (to have a well incentivised sales force), technology platform (if used), compliance (includes cost of training) and administration.

The challenges of distributing IBLI as a voluntary, stand-alone product, and the high cost of operating in Marsabit are considerable. The potential for making IBLI viable is very limited without a large, continuing subsidy. This is despite the fact that ILRI has identified that there are three million pastoralists (ILRI 2009) in Northern Kenya. The cost of reaching them however, appears to be prohibitive for a commercial insurer.

While the demand side research has shown some promise in terms of the take up of IBLI, insurance of this kind does face considerable challenges in trying to achieve a market-based solution. It is our view that turning it into a profitable stand-alone initiative is unlikely ever to be achieved in Marsabit.[27] It does however hold out some promise as a developmental tool to mitigate the risks that the pastoralists in Marsabit are hoping to cover. The level of subsidy would need to be carefully costed, whether it is delivered as a macro or retail scheme. In addition, the government would need to decide whether this cost would be borne by its own budget or whether to seek sustainable donor funding.

Viability of IBLI for the pastoralist – a simple hypothesis

If we consider the current position on a simplistic basis, the IBLI premium for the pastoralist is set at 5.5% of sums insured. If we assume that there is a 50% subsidy (we recognise the actual subsidy was 40% but the discount vouchers offered subsidies at different levels), and the insured has to pay the whole premium, the cost to the farmer would be11% - which is a significant amount for any insurance. The most that the client is likely to be able to pay is in the region of 5.5% (assuming that ILRI calculated the subsidy based on ability and willingness to pay). The product therefore has to be changed to reduce the probability of pay-out to half, in order to make it affordable and of value to the farmer. Supposing we take the 11% scenario and the product was making a full pay-out once in 20 years. To bring the premium down to 5.5% sums insured, it would only make one full pay-out in 40 years. If the farmer is losing cattle more often than that because of drought (which appears to be the case), the product is not catering for the risk and is therefore unsuitable for the target market.

[27] Evidence gathered by Fuchs and Wolf, 2011, on the large scale pilots in Mexico, suggest that whilst IBWI may have positive impact at the individual farmers level, that at a society level, the costs may outweigh the benefits. They suggest that investment in the foundational issues may provide as much benefit as index insurance.

Chapter 6

TREATING FARMERS FAIRLY

The "Treating Customers Fairly" (TCF) framework now adopted by the UK and being considered by South Africa,[28] provides a lens for examining performance and possibilities for IBWI improvements. The aim is to develop a customer-friendly approach that protects consumers and helps build a trusted and inclusive market. Looking at Kenyan consumers' experience with retail index-based insurance to date using this TCF framework, we observe some mixed experiences. In the table below, we have selected key TCF outcomes and the suggestions for ways in which they can be improved.

Table 6: Key TCF outcomes and the suggestions for ways in which they can be improved

TCF outcome	Status today	Potential strengthening
Outcome 1: consumers are provided with clear information and are kept appropriately informed before, during and after the point of sale.	There have been some impressive achievements in communicating complex products to consumers, but it is not efficient, best practices are unknown, and little communication happens after the sale.	Industry can collaborate on experimenting with more effective communications and in communicating the index status and expected pay-outs to avoid disappointments and frustration at the end of a growing season. In areas which lack cell phone coverage, like much of Marsabit, some means of communicating offline will be required.
Outcome 2: where consumers receive advice, the advice is suitable and takes account of their circumstances.	While significant education is provided, the products are primarily non-advice sales which allow for disclosure but no advice. While this is typical at this end of the market, it does create some concern due to the complexity of the product. Where advice is given it is primarily as part of a value chain approach in which an extension or input provider may advise on the appropriate inputs for that farmer or that geography. While this is currently working well in Embu, the product scale may expand in such a way that other players have little oversight on the quality of this advice. In one case, the Syngenta product, tied to a specific set of inputs, has actually ended up giving farmers poor (farming) advice and very negatively affecting their yields and livelihoods. We did not find evidence that this happened as a matter of course but it does raise concerns about embedding products inappropriately.	Consumer feedback mechanisms could be strengthened to ensure that credit providers and insurers continue to work only with the most reputable of extension and input providers. The insurance regulator should have greater oversight of the initiative to ensure the insurers and intermediaries are taking their market conduct activities sufficiently seriously. As the pilots are still small, punitive measures are not recommended. The danger of not meeting minimum disclosure requirements could damage the market thus inhibiting further growth in the insurance market.

[28] For further information on the Treating Customer Framework in the UK, see http://www.fsa.gov.uk/doing/regulated/tcf or South Africa, see www.fsb.co.za or the full discussion paper at: ftp://ftp.fsb.co.za/public/insurance/TCFDiscussionPaper052010.pdf

TCF outcome	Status today	Potential strengthening
Outcome 3: consumers are provided with products that perform as firms have led them to expect, and the associated service is of an acceptable standard and as consumers have been led to expect.	There has been mixed experience with IBCI and IBLI in terms of this outcome. In most cases, in the first and sometimes second season, farmers are surprised at the way the product performs due to deliberate misrepresentation (season 1 in IBLI), misunderstanding (several cases), the lack of monitoring data available to consumers (several cases), and just incomplete information spread by word of mouth (social marketing running amok!). But, the products have certainly failed to produce universal success here in terms of predictability/ perceived fairness. This seems to self-correct with experience, but has led to some consumer fear and perception that insurance is risky and sometimes conniving.	While the pilots remain small, this is a real concern from a regulatory perspective and the insurers do need to be held accountable for their intermediaries. Fortunately (at least for the regulator) the scales of the pilots are still limited. This can be addressed by improved communications and experience in the same area. It would be in the insurers' long term interest to encourage farmers to "test" the product with very small investments in their first season to ensure they will really understand how the product works. They might even offer a "test" package either for free or at a small cost (KSh 500-1000) with very clear pay-out triggers and such for first time buyers, and couple that with better monitoring communications and planned follow up information sessions in every new area where the product was introduced whether or not there's a pay-out to maximize experiential learning and build trust. Such events do not have to be expensive, just loud. In Marsabit, news of Equity's launch of pay-outs in Marsabit town spread across the district.
Outcome 4: consumers do not face unreasonable post-sale barriers imposed by firms to change product, switch provider, submit a claim or make a complaint.	Limited availability of the product at this stage means that most have few alternatives. Insurers are rarely present on the ground, and farmers are almost universally concerned that they have no way to ask questions and seek recourse from the provider itself, much less a neutral arbitrator or ombudsman to protect their interest and ensure fair resolution of disagreements. Most clients are not even sure what institution is providing their insurance, and the value chain approach makes responsibilities of each actor even more obscure and difficult to know where the problem really lies, who is responsible, and who can resolve the issue.	While competition and the option to shift providers may not be an imminent possibility, certainly things can be done immediately to improve consumer access to ask questions, follow up on claims, and make complaints. First, there should be some enforcement of disclosure standards that give clear means for consumers to ask questions and seek answers. Second, there needs to be access to a cost effective recourse mechanism (e.g. an Ombudsman) to allow clients to access fair arbitration of disputes with insurers who seem to have little oversight at the moment.

In considering TCF it is clear that there are a number of concerns about how the current products are structured. A significant amount of work is needed before expanding to scale. In fact, Dr Daniel Clarke of Oxford University goes further:

> *"I would be very pleased to stand corrected but my sense is that most unsubsidised weather index insurance programs for smallholder farmers would be tomorrow's mis-selling scandals if developing country regulators were as competent as developed country regulators. Available statistical evidence suggests that these products are essentially just expensive lottery tickets increasing, not reducing, the vulnerability of farmers."* Daniel Clarke, Centre for the Study of African Economies, Oxford University.[29]

[29] Email correspondence with Dr Daniel Clarke.

Chapter 7

SUMMARY: THE STATE OF THE KENYAN MARKET FOR INDEX INSURANCE

The challenges we have highlighted in this report are not unique to FSD's pilots, but are common across the industry. In a discussion with Guy Carpenter's specialist Microinsurance division, GC Micro Risk Solutions, it was noted that *"the ecosystem requirements for successful retail-level agriculture (or property) programs are significant and can be easily underestimated."*[30] Their understanding of this reality has led GC Micro Risk Solutions to focus only on macro and meso level aggregation due to the transaction cost of addressing retail schemes, all of which require strong local infrastructure to address the last mile.

So how might we assess the Kenyan market for index insurance? We summarize our findings through three frameworks below.

7.1 MAKING FINANCIAL MARKETS WORK FOR THE POOR

Using a framework adapted from David Porteous' Making Financial Markets Work for the Poor, we find that the current status of the market is not very strong, with important weaknesses in information, regulation, and the strength of market players.

[30] Personal communication with Alex Bernhardt, head of Guy Carpenter Micro Risk Solutions, 28 August 2012.

Table 7: Market assessment: understanding whether the market is working for index insurance and the poor

Scorecard	Diagnosis	Rating
Clear policy framework?	IBWI could benefit from a more coherent policy framework around the agricultural market. It currently operates in a vacuum which means there is little support from the KMD or agricultural extension officers. This vacuum is as relevant for MPCI and agricultural finance as index insurance. However, FSD is currently involved in taskforces working with the ministry of agriculture to develop agriculture insurance policy and also the Insurance Regulatory Authority on a microinsurance policy.	1/5
Legislation adequate and enabling?	Currently awaiting new insurance legislation where current distribution is allowed by exemption on a case by case basis. Incentives are also being paid to the banks irregularly, with commission paid as management fees to circumvent the legislation where an exemption has not been granted. The IRA reported that the sale of IBWI through the shops is currently in a grey area and also raised concerns that one of the brokers was not appropriately licensed. This is therefore being allowed through regulatory forbearance, but a bank and a couple of insurers raised this as a concern. This creates uncertainty around distribution models and potential underinvestment.	2/5
Regulation appropriate and capacitated?	Amendments to the act in process which should include enabling alternative distribution models (planned for Jan –Feb 2014). Will include micro-insurance definition. This uncertainty also creates anxiety and underinvestment.	2/5
Diversity of sustainable suppliers?	IBWI: Range of insurers involved but lacking skills and innovation. IBLI: Was limited to UAP but APA has joined after UAP exited.	2/5
Effective competition?	IBWI: While there are a number of insurers, the lack of competition from reinsurers and dependency on World Bank and ILRI for design means little real competition. IBLI: no real competition. ILRI aim to bring in new insurers in their second phase but it is not clear that this will address the major problems and they will be competing with an identical product in an unsophisticated market.	1/5
Innovation in product and process?	Both IBLI and IBCI are focused on individual voluntary / retail products whether direct or through an aggregator. No or limited local skills to adapt product and processes - Syngenta appears to be the only one demonstrating innovation, primarily in process and distribution, although the FSD has done some work on remote sensing models in Narok with EARS.	2/5
Adequate, credible information?	Weather data is patchy and there is a need for KMD to be more involved. No means to map weather base stations against distribution. Satellite offers some potential but is relatively untested for IBCI, bar a pilot in Narok.	2/5
Adequate service providers?	Need to bring in a range of for-profit oriented technical advisers. Current technical partners appear to be more social oriented and driven by donor priorities. Internal capacity is limited.	2/5

Adapted from Porteous D, October 2004, Making Financial Markets Work for the Poor, www.finmarktrustorg.za

While the ratings below look poor, they underestimate the considerable progress that FSD has made in trying to create a market from scratch. It is also recognised that the policy framework will always take years to be addressed fully, so FSD's ability to create exemptions and space for innovation has been commendable. It is certainly not worthwhile "rushing to regulate"[31] a market that it is not yet present.

7.2 INDEX INSURANCE "SKEES TEST" FOR SCALE AND SUSTAINABILITY

Professor Jerry Skees, one of the leading practitioners in index insurance, developed a series of recommendations about what should be done to improve the likelihood of success of index pilots. In assessing the "Skees test" for three of the Kenyan initiatives (as Planet Guarantee is still very early in its

Table 8: The 'Skees Test' for effective index insurance programmes

RECOMMENDATIONS	IBLI	IBCI	SYNGENTA FOUNDATION
A) Process of developing IBWI			
Focus on legal and regulatory issues from the start	Regulator appears to have left space for innovation but no clear policy, legal or regulatory framework. But 'rush to regulate' also not encouraged. A clear government policy supporting agricultural finance would be desirable to encourage both extension of lending and insurance, whether MPCI or IBWI.		
Replicate process (for delivery) not products.	Focus has primarily been on the product and (academic) research around its impact on pastoralist behavior and livelihoods. Latterly there has also been some focus on process e.g. open source IT.	Focus has been primarily on product development. M-Kesho is available although it has not been deployed yet but it does not address the requirement to distribute or service the product.	Focus has been on process through the focus on rolling out their mobile model.
Subsidise start-up costs and the market failure layer, not premiums.	40% premium subsidy. Startup costs heavily subsidised.	No premium subsidy Startup costs heavily subsidised.	50% Premium subsidy – originally from private sector. IFC is funding the broader rollout.
Assess impacts	Yes - academic research into impact which has been published in various forums .[32]	Yes - some research into impact, especially in Meru. The World Bank reports that further work is required.	Yes. IFC likely to assess.
B) Product design			
Focus on risk aggregators first	Very few if any aggregators in Marsabit so primarily individual voluntary sales.	Retail model through banks and SACCOs.	Retail through Syngenta Limited and, later, Kenya Seed. Kenya Seed may not be very active.
Think beyond protecting against yield losses for a single crop.	N/a	No - but planning to after pilots.	No
Focus on catastrophic events (rather than moderate losses)[33]	Partly - focus is also on encouraging claims to ensure client experience.	Claims to focus on medium to low frequency rather than just catastrophic.	Mostly focused on catastrophe.

Source: Skees JR, 2012, "Rethinking the role of index insurance – accessing markets for the poor." E Makaudze (ed.), 2012.

[31] The phrase "rush to regulate" comes from an influential paper by Christen and Rosenberg that discussed that one should await some market development before focusing on regulation. See Christen R and Rosenberg R, 2000, The Rush to Regulate: Legal Frameworks for Microfinance. http://www.cgap.org/publications/rush-regulate-legal-frameworks-microfinance

[32] See for example: http://dyson.cornell.edu/faculty_sites/cbb2/Papers/IBLI%20PROJECT%20SUMMARY.pdf

[33] Skees argues that there has been a misplaced focus on moderate losses due to the concern that if there are not regular pay-outs, then the buyers of insurance will become disheartened. Whilst this may be understandable, he argues that it is not as efficient or effective as focusing on catastrophes. Insurance is an expensive risk mitigator and moderate losses should best be addressed through savings, borrowing, diversification, risk mitigation, or family or community mechanisms. Skees also hypothesizes "that the spatial covariance of many weather events increases with the severity of the event" – essentially meaning that index is much more accurate for catastrophes than moderate losses and that there are less data problems with catastrophes. IFAD further argues that "as a practical rule of thumb, events that occur more frequently than once every seven years may be too costly for most farmers to insure without a subsidy." (IFAD, 2010)

development), we can see that some of the classic errors have been made in the various pilots. One concern he highlights is the use of the premium subsidy which can undermine the long-term sustainability of the scheme. There is often little likelihood that there will be a long-term subsidy (as often happens in developed countries for agricultural insurance) due to lack of available funding. Interestingly, ILRI's own analysis and innovative experimentation with discount vouchers and the demand side work points out that price is not such an issue for the pastoralists. A lower subsidy would be acceptable, although it would be interesting to see what happened in practice if the 40% subsidy was dropped. Another concern is the focus on high frequency events (and regular pay-outs), which clients often prefer, but which also increases the likelihood of basis risk and reputational damage. In essence, as Anuj Kumbhat of Weather Risk Management Services[34] states, index insurance may need to be understood more like a lottery, in order to manage expectations. This would have the added benefit of simplifying the sales process.

Overall, while we can see that many of Skees' recommendations have not been met, there is room for improving the design of the pilots to try and address his recommendations.

7.3 IFAD'S PRINCIPLES FOR SCALE AND SUSTAINABILITY

Looking at FSD's experience through a final lens, IFAD's 8 principles for scale and sustainability, again, we see a mixed picture with some worrying gaps:

Table 9: The IFAD principles for scale and sustainability

IFAD 8 principles	IBCI	IBLI
Create a proposition of real value to the insured, and offer insurance as part of a wider package of services.	Insurance has been sold as part of the loan offering. While some positive sentiment exists, this appears largely due to being able to access a loan. If the lenders lose interest or willingness to lend, demand for insurance can also drop off dramatically.	Insurance sold as a standalone voluntary product. Focus groups have shown farmers see value in the product, particularly after a claim has been made.
Build the capacity and ownership of implementation stakeholders.	While some capacity has been built at the insurers – evidence of any ability to innovate is extremely limited. Ownership very much remains with lead donors with limited exceptions. This will continue until there is some commercial success.	While some capacity has been built at the insurers – evidence of any ability to innovate is extremely limited – and minimal or no capacity to design NDVI models exists. Ownership very much remains with lead donors and insurers rely on ILRI for ready-made business cases.
Increase client awareness of index insurance products.	Awareness at local level around pilots is positive, but mis-selling effectively continues (in terms of poor disclosure of the terms of the product), particularly in new areas, as understanding of what they are buying is often incorrect. Cost to roll out could be significant, especially for IBLI.	
Graft onto existing, efficient delivery channels, engaging the private sector from the beginning.	Equity and AFC are involved but concerns about basis risk has slowed roll out.	No efficient distribution mechanism exists in Marsabit. Financiers not involved. NGO and safety net only real alternative.
Access international risk-transfer markets.	Swiss Re acting as the only reinsurer. Concerns regarding cost.	Swiss Re acting as the only reinsurer. Concerns regarding cost.
Improve the infrastructure and quality of weather data.	Poor access outside of donor funded weather stations. Satellite partially addresses these concerns, subject to fall-back.	Satellite partially addresses these concerns; subject to ground truthing.
Promote enabling legal and regulatory frameworks.	Limited work but some regulatory forbearance.	Limited work but some regulatory forbearance.
Monitor and evaluate products to promote continuous improvement.	Limited real local capacity to adapt and innovate. MandE could be improved. .	Limited real local capacity to adapt and innovate although MandE is strong.

Source: IFAD, 2010, "The potential for scale and sustainability in weather index insurance for agriculture and rural livelihoods."

[34] Anuj is also the technical consultant to this paper

When we consider these three frameworks the following lessons are clear:

a. While not wanting to 'rush to regulate', greater certainty and support from the policy makers and regulators would have aided the pilots. It did not appear to act as a constraint to the pilots, which are essentially proof of concept, but may explain some of the lack of commitment from the insurers and indeed the banks. Comments were made by both banks and insurers that the banks were being paid 'management fees' as they were not allowed to receive commission if they had not received an exemption to operate as an insurance agent.[35] It was also noted that the use of shops was irregular (read illegal) which may lead to investigation at a later time.

b. Greater focus needed to be placed on addressing (a) some of the foundational issues around agriculture as detailed in Figure 5) and (b) growing the insurance market from its current levels and segments, rather than rushing to the holy grail of retail insurance. It is easier, and often more effective, to support insurers to expand into adjacent markets and segments rather than jumping to the very bottom of the pyramid.

c. A broader range of pilots across the different levels (macro, meso, micro) should have been implemented to assess what is required to make index work.

d. A greater range of service providers who have a clearer focus on profit and sustainability rather than applied research or poverty alleviation would have been useful.[36] Linked to this, there should have been greater focus on replicating the sales and distribution processes and supporting multi-crop products.[37]

The box below shows how IBWI has fared:

Driving winds for IBWI[38]

- Farmers' desire for some form of protection (FGDs 2012)
- Credit shown to have been extended due to IBWI (FGDs 2012)
- A tool of disaster risk mitigation for government – an argument for a permanent subsidy (IFAD)

Driving winds against IBWI

- Foundational issues of good farming practices not widespread which undermines ability to offer insurance (Munich Re of Africa)
- Societal cost exceeds client value - essentially meaning that the cost of index insurance is more than the benefit it provides. Research indicates other interventions may be more successful, such as investing in infrastructure, productivity improvements (such as through improved irrigation technology and better seeds)[39] etc. (Fuchs and Wolf, 2011 and Binswanger 2012).
- Other safety nets may prove more effective and less costly than index (Binswanger 2012).
- Insurer concerns that basis risk is unlikely to be viable for retail insurance for some time to come
- Limited localisation of knowledge and capacity (World Bank, Swiss Re)
- Selling product to markets with limited or no understanding of insurance, meaning cost of conversion high (FGDs, Cenfri).
- Value of insurance is mainly seen as access to loans / inputs for IBCI (FGD), which makes insurance sales dependent on commitment of lenders. As can be seen with Equity, should the benefits not be seen, they can stop the initiative with little or no warning.

35 This is equally applicable to credit life and other insurance products.

36 Whilst we note that the objective of IBCI was on commercialization, there was still a view from the market that there was a not for profit bias. This may well have been due to the focus on addressing poverty.

37 The 'dry day' concept, where insurance is paid out based on the number of days where the crop/s have not received rain, offers an opportunity to cover multi-crop index insurance where the pay-out is linked to the number of dry days. This has been experimented on by MicroEnsure amongst others. In India, a drought Index Insurance pilot has been done by CIRM wherein farmers can buy drought insurance coupons of various triggers and coupons are not linked to any particular crop. These coupons can essentially be used for any crop facing drought risk.

38 NB Poor choice of pilot area for IBLI means results unclear

39 Like other countries, Kenya has a guarantee that is used to encourage lending in the agricultural sector. Whilst we recognize it is seen as ineffective in Kenya, guarantees can be used as alternatives to index insurance to support the extension of capital to farmers.

Chapter 8

SCOPING - A PATH FORWARD

We commend FSD for what has been achieved so far in terms of the number of pilots and wide participation from the industry. However, on reflection, while there have been many successes, the ideal of a sustainable and scalable model is still rather distant. It is clear that the initiatives have leaped to address what Porteous (2005) calls the "supra national market zone" through their retail index initiatives, before properly addressing some of the foundations that are required to build a market. This is understandable as the primary actors involved have had a clear mandate to address poverty directly and so have kept true to that ideal. In fact the World Bank made it clear that they did not have the mandate to focus on activities that have only an indirect impact. This might include supporting commercial banks' risk mitigation where there is no link with the small scale farmer, and the ILRI and their funders who are restricted to the north of Kenya.

While it can be tricky for donors to undertake activities that have a more indirect impact, FSD, with its market oriented mandate, can and should have a further look at the foundational activities. They should take a step back before rushing to expand retail models. Figure 5 highlights how this can be achieved by first addressing the foundational activities of farming practice, access to data and availability of infrastructure. This should be done before moving to the macro or (non-retail) meso cover, including engaging large scale commercial farmers with hybrid MPCI-Index insurance,[40] and before moving to scale retail initiatives. To quote a World Bank expert:

> *"Agricultural insurance cannot operate in isolation and . . . it often ranks very low on the list of priorities of small and marginal farmers and herders. Crop producers' priorities are first to ensure that they have timely access to inputs of seeds, fertilizers, and often credit with which to buy these inputs. Only then can they consider purchasing crop insurance." (Mahul and Stutley, 2010)*

The benefit of the macro and meso programmes is that there is greater leniency towards basis risk. This is because one is dealing with sophisticated organisations which can accept some risk whereas the tolerance for risk of small scale farmers, pastoralists or individuals is much less. FSD cannot do everything but it can identify the key partners required to achieve its vision.

In spite of the difficulties encountered with the number of retail schemes that already exist, FSD should aim to redirect resources to address these underlying issues as a priority before trying to expand pilots dramatically.

Our recommendations are:

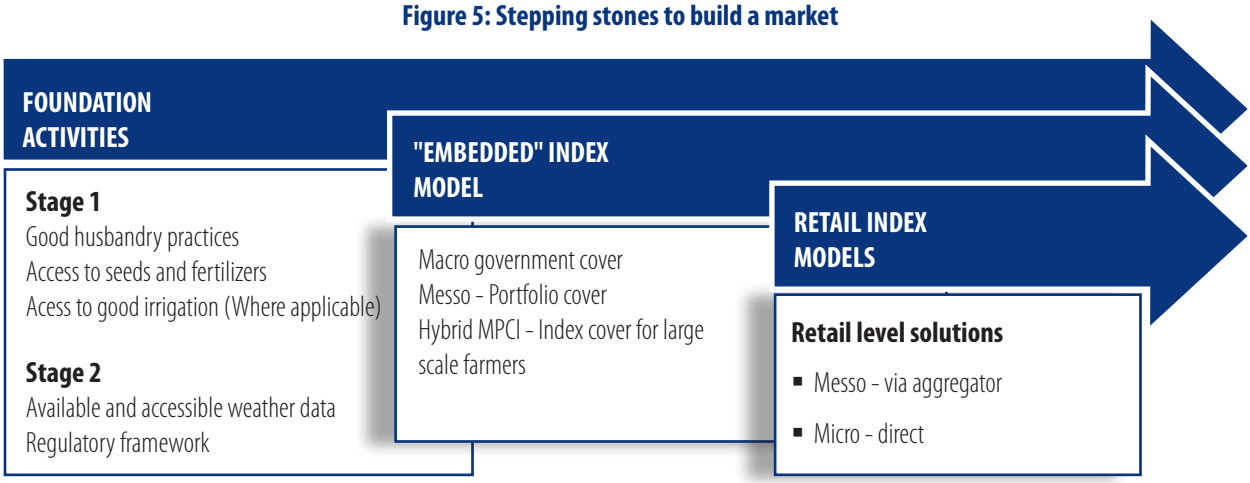
8.1 FOUNDATIONAL ACTIVITIES

Define and develop initiatives to address foundational issues / eco system, which should include:

1. Engaging with the Ministry of Agriculture to address the current vacuum around agricultural insurance, as well as:

    a. Position KMD in such a way that index becomes a strategic market development activity (rather than as a potential source of competition for their services). This would include supporting KMD's capacity to provide technical input into disputes regarding data while dispute resolution should remain under the remit of the regulator as is currently the case.[41] We expect on-going funding will be required for KMD due to their current lack of capacity. While working with KMD will be challenging, it is a necessary requirement.

Figure 5: Stepping stones to build a market



[40] Similar to the Climate Corporation product, a hybrid MPCI-Index cover would allow the Index insurance to cover the pre-emergence risk (risk that there is insufficient rainfall for the crop to germinate) which is not covered by MPCI. The benefit to the farmer is that pre-emergence risk affects the cost of inputs which may be 70% of the costs incurred.

[41] Whilst there has been a discussion around the need for a separate ombudsman for index insurance, we do not feel that this is appropriate as there are already limited skills in the market. Rather, the existing recourse mechanisms should be built up and marketed more effectively to the emerging consumer base.

b. While our experience in a number of countries tells us that it is unlikely to be effective, it would be desirable to have government extension officers informed about and more supportive of index initiatives than is currently the case. This should include providing financial incentives. The current lack of incentives may make this a long-term initiative, and the focus on private sector extension officers is more likely to be effective.

2. Building the supporting infrastructure, such as the World Bank risk mapping project, is a key priority.

3. Support the continued roll out of remote sensing / satellite technology together with ground-truthing to assess the accuracy and relevance of the data – recognising that this will have developmental benefits outside of just index insurance.

4. Review potential for private sector extension officers funded by insurers / private sector as part of the value chain. Certainly, understanding the need to invest in the value chain and support infrastructure can make all the difference. For example, Cemex in Mexico invested in architects to design simple plans to support its low cost housing finance initiative (CK Prahalad, 2004). In this case, it may make sense for insurers and the aggregators to support the model with private extension officers.

5. Support IRA on developing the regulatory framework around alternative distribution to allow for new distribution models and electronic signatures (including voice) rather than 'wet signatures.'

6. Review of consumer protection issues in relation to planned alternative dispute resolution framework. This would include assessing the current infrastructure in place at the IRA, the plans for arbitration and their ability to communicate and engage with the consumer.

8.2 EMBEDDED "INDEX MODELS"

We recommend that FSD investigates meso-level schemes, such as portfolio insurance and macro level schemes, as a way of building foundations for the market. The aim would be to ease the way for viable retail index initiatives.

a. Pilot a hybrid MPCI-Index product with large scale farmers.

MPCI is increasingly being rolled out in Kenya with a number of insurers focused on this area with no donor funding. However, as highlighted by the Climate Corporation example and Kenyan financiers, MPCI does not cover pre-emergence risk or adequately compensate for the loss of yield. Further work should be undertaken to develop hybrid MPCI-Index cover (where index is essentially providing 'gap cover' for MPCI) which provides the best of both worlds.

In terms of building a market, firstly, an index product would be targeted at sophisticated clients (essentially large scale farmers) who are better positioned to understand the risk and downside of index insurance. Secondly, the coverage would likely be over a larger area with multiple weather base stations, which means basis risk should have less of an impact. Thirdly, it should offer lower cost distribution as it leverages off an existing client base and therefore should be more profitable.[42] This should produce a crowding of insurers, thus leading to greater demand and investment in the supporting infrastructure. As highlighted in Figure 5: Stepping stones to build a market, this would help build the infrastructure that would allow retail schemes to be offered in future. It would also benefit the agricultural market in terms of productivity which has spin off benefits for the economy and job creation.

b. Pilot portfolio insurance for lenders with financiers.[43]

Some of the banks which lend to the agricultural market have significant portfolios at risk (PAR) due to weather. One major bank for example reported a 10% PAR while another claimed 32% on large lending portfolios. These could be insured at a (non-retail) meso level which would allow for scale.

- Index could be used to price a stop loss[44] related to weather (excess or rain / lack of rain). Satellite would of course be needed for scale, within spite of its challenges.
- Basis risk would be less of an issue as it is on the entire credit book and the bank is retaining some risk in any case.
- Stop loss would mean that the banks could loosen their credit risk policies, and potentially loosen their policies around write-offs.

  Counter: basis risk may make it difficult in terms of guiding which individual loan should be written off but this may not matter as it is a portfolio.
- With a more flexible, weather related approach to write-offs the bank's brand would benefit as farmers could see the bank as 'caring'.
- Accuracy of an index will be improved over time as rain gauges are rolled out in addition to satellite. NB: this also gives time to finalise the support to KMD regarding risk mapping etc.

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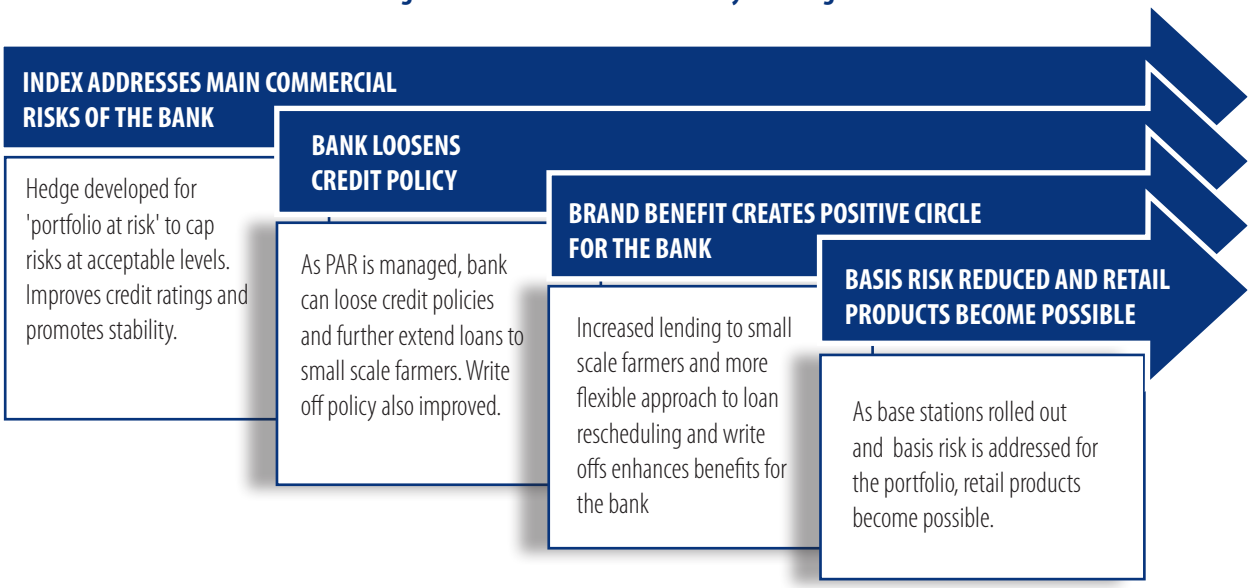
42 Agricultural insurance is inherently risky which is why MPCI is subsidized in many countries.

43 Whilst there is an argument that the risk may be priced into the credit, often banks find the uncertainty related to weather data unappealing, and transferring risk to an insurer provides more certainty and addresses some of the credit risk that rating companies tend to penalise. This is certainly more appropriate in the start-up stages, but there remains a strong argument for transferring risk to an insurer even for a mature portfolio where there is a desire to expand credit extension into environments perceived as riskier. However, what appears to be happening now is that the banks are uncertain of the insurance cover and are continuing to be risk averse in their lending. There is therefore a case for public funding to prove the business case for portfolio cover.

44 A stop loss is an insurance product aimed at capping the risk at a certain amount.

Figure 6: Portfolio insurance theory of change



- As index accuracy improves, and banks becomes more comfortable with index insurance, products could start to be sold as voluntary top up covers (e.g. beyond just the loan).

There is an argument for a subsidy of embedded insurance to support proof of concept and for demonstration effect. In particular, the role of a subsidy could be used to support the infrastructure around portfolio insurance to include access to data, building base stations and remote sensing capabilities (satellite).

Figure 6: Portfolio insurance theory of change, provides an overview of the theory of change related to the use of portfolio insurance. While it is recognized that it may take some considerable time, we believe the story line is compelling and will likely lead to a more scalable model than a sole focus on retail level pilots. We later found out that this is the approach which the IFC are starting to follow and is Swiss Re's preferred route as it provides them with scale. While there is some debate on whether retail models should be run in parallel, it may be advisable to run some retail pilots to refine the model.

8.3 INDEX BASED CROP INSURANCE (IBCI) 'RETAIL' LOOKING FORWARD

Should FSD wish to continue the retail-level pilots, it will need to address the issues listed below. However, we recommend that they give priority to the "embedded index models" above. We also recommend that FSD focuses on two of the strongest insurers to try and get a demonstration effect. Activities should include:

a. Introduction of satellite cover in conjunction with weather base stations through dry and live pilots supported by ground-truthing. Satellite has its own challenges but can play a role in early partial claims settlement. This is being undertaken in India with their modified NAIS which is a hybrid weather index – area yield index product (Mahul et al, 2012).

b. Enhancing the role of extension services to ensure an integrated value chain model, addressing the foundational issues as well. This will require costing in private sector extension officers, currently being supported by input vendors, as it is unlikely that government extension officers would be viable. It is probable that the aggregators and the insurers would be prepared to share the costs in the interests of improved business. Alternatively, the aggregators may be willing to finance them fully themselves. The use of subsidies for this integrated model is justifiable to prove the business case. There will be spin-off benefits including improved productivity, giving greater food security throughout the country. If it proves unprofitable for the stakeholders, the data from the pilot may well inform the potential for a public private partnership in the interests of improving productivity and food security.

c. Testing fall-back mechanisms to determine whether this can address some of the basis risk issues. While it is still experimental, investigating the potential for subsidised 'basis risk insurance' would be beneficial. This is being tried in Haiti by MiCRO.[45] Note that it is not a commercially viable model and unlikely to be in the near future.

d. Supporting greater use of mobile enabled sales models recognising that this may not necessarily take much cost out of the system.

[45] See http://www.microrisk.org/

e. Improving communication models to ensure farmers / pastoralists are fully informed in order to build trust and foster an on-going relationship. FSD could play an important role in identifying the most effective strategies for communication and work on ways to provide farmers with feedback mechanisms even after a sale. FSD might encourage insurers to offer first season "test" packages. This would allow farmers to try the insurance before having to part with large premiums.

f. Supporting KMD's capacity to oversee and provide technical input into claims arbitration and mediation and to allow proactive risk mapping (such as overlaying the weather data against infrastructure). This will require a sea-change in KMD's mandate, to a more strategic one in creating a market.

g. Financing of premiums and loan repayments. Farmers have a difficult time amassing lump sums for the payment of premiums and repayments of loans. In several groups we met, farmers requested ways to pre-pay premiums in small values or to repay loans in small payments before harvest. Enabling these alternative small scale payments might make IBCI more accessible to low income farmers, even those without bank loans for inputs

h. Consider introducing new more commercially oriented technical assistance providers of index insurance either as consultants or to run a scheme.

i. Finally, it is critical that business cases are built both for and with the insurance companies to assess viability and help them understand the investment required to make this work.

8.4 INDEX BASED LIVESTOCK INSURANCE (IBLI) 'RETAIL' LOOKING FORWARD

The IBLI Marsabit pilot remains a fascinating and exciting exercise and is providing significant insights into the purchasing behaviour of clients and their interests in insurance products. It also offers a glimpse of one of the few stand-alone voluntary microinsurance products where there is client uptake and demonstrated low price elasticity.

However, the aim of this review is to understand what it would take to drive these models to scale and sustainability. We conclude that, as a pure market based solution, it will be extremely difficult to sustain this initiative from the (unsubsidised) premiums alone - the test of a commercial initiative. IBLI requires a large loading for expenses on the pure risk premium. This would make the product unattractive for many livestock owners. Also, Marsabit is one of the poorest regions of the country and faces frequent droughts. It is therefore unlikely that an affordable product can be developed for farmers with loading of around 25% (see Annex 4) just for the outreach expenses. It is therefore highly probable that there will be a need for long-term subsidies to support this model. This should be factored into the future planning for IBLI in Marsabit.

We propose that the following options are considered:

- Refocus to more densely populated areas where costs of servicing are lower, allowing insurers and aggregators to get the model right and realize the potential business case before moving into higher cost/harder to service areas.
- Reorient Marsabit as a macro-scheme on the basis that it may be a false economy to try and recover costs from the clients. With the costs involved, it would be more efficient to provide blanket cover on a long-term basis. Otherwise the high outreach cost would mean a large loading on the premium, and pastoralists would expect a pay-out frequency and intensity to match the premium being paid, which is not what index insurance is set up to do. With a high loading on account of expenses, it would be difficult to match farmers' expectations. We have already witnessed a drastic reduction in the number of insured on account of no pay-outs being made in the first season. However, we recognise there were other challenges that contributed to reduced sales. Experience in India suggests that having more than a 15% loading of premium is not sustainable in the long run. A macro scheme would minimize the cost of outreach. It would also be easier for government to manage the level of subsidy if the premium is taken as a subscription to disaster relief coupons. This will require commitment from government or donors: the government could insure pastoralists in the area for weather risk. Should a catastrophe occur, relief would be funded through the insurance in the form of vouchers or funding relief activities themselves.

Certainly, in the authors' view, a subsidised model does not invalidate the initiative but the discourse needs to change. We therefore recommend that:

a. The need for long term subsidies should be recognised for IBLI Marsabit. This will require a revision of the business case, its approach to sustainability and relationship with the donors. Should the government / donors agree to a long subsidy, the following is recommended:

    - The subsidy continue to be focused on the development of the IT and infrastructure to support the products.
    - The premium subsidy should end as ILRI's own research identifies that this is not a major obstacle to buying the product. The premium anyway would have to jump dramatically if the full cost of distribution was factored in as this is currently carried to a large extent by the donor.
    - The focus on competition in Marsabit should be de-prioritised until there is some means of differentiating product and distribution channels.

b. Recognising that subsidies will be required, a macro level scheme should be investigated to cover the Marsabit district and other arid areas. This could be undertaken in parallel to the existing pilot. It could either replace or reorient it into a top-up model for a base cover provided by the macro scheme – for example allowing the pastoralists to double their cover for a small premium.

c. Should the funders require a focus on retail initiatives, either the current IBLI scheme can be redirected to a higher density, lower cost environment, or a second pilot initiative can be launched. This would allow an assessment of whether the positive results in Marsabit can be generalised to a lower-cost environment in which the required subsidy would be less.

It is advisable to separate the role of technical expert and project leader. The ILRI's role could change from project leaders to technical consultants and lead researchers. This would address some of the conflict of interests that can arise between commercial and academic interests.

8.5 POTENTIAL FOR MULTI-PERIL CROP INSURANCE (MPCI) AND AREA YIELD INDEX INSURANCE (AYII)

As shown in Figure 5, MPCI has taken off in Kenya to a certain extent following an early Swiss Re report, (to which we have been unable to get access). While it is positive to see private sector activity without donor support, it is not clear that this should be a priority for FSD for the following reasons:

a. MPCI, or indemnity insurance, is typically a costly exercise and therefore tends to be more easily offered to large scale farmers.

b. The loss ratios for MPCI tend to be high and have bankrupted many insurers in developed countries and in South Africa. There is still an argument for MPCI to be subsidised by governments, as happens in the US. It is being discussed in South Africa,[46] which has relatively high capacity and capability. We recognize that this is a contested area because of concerns that the benefits are often captured by wealthy farmers who can afford MPCI and may not relate to a developing country's priorities. As IFAD (2010) points out in their China case study:

"Although subsidies can help expand the market and encourage farmers to learn about and use the product, private subsidies are unsustainable in the long term, and they may make weather insurance at full cost less attractive to farmers in the future. However, it is equally questionable how long the Government can continue heavily subsidizing MPCI."

This statement is equally relevant to Kenya.

c. Should work on a fall-back system be required for index insurance, it will benefit the MPCI. A fall-back mechanism is essentially a form of a limited claims assessment system replicating what is required at MPCI. Therefore by focusing on index insurance, there will be indirect benefits for MPCI.

d. Focusing on the policy environment for Index insurance will also benefit MPCI.

e. The opportunity to test hybrid-MPCI products will also benefit MPCI over time, without adding much complexity. This is similar to the approach taken by the Climate Corporation.

f. Finally, the market is taking off without donor support. Intervention might cause distortion.

While it has not been considered in this report, Area Yield Insurance does offer some scope for investigation. Research has shown that it can provide higher benefits for farmers and financiers than weather based index insurance (E Makaudze et al, 2012). However, while it is well established in a number of countries such as India, Canada, Sweden and the United States, it is not that widespread in sub-Saharan Africa and also heavily subsidised (World Bank 2011, IFAD 2010, E Makaudze et al, 2012). Dissatisfaction with the model led Indian farmers to move to index insurance (IFAD 2010). An interesting new model from India is the hybrid area yield index, and weather index insurance (called modified National Agricultural Insurance Scheme – mNAIS). Weather index insurance allows for rapid partial claims settlement (Mahul et al, 2012). It is still in the early phase, but if the challenges of high cost crop cutting experiments and basis risk can be addressed, then there is some promise. However, it is still too early to say whether this model will work, and high subsidies are predicted.

The question for this paper is whether the benefit of these models outweighs the cost. It is not clear from the literature whether area yield insurance offers a realistic opportunity to extend cover to the low income market. In fact the research shows the opposite: it requires high subsidies to operate effectively. Should Kenyan agricultural policy change to allow subsidies, then model could be considered.

8.6 COMMUNICATION FRAMEWORKS FOR IBCI AND IBLI

Improving the communication of the pilots will be critical to ensuring success. We recommend that the focus on retail pilots is de-prioritised. However, should the focus on retail continue, we make the following recommendations:

a. Help the industry develop and test cost-effective consumer communications strategies that are in line with what we already know about how people learn. Some key areas to work on include:

[46] See for example the call from Munich Re and the South African Insurance Association for a public private partnership for MPCI in South Africa where loss ratios exceed 400% in extreme event years: http://www.cover.co.za/short-term-insurance/crop-insurance-in-south-africa-solutions-for-a-challenged-sector

i. Written materials: clear, catchy, concise 1-2 page written materials that capture and communicate key features and can be used by knowledgeable farmers to help explain the product to others.

ii. Social marketing: this is likely to be an important part of consumer education, given the importance of experiential learning with this product. Developing social marketing strategies for spreading correct information (IBCI insurers and banks are trying to market directly to the market; it is too expensive and not effective if the lead institution is not trusted completely).

iii. Enable client experiential learning to happen more quickly and less painfully: experiment with offering "entry level" or small sum insured products and instituting live feedback mechanisms that inform farmers how the index is performing and what pay-out (if any) to expect throughout the season.

iv. Enable better consumer monitoring: consumer understanding and trust can be enhanced by allowing customers to monitor rainfall and payouts due throughout the season. Periodic text messages could be sent showing rainfall levels in a particular area. Similarly, information about pay-out due from the maximum level at any given moment throughout the season, could help clients keep expectations in line with that of insurers and avoid disputes at the end of the growing season.

v. Ensure better timing of product introduction to promote improved outreach. Several new IBCI pilot products were either halted altogether or rushed due to the lack of time between product development and pricing, and optimal planting times for farmers. This means that farmers do not have enough time to consider their purchase decision and acquire suitable financing. Timing is critically important, and product design and pricing seems to be the major hurdle in ensuring timely introduction of the products to consumers. Often, as the product type expands across an increasing number of micro-environments and crop types, there ought to be a way to automate product design based on pre-specified and approved models. This would allow products to be market-ready sooner and more cost-efficiently which would leave farmers more time to access and understand the product.

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Annex 1

INTERVIEWS

Name	Organisation	Category
1. Simon Maitha	AFC	Bank
2. John Gangla	Aon	Broker
3. Carol Wangeci	APA	Insurer
4. Erastus Ochieng	APA	Insurer
5. John Corbett	AWhere	Data management
6. Fredrick Kinoti	CIC	Insurer
7. Michael Waigwa	CIC	Insurer
8. Ben Kajwang	College of Insurance	Education
9. Florence Kariuki	Equity Bank	Bank
10. Joe Gatume	Equity Insurance Agency	Insurance Agent
11. Karen Tibbo	Ex OPM Kenya	NGO
12. David Ferrand	FSD	Donor
13. Michael Mbaka	FSD	Donor
14. Alex Bernhardt	Guy Carpenter MicroRisk	Reinsurance broker
15. Peter Maina	IFC	Donor
16. Shadreck Mapfumo	IFC (ex UN World Food Programme, MicroEnsure)	Donor
17. Andrew Mude	ILRI	Donor
18. Brenda Wandera	ILRI	Donor
19. Robert Kuloba	Insurance Regulatory Authority	Regulator
20. Dr Roulex	Jubilee	Insurer
21. Francis Ngari	Jubilee	Insurer
22. Samuel Waweru	Kenya Meteorology Department	Government
23. Urich Hess	MicroEnsure (ex World Bank)	Intermediary
24. Craig Churchill	Microinsurance Innovation Facility	Donor
25. Junior Ngulube and team	Munich Re of Africa	Reinsurer
26. Sabrina Regent +1	Planet Guarantee	NGO
27. CD Glin	Rockefeller Foundation	Donor
28. John Melville	Santam	Re/insurer
29. Schalk Schultz	Santam	Re/Insurer
30. Christina Ulardic	Swiss Re	Reinsurer
31. Isaac Magina	UAP	Insurer
32. Daniel Clarke	University of Oxford	Academic
33. Andrea Stoppa	World Bank / consultant	Donor
34. Erin Brin	World Bank / consultant	Donor

Annex 2

SUMMARY OF THE OUTCOMES OF EACH INDEX PROGRAM

Area	Crop	Season	Acres covered	Farmers covered	Sum insured	Premium received	Claims paid	Positives	Issues	FGD response
Meru ▪ Ntima Input cover ▪ Ntima Income cover ▪ Ruiru input cover ▪ Ruiru income cover	Coffee	Mar-11	112	99	2,200,000	287,802	221,226	Credit linked - scaling is possible.	Spatial basis risk although this has improved with the second base station, high rainfall variability.	Basis risk difference resulted in little payout in one of the locations where crop loss occurred. Farmers were expecting payout based on local manual rain gauge. Capacity building helped in generating sales and confidence. Need basis risk resolution to generate business. Small ticket product should fly initially with gradual increase in sum insured on confidence building.[47]
Meru ▪ Same as above with different monitoring station for each (Ruiru and Ntima which is higher and low side)	Coffee	Mar-12								
Embu ▪ Kyeni income cover ▪ Kyeni input cover	Maize	Mar-10	499	505	4,987,500	872,813		Credit linked - scaling is possible. Multiple credit sources improved the outreach. Small farmer participation. Most broad-based crop pilot in Kenya	Losses on account of non-weather factors. Delay in sowing not accounted in the product. Premium is high. Credit institution not positive since loan defaults in spite of insurance	Most not clear about insurance product. Bought insurance mainly because of input loan. One location faced design basis risk and farmers not sure about insurance because of that. Farmers lost crop due to late planting (due to late loan disbursement) and feel the insurance/bank should take the blame for the losses. Many couldn't pay loan.
Embu Same as above	Maize	Oct-10							Insurance not offered	
Embu Same as above	Maize	Mar-11							Insurance not offered due to last season's default	
Embu Kyeni input cover only with agronomic support	Maize	Mar-12	50	30	267,697	40,000			Still credit conditions from previous period forced changes. One financier discontinued. This was deliberately small pilot done with Jubilee and SACCO. Expansion expected next season. reduced uptake	

[47] A new station has been installed in the lower region to minimize the basis risk, and a new product was designed based on the new automated weather station.

Annex 2

SUMMARY OF THE OUTCOMES OF EACH INDEX PROGRAM (CONTD)

Area	Crop	Season	Acres covered	Farmers covered	Sum insured	Premium received	Claims paid	Positives	Issues	FGD response
Narok ▪ Nkareta input cover ▪ Nkareta income cover	Wheat	Feb-11	836	8	20,064,000	2,898,664	6,000,000	Insurer came forward to retain goodwill for institution as well as product	Ex-gratia pay-out were made since claims as per index were low and losses were high on account of basis risk.	
Machakos ▪ Muthetheni input cover	Maize	Oct-09							Found burning cost for October too high and not suitable for insurance.	
Machakos ▪ Muthetheni input cover ▪ Wamunyu input cover	Maize	Mar-10	70	19	695,000	102,255	138,880			
Kibwezi ▪ Kambu input cover ▪ Kambu income cover	Sorghum	Mar-11	17	15	180,000	15,623	200,000	Premium financing plays important role in increasing enrolment.	Insurance companies not returning after successful pilots. Learning not translated in product changes.	Challenges with logistics company buyer impacted pilot. Farmers feel like not a great investment, because they weren't able to sell all their harvest at the end of the season. Highlights challenges of value chain approach. Product concept not explained properly. Had limited expectations from the product. Fear of being conned. Clear pointers towards small ticket product since those who bought, did it because it was a cheap gamble.
Kibwezi Same	Sorghum	Nov-12								

Area	Crop	Season	Acres covered	Farmers covered	Sum insured	Premium received	Claims paid	Positives	Issues	FGD response
Marsabit ▪ Laisamis mortality cover(NDVI) ▪ Chalbi mortality cover (NDVI)	Livestock	Mar-10		1,967	104,884,500	3,925,775		Broad-based pilot with significant participation. Proved that if offered at low rates, farmers can buy insurance even without credit	Pastoralists did not understand the product, many assumed it to be a death cover. Incentive based sales structure led to misinformation to increase sales. Data used was for 8x8 km grid. Basis risk issues on account of coarse resolution. High cost area to reach.	Subsidy played crucial role in generating numbers. Product sustainability questionable after withdrawal of donor subsidies. Product explanations need to be thorough because of product complexities
Marsabit Same	Livestock	Oct-10								
Marsabit Same	Livestock	Mar-11		680	19,830,177	1,518,143	1,900,000	Reasonable business in spite of no pay-out in first season	Sustainability question if multiple zero pay-outs. Perhaps more frequent but less paying product can fly of initially.	
Nakuru ▪ Menengai input cover ▪ Menengai income cover	Maize	Mar-10	289	10	4,471,750	805,204			Pilot not significant to draw conclusions. Program abandoned after first pilot	
Nakuru ▪ Njoro input cover										
▪ Njoro income cover	Wheat	Apr-11								
Murang'a ▪ Sabasaba input cover ▪ Sabasaba income cover	Maize	Oct-10	40	45	800,000	60,000		Premium financing plays important role in increasing enrolment.	Institutional issues in Equity bank resulted in lower uptake. Not clear why Murang'a program was not taken up again.	
Murang'a ▪ Sabasaba production risk cover (2 consecutive seasons loss cover ▪ Sabasaba income loss cover (1 season loss)	Banana	Oct-10	6	20	631,900	61,311				

Annex 3

INDEX BASED LIVESTOCK INITIATIVE: SUMMARY OF ACTIVITIES

ILRI began to develop its index-based livestock insurance (IBLI) project in 2008/9 with product and research development processes. By January 2010, a baseline survey had been conducted and the pilot product was introduced to Marsabit District. ILRI has surveyed 900 household annually over three years in order to collect data on impact, changes in livelihood strategies, and demand response to price variation (introduced via premium discount coupons).

Product

The product introduced to the market is sold for one year duration, but is meant to be available for purchase in two "windows" during the year. These times are during the dry season when it is not possible for farmers or insurers to predict upcoming rainfall. The product works by linking NDVI data on pasture availability across the division to predicted livestock mortality. It begins to offer a graduated pay-out for predicted livestock losses above 15%.

Cows, goats, sheep, and camels can all be insured under this product. For the purposes of pricing and payuts, one cow is equal to one Tropical Livestock Unit (TLU). A camel is considered 1.4 TLU and a goat or sheep 0.1. There is one premium price per TLU in Upper Marsabit (where risk is higher) and one for lower Marsabit.

All of the premiums are subsidized 40% on the backend and farmers are not told about this subsidy. At the subsidized rate, the premium for 1 TLU in Upper Marsabit is KSh 825 and in Lower Marsabit, 1 TLU is KSh 488. So, if a person insures 20 goats in Lower Marsabit, he or she pays KSh 976.

The maximum payout for an insured TLU is KSh 15,000. The insurance starts paying out at a strike level of predicted mortality of 15%, but reaches the maximum only in catastrophic cases.

Partners

At the initial market entry stage, ILRI had engaged UAP under an exclusivity agreement to offer the indexed product in the region. UAP was insistent on the exclusivity agreement, because of fears of non-profit entities running away with intellectual property before they are able to maximize their investment. UAP worked with Equity as an aggregator to sell policies on their behalf and distribute pay-outs in the event of a trigger event.

ILRI also worked to build a network of field support by training "master trainers" and "village insurance promoters" (VIPs) to tell farmers about the insurers and direct them to agents who would make the sales. In the initial stages, Equity agents distributing funds for the Hunger Food Safety Net Programme doubled up as agents for the insurance, collecting premiums and submitting sales to Equity.

By 2012, ILRI seemed a bit frustrated by UAP's reticence to continue with the next sales window due to concerns about very high operational costs, and ILRI invited new insurers to Marsabit to compete for pastoralist clients using the same product and promotion channels. Among the insurers who considered joining, only APA has agreed and they are the only insurer offering the product in the August/September 2012 sales window.

Experience

February 2010

- This was the first sales window in Marsabit. There was heavy mobilization and a lot of interest from pastoralists. 1979 policies were sold. Both VIPs and agents were paid on commission only. There was a mismatch of pastoralists understanding that the weather conditions were not severe, and there was no pay-out. VIPs did not stress the fact that the insurance cover was for drought related mortality. They had instead communicated the fact that the cover was for lack of forage. These VIPs also either failed to emphasize the fact that the insurance contract had a trigger level of 15% or the pastoralists failed to understand that the insurance will only compensate for losses that are above 15% predicted mortality.

August/September 2010

- There were no sales during this window, due to high delivery cost in the previous window, however those who purchased in February remained covered.

January/February 2011

- During this window, several adjustments were made to address previous challenges. The incentive structure for VIPs was altered, allowing for a flat daily rate (paid by ILRI through Equity), plus a sales commission. UAP also introduced "scanner" cell phones allowing more agents to make sales from its Kilimo Salama platform at a much lower capital cost than POS devices. ILRI introduced a new training manual for VIPs and complemented that with increased investment in educating farmers about the product via radio, games to be played with VIPs, and a cartoon series for the VIP to use in helping explain the product.
- However, farmers who had purchased before had to purchase again without knowing the outcome of the previous year. There was some confusion and uncertainty about the product performance, and sales figures were lower, about 516 according to a May 2011 report.
- ILRI had to do a lot of farmer visits to explain why there was no pay-out in the previous period.
- There was a severe drought, triggering a pay-out for those who purchased during this window. The pay-out was not 100%. Distributions were done at the Equity branch and through manual cash pay-outs made by visiting each community.

August/September 2011

- Sales were repeated along the lines of January/February 2011.

February 2012

- UAP and Equity did not make any sales in this period, expressing concerns about costs and the need to review commercial viability.

August/September 2012

- ILRI invited several insurers to join the initiative and sell the same product. Only APA followed up.
- APA is currently undertaking its first sales window. They have decided to pay the VIPs only on commission (like the first, problematic sales window), and at a fairly low rate. They have hired a local representative to coordinate their activities. They will be doing sales on a new open source mobile platform developed by ILRI. At the time of writing, it was not clear if they would use the same sales agents cultivated by UAP and Equity, but they were planning to use the same VIPs and had trained them as of August 2012,

Annex 4

ANALYSIS OF THE COST ECONOMICS FOR IBLI PROMOTERS

Cost economics for insurer without ILRI support

Cost economics	KSh Cost / Day or / Station	Units (days / person / stations)	Total cost (in KSh)	Assumptions
Marketing coordinator	1,000	80	80,000	Assuming one in each region of lower upper Marsabit
Underwriter	1,500	15	22,500	Assuming one underwriter is required for 15 days
Data cost	50,000	10	500,000	Assuming two stations in each division.Even if satellite data is used, cost of data processing through external agencies would be around USD 5,000
Training cost and master agent Kit	3,000	10	30,000	Assuming training only to Master Agents at company head office
Total cost			**632,500**	
Premium for 1 TLU			813	
Number of TLUs for break-even				
Administrative cost share of premiums			122	
Variable cost of cover notes or M-PESA			15	
Premium share available to cover fixed cost			107	
Number of units to be sold to cover cost			5,910	

Cost economics for VIP at his break-even level

Cost economics	KSh Cost / Day or / Station	Units (days / person / stations)	Total cost (in KSh)	Assumptions
Travel cost	200	40	8000	Estimates
Imputed wages	300	40	12000	Estimated monthly income of around KSh 9,000 to KSh 10,000 assuming VIPs will have to devote full time to the sale
Other incidental costs	50	40	2000	Assuming there would be some cost on phone calls etc
Total cost			**22,000**	
Premium for 1 TLU			813	

Cost economics	KSh Cost / Day or / Station	Units (days / person / stations)	Total cost (in KSh)	Assumptions
Break-even model (at projected sales)				
Projected TLU/VIP			368	
Break-even amount required per TLU			60	
B-E amount as percentage of premium			7%	
Commission for master agent			3%	This rate should taper down with increase in sales
Overall marketing commission			10%	
Break even model (at last season's average)				
Projected TLU/VIP			130	
Break-even amount required per TLU			169	
B-E amount as percentage of premium			21%	
Commission for master agent			3%	
Overall marketing commission			24%	

In the analysis above, we are assuming that we would have a 40-day sale window of the product and hence would require coordinator's time for 40 days. We would need around 16 VIPs to generate 5900 TLUs (the average herder possesses TLU in the range of 12 to 20) which assumes VIPs would be able to generate projected sales of around 368 TLUs per VIP.

Conclusions:

1. Though some figures are crude estimates, we can still conclude that sales have to quadruple to cover the costs of insurance company if the programme is to be profitable.

2. Without subsidy or donor funding, it would be difficult to cover the cost for insurance company and the programme is not likely to be viable.

3. If station infrastructure/monitoring and data processing costs are funded by donors or government on a long-term basis, the project could be made viable for the insurance company at current sales levels.

4. At current sales levels,[48] VIPs will have to be paid 21% commission to incentivize them to sell. This would drive up loading costs, which would either require greater subsidy or increased prices to consumers and could subsequently reduce sales. With removal of subsidy, sustaining current sales level is the more likely business scenario. Increasing sales from the current level while nearly doubling the premium paid by the customer would be unlikely.

5. For master agents, commissions should actually be capped or taper down with increased sales, because every incremental sale is increasing the master agent's profit without commensurate increase in his costs.

6. If existing premiums do not include 15% for marketing commission at projected sales level, the final premium might have to be increased which might negatively impact the sales, despite the relatively low price-elasticity.

[48] It is unlikely that the sales volume could increase based on skills required and the potential market. Average herder possesses TLU in the range of 12 to 20.

Annex 5

ANNEX 5: DEMAND SIDE PERSPECTIVES

In May and August, we visited several of the pilot sites for index-based crop and livestock insurance to take stock of the experiences primarily of buyers and non-buyers, but also of the on-the-ground service providers in each area. In total, we spoke with 68 insurance buyers and 29 non-buyers of insurance across a range of product offerings and pay-out experiences. Our conversations highlight the value that producers place on this type of insurance despite imperfections in their experience with product delivery.

We see that farmers like the concept of IBCI, and in some areas it has successfully catalysed investment in agricultural productivity in ways that were not previously possible. But farmer understanding is incomplete and seems to be improved mostly through negative experiences with insurers that call into question their integrity and "governance" in farmers' minds. The complexity of delivery models leaves farmers uncertain about how to fix problems and feeling powerless to seek recourse when the product does not work the way producers anticipate. The challenges of going to scale are significant, despite the attractiveness of the product generally.

Reflecting on the findings from our wide range of focus group discussions and individual interviews, we highlight six key findings:

1. Index based agriculture insurance, particularly as part of a value chain approach is attractive to producers – enabling improved inputs, better production practices, and, in some cases, marketing.

2. Even among non-buyers, cost does not appear to be the most important barrier to uptake but perceptions of IBCI's value are skewed by the fact that for many farmers the insurance is a "take it or leave it" offering necessary in order to access credit for improved inputs that can have a dramatic impact on yields and income.

3. Index-based insurance requires a high degree of coordination and alignment of incentives of all parties to maximise the benefits from the value chain approach. However this alignment has not been achieved and can inhibit uptake and jeopardize consumer trust and the brand of the aggregator.

4. Farmer understanding has been a major challenge in every area and adds substantial costs to delivery – payment of claims remains the most effective form of marketing. Coordinated testing of the most efficient means of client education could be a large value-add for all players.

5. Consumers have had little effective access to information before, during and after the sale due to the complexity of delivery partnerships and use of agents who are not effectively trained or supported.[49]

6. Basis risk can jeopardize farmers' trust in index insurance in the early years, but it appears that farmers are open to an acceptable level of risk – but this requires that they understand the terms of the product in advance.

7. Take up is hampered not just by the complexity in product design and access to data, but also by the complex value chain (exacerbated by insurers not imposing sufficient quality control), costs of servicing (premium collection and claim payments), and lack of effective intermediary models to address large sparsely populated geographies, like Marsabit.

8. Trust in the insurers and aggregators continues to be a concern.

Product attractiveness

Index based agriculture insurance is attractive to producers, particularly when encompassed in a value chain approach that enables improved production and, in some cases, marketing. Cost does not appear to be as much of a barrier to uptake as insurers, financiers, and donors have assumed.

All the farmers we met during this review expressed a high demand for IBCI, particularly when coupled with input loans. Small-scale maize farmers have difficulty accessing credit for quality inputs and fear borrowing funds for inputs when returns are so vulnerable. Maize farmers we met in Machakos and Embu had never previously borrowed money for inputs. If they used fertilizer at all, they sold livestock to do so. They often used seeds from the previous season or borrowed from friends and neighbours. They never really expected large yields.

For them, insurance made a loan for inputs a possibility. The banks and SACCOs were more willing to lend and more willing to accept the risk of repayment. As seen in the best case scenario below, this could mean dramatic changes in yields. Even those who have not purchased the insurance mostly think that it is a good investment and attractive product.

Coffee and wheat farmers are accustomed to borrowing funds for annual production, and they recognize that those loans come with substantial risk. They have experienced losses before and struggled to repay the loans. Insurance covering those inputs is quite attractive. And, most recognize weather is the biggest, but not only risk to their yields.

Overall, the idea of having agricultural investment protected from poor rainfall is very attractive to farmers.

> *"If the rains are good, you harvest. If the rains are bad, they pay. It was 100%. If you have insurance, you can't lose." Meru coffee farmer*

> *"You can invest in coffee knowing your investment is covered."*

[49] This is the farmer perception, even if training is offered, and it is possible for them to reach out to insurers/aggregators. They lack the confidence/capability or feel something is missing in accessibility, particularly when there is no physical office nearby.

Nearly all the farmers who purchased insurance before want to buy it again, although many think the product and the delivery ought to be improved first.

By and large, most farmers considered the premiums to be "fair." However one group pointed out that it's their first experience and if they found another provider at a reduced cost, they would, of course, go for that instead. The Embu farmers, who did not receive a payout after experiencing a loss, felt the premium was unfair only because, "after paying, they do not help you."

Insurers, curiously, feel that the premiums are too high to be attractive to farmers on a large scale. The technical consultants also seemed to feel that uptake in the IBCI pilots was limited by the high premiums, pointing to higher uptake among competing index insurance programs in Kenya offering 50% premium subsidies.[50] However, farmers told us that they were unable to purchase more often because they were not deemed credit worthy (Meru), that the window available for purchases was too narrow and impromptu that farmers couldn't get the cash or paperwork together (Marsabit, Meru, Embu, Machakos), or that they wanted to let their peers experiment in the first season before they put any cash on the line (Marsabit, Narok).

> *"Us pastoralists are slow at everything."* A Marsabit pastoralist explains why he thinks many households missed the sales window and ended up without insurance.

Instead, farmers in our focus groups felt the premiums were largely fair and that the insurance was a good deal. This sentiment was echoed among pastoralists, though they were also receiving a premium subsidy (unbeknownst to them). However, we found some willingness to pay more for the same product, and ILRI implied that their own survey research looking at willingness to pay across a sample of customers offered discount coupons indicated a price elasticity lower than they expected and less than one. This implies that increases in price would increase revenue even if some choose to no longer purchase insurance.

That does not mean that farmers purchase enough insurance to cover all of their planted acreage or number of animals. They might see that as too big of a risk, but feel that partial coverage is better than none. Farmers insuring their loan repayments are usually locked in to cover the value of their loan and corresponding acreage. But pastoralists and coffee farmers have had more options. One person from the Meru coffee-producing area in fact bought more coverage than trees owned, making what he thought was a good bet on there being a pay-out. Most pastoralists in Marsabit insured only part of their herds, on average, 43% of their herds, with a range from 6%-100%.

Looking across all of our focus group participants, even in areas with negative experiences, the overwhelming majority would like to purchase the insurance again and nearly all would purchase the insurance if critical improvements are made, particularly in the way the insurers communicate product features. In areas where the insurance was not sold in 2012 due to provider delays or other challenges, farmers were disappointed. Previous and new buyers would like to buy the insurance again.

When insurance works the way farmers expect, it is a strong, stable and helpful force amidst precarious livelihoods:

> *"Insurance is like a camel: it carries water long distances."* Embu

> *"Insurance is like an elephant. It is strong, and it helps you to be strong."* Embu

Even if it is imperfect today, farmers are not blind to the potential:

> *"Insurance is like a cat. A cat is a very good pet. It kills a snake in the house and protects your property. But it also drinks the little milk you have in the house."* Marsabit

> *"We want insurance to be like the big, mature, male lion whose roar you can hear from 8-10 kilometres away. Right now, the insurance is a lioness. She is still powerful, but not quite as strong and bold."* Marsabit

Partnership co-ordination

Index-based insurance in the context of a value chain approach appears promising in terms of its possible impact on poor farmers, but it requires a high degree of coordination and alignment of incentives of all parties, and that alignment has not been achieved. Failures in coordination inhibit uptake and jeopardize consumer trust in whatever party is most client-facing.

A major barrier to uptake appears to be trust. Many farmers in our focus groups recalled hearing about or having personal negative experiences with insurers in the past, most often with unsettled motor vehicle accident claims. There seems to be little brand differentiation, but rather a negative impression of insurance more generally. Those who took up insurance in most areas did so because it was introduced through a trusted intermediary, either a farmer's cooperative, trusted financial institution (bank), or because of donor presence.

In Meru, the farmers we met who did not purchase insurance were those who wanted to, but could not meet financing requirements on time to be eligible for purchases of insurance with credit. In Narok, however, the non-buyers were reticent. They wanted to wait and see how it played out before they could fully trust the product.

[50] Bryla, Erin and Andrea Stoppa (2012). ARMT Work on Index Based Weather Risk Management in Kenya. Internal Report.

Finding the trusted entry point and ensuring a positive first experience will be critical for transforming latent demand into actual insurance purchases well into the future.

Pastoralists in Marsabit had a somewhat different experience. Trust was not a major barrier to initial uptake in the first sales window. Sales were driven by commission-paid VIPs (who in some cases misinformed customers to boost sales) who were mostly known in the communities, and sales were quite high, despite many farmers not knowing who was taking their money and who was responsible for making the pay-out in the event of drought. However, when there was no pay-out the first year, trust was lost. Farmers were not clear on the strike level and could not verify the decision of the insurer not to make a pay-out. Instead, many buyers began to view the product as a scheme and sales dropped dramatically in the next sales window. After two subsequent pay-outs, that trust is starting to return, but pastoralists are now asking that the insurer have an accessible office where they might ask questions and lodge complaints.

Trust is clearly necessary both for uptake and continued purchases. Providing clear communications before and after the sale as well as offering clear paths for consumer recourse seem to be essential to maintain trust.

Consumer understanding

Ensuring that farmers understand the product adequately has been a major challenge in every area and adds substantial costs to delivery. Experience appears to be the best teacher though, and many have done a good job in capitalizing on pay-outs as educational moments. This is one area where coordinated testing of the most efficient means of client education could be a large value-add for all players.

When it comes to really understanding how the product works, we observe mixed experiences. Many farmers seem to have really only understood the product after a partly negative experience using it. They expressed the need for more product training and information prior to purchase and gave very specific examples of what was unclear at the time of purchase.

Farmers in Narok, for example, suggested that training should cover how the rainfall is measured and where, what dekads are, the amount of rainfall required in each period from start to finish, when the insurance actually begins, the full radius of farms covered from the rainfall station,[51] how insurance works, and the conditions you accept by signing. They asked for both a training session and a written booklet explaining the product so that literate farmers can explain to others and that even those who do not go to meetings can be informed. These savvy, large-scale farmers would like to have the contract beforehand to have literate friends, or even a lawyer in one case, review before they accept the terms.

Disappointed maize farmers in Embu recall that there was so much enthusiasm around the product in the first introduction that no one took the time to read the product contracts. Farmers recall even filling out paperwork on behalf of farmers that could not make the registration meeting so they would not "miss out." Other farmers admitted to registering even though they were aware that the rain gauge used for pay-outs was not necessarily accurate for their farms. They also did not want to miss out on having coverage, but this became an important cause of disputes when it came time for pay-outs.

Time frames for product registration have been very short, due to last minute submission of contracts to reinsurer and delayed approvals and pricing in turn, resulting in getting products to market only within a couple of weeks before optimal planting times. Farmers in Meru asked that the product training session be held separately from registration. They asked for a first in-person training session explaining the product, then a follow up after they have some time to think and formulate questions. They want this opportunity to ask questions before registering for the product.

The biggest sources of confusion around the product seemed to be:

- The initiation/start date of coverage;
- Monitoring of rainfall data and the accuracy and relevance of those readings for covered farms;
- Whether the product covered only rainfall versus other forms of risk to farms;
- How pay-outs were to be paid in terms of going directly to a financier versus to a farmer; and,
- Whether the level of pay-out was fair for the covered period.

Some of this can be covered in upfront training, but it seems only to really sink in after an experience with the product. Those who have not had any claim and so far have good harvests, like in Embu this year, seem to have even lower understanding of the product, thinking they are also covered for things like pest damage. An assistant chief in Machakos who was even responsible for mobilizing farmers to purchase insurance in his area does not understand that the insurance will not cover losses due to pests or birds attacking crops. By not receiving a claim or not receiving as much as expected, farmers have learned critical product details like dekads for rainfall measure and why they may not receive the maximum pay-out in a bad rainfall year.

But, this farmer education, especially when targeting those with no previous experience with loans or insurance can be time and cost intensive. Yet, it is

[51] The pilot contracts require the farmer to agree that his or her farm is covered by the designated weather station; however, given that coverage is not universal, if you want some type of protection, you are likely to agree that your farm is covered even if it experiences different weather patterns. This allows you to get some coverage, even if imperfect.AD 2010

critical for uptake and client satisfaction. All providers need new ideas on how to simplify product messaging and ensure understanding. Improved feedback to customers about rainfall and pay-out levels throughout the growing season could help aid experiential learning before farmers feel short-changed when it comes time for pay-outs.

Product education in Marsabit started off very poorly, with lots of miscommunications in the first sales window. However, with large donor investment in consumer education in subsequent periods, consumer understanding is now much higher. ILRI has developed a wide range of educational mechanisms including community barazas, radio programs, videos brought to different communities, a cartoon reference guide for community educators (paid KSh 500 per day by donors for their services in previous windows), and a new index monitoring system that will be rolled out this season to give clients feedback on how the index is performing via SMS and potentially posters in the communities. ILRI has also developed a consumer education module on index insurance that they will be introducing to CARE's savings groups. ILRI feels that the education is a one-time investment, but there are significant upfront and on-going costs, particularly due to the remoteness and high costs of operation in these areas. The attention should be communications strategies that are most effective in disseminating enough correct information to allow pastoralists to make informed decisions about their purchases.[52]

Some experimentation on cost effective, high impact upfront communications strategies could add a lot of value to all the insurers who are grappling with the same problems. However, we know that two very important contributors to consumer understanding are 1) experiential learning and 2) along with that, the ability to monitor the index to know how the product is performing against expectations and seek answers to questions early on to avoid surprises at the end of the season. With this in mind, insurers might consider the following options:

1. Offer a low risk "trial" package for first time buyers to give them a very low risk entry point to try the product for the first time and see how it performs.

2. Implement SMS based index updates to inform buyers of index performance including both how close they are to a pay-out and what the pay-out level is at any given moment in the season.

3. Make themselves more accessible for consumer question and recourse, if not through expensive on the ground presence, through a call centre or hotline.

Consumer recourse

Consumers have had little effective access to providers to ask questions and seek recourse due to the complexity of delivery partnerships and use of agents who may not always have direct access to insurers.

In five of the seven areas we visited there was some kind of disagreement between farmers and insurers on the way the product should have worked in practice:

- In Meru, coffee farmers thought their level of compensation should have been higher than it actually was. This disagreement was driven largely by disputes about the accuracy of the rain gauge for rainfall occurring in the covered area. They felt like they did not have an adequate chance to ask questions and better understand the pay-out level, despite having phone numbers (at the cooperative) for bank contacts and living nearby an office of the insurer, APA.

- In Embu, the bank released loans late, so inputs were delivered late, and farmers planted late. The insurance product did not indicate a pay-out due to adequate rainfall, but the farmers experienced a loss. They say, "Insurance brought seeds late," and claim to not understand why they need to repay outstanding bank loans rather than insurance kicking in.[53] They understand more now, but are no less disgruntled.

- In Narok, there was a failure of product design that did not pick the losses experienced by farmers in the covered area. APA made an ex-gratia payment of KSh10,000 per acre, but some farmers in this area felt the amount was inadequate and resent that it was set via an opaque decision making process.[54] We recognise that in other areas this act of goodwill was seen positively, but clearly there were concerns from farmers about how the decision was made.

- In Kibwezi, farmers had no problems with the insurance product itself, but lots of controversies with the buyer of their sorghum cash crop. The buyer has "disappeared" with them still holding many bags of sorghum for which they have no alternative market. Inputs and insurance are wasted if there is no buyer, "It's like slaughtering a cow and leaving it to the birds." This scenario highlights the importance of getting the value chain approach. The reputation of "insurance" was tainted by a breakdown in a different, non-financial component of the value chain.

[52] While ILRI does ask how farmers recall learning about the product, there is not any systematic process in place to measure which communications strategies are most effective. ILRI seemed to feel they should attempt to communicate in as many ways as necessary to ensure understanding, so that they would really be able to measure their key variables of interest around the impact of insurance on livelihoods. Their central concern is not maximizing operational success, but rather testing the impact of the insurance itself so that they might prove whether or not it's a valuable tool for reducing risks facing vulnerable communities.

[53] Though some of this may have been posturing in hope of getting debt forgiveness.

[54] This sentiment was expressed despite a meeting between the farmers and APA in which the payment terms were discussed. They may have felt the payment really couldn't be negotiated or just be upset that nothing worked out as they expected.

- In Marsabit, farmers were expecting a pay-out in the first sales window, but they did not receive one, because the index was not triggered, and, in fact, on the ground losses were small. Many did not understand why there was no pay-out, and they did not know who was responsible (even the name of the insurer) or where to find them to ask about the lack of pay-out. Along similar lines, many VIPs and sales agents have not received any commissions from the insurers and do not know where to follow up. When clients come to them with questions, they do not have direct access to insurers to confirm and disseminate correct responses.

These disputes and misunderstandings highlight the complexity of making these micro-level products work smoothly with solid coordination across partners. A failure of product design, financing, input delivery, or marketing can leave farmers very frustrated. Insurance appears to work best in coordination with these other components, but that also means there are many opportunities for something to go wrong. When it does, whatever agency is new or on the front end can be blamed. In both Kibwezi and Embu, "insurance" is blamed for problems caused by partners rather than the product itself.

Further, farmers seem very unclear on how to resolve problems encountered with these packages of services. In all of these cases, farmers whether independent or in groups have unanswered questions and are unsure where or how to seek answers. The organized coffee farmers of Meru felt their pay-out was too low. Some claimed to not understand what happened to their pay-outs that apparently went towards settling old debts owned by farmers to the premiums financing SACCO.[56] They felt they had no opportunity to inquire about these things, only seeing the "insurance people" at a very public pay-out ceremony:

> *"We didn't want to give a negative impression about our people here. . . We are still waiting for them to come back so we can ask questions."*

And if each specific product and "package" is tailored to a micro-environment, you can imagine the possibilities for extensive coordination failures that could jeopardize the reputation of insurers and destroy the nascent market for crop insurance.

The lack of recourse left many insurance buyers feeling vulnerable and powerless in the face of insurers, who they often viewed with suspicion and, to some extent, cautious fear:

> *"Insurance is like a rhino: when the rhino goes through the forest, it clears everything in its path. You come back and see you're left with dust."* Meru

> *"Insurance people are very cunning. When there's a claim, they disappear. They leave you with things you do not understand."* Embu

> *"We were at the mercy of the insurer."* Narok

> *"Insurance is like lightening. It strikes and then leaves you."* Kibwezi

> *"Insurance is like a crocodile, because we lost in 2010. The insurance company ate our money, and we just have to keep quiet. There's nothing we can do."* Marsabit

Basis risk

Basis risk can jeopardize farmers' trust in the insurer in early years, but it appears that farmers are open to an acceptable level of risk. Improvements in coverage via satellite and experimentation with on-the-ground cross checks could boost that confidence and drive adoption.

Basis risk emerged in many of our focus group discussions. Farmers disagreed about whether the rain gauge or satellite reading really represented their experience. This tended to happen mostly in the first season, and disputes were minimal if there was a pay-out, even if small. One exception is Meru, where farmers felt their pay-out was unjustly small due to misunderstanding of which gauge was being used as the basis of claims. [This could have been offset by regular reporting on how the index was performing.]

In Marsabit, there is arguably a lot of basis risk, since the NDVI covers such a broad geography. However, the reality is that farmers take their animals long distances seeking pasture and breaking the index into smaller geographical boundaries will not represent the actual grazing patterns of farmers.

What appears to have happened in the weather station areas is that some farmers signed up for insurance and attested to being covered by the gauge, even though they knew their farms experienced somewhat different rainfall conditions. They did this because they would otherwise not be covered at all and they found the product very attractive. With smaller areas and broader coverage, these risks should reduce.

What was more problematic for farmers was not that their experience of rainfall was dramatically different from the rainfall/satellite reading, but rather there was some other failure in planting that caused losses (Embu), there is some misunderstanding and disappointment that the insurance covers only drought rather than disease, destruction by wildlife, theft, and other risks (Marsabit, Embu, Kibwezi), and in one case, there was a product design fault that did not capture a weather event that should have triggered a pay-out (Narok).

[55] Again, these claims may have been motivated - at least by some - by the hope that our team could bring debt forgiveness.

Methodology and summary of farmers interviewed

	Average HH Size	Avg. Age	% Male	Median acreage devoted to insured crop	Median farm size	% Purchasers of Insurance	% Who plan to purchase in future	Total participants in discussion
Meru	4.4	53	80%	502 coffee trees	3 acres	66%	100%	15
Embu 1	4.4	48	38%	1 acre maize	1 acre	100%	100%	16
Embu 2	4.6	49	89%	1 acre maize	2 acres	100%	100% maybe	9
Machakos	7.6	47	60%	3 acres maize	4.5 acres	10%	80%	10
Narok	12	49	100%	100 acres wheat	n/a leased land component	100%	100% maybe	7 + 1 non-buyer individual interview
Kibwezi	9.6	55	90%	2 acres gadam sorghum	8 acres	40%	80% yes; 20% maybe	10
Marsabit 1	8	48	91%	5	4	82%	91%	11
Marsabit 2	6.5	43	75%	12.5	10	50%	58%	12
Marsabit 3	10.8	58	33%	10.4	2	100%	100%	6

In other words, there are many reasons that farmers could experience severe losses that have nothing to do with severe weather triggered by the index. When asked to rank their risks, weather was fairly consistently ranked first, however the other risks - particularly raids in Marsabit - are low incidence, but high loss events whereas weather losses are typically more moderate.

FSD Kenya
Financial Sector Deepening

info@fsdkenya.org • www.fsdkenya.org
FSD Kenya is an independent Trust established to support the development of inclusive financial markets in Kenya
5th floor, KMA Centre • Junction of Chyulu Road and Mara Road, Upper Hill • PO Box 11353, 00100 Nairobi, Kenya
T +254 (20) 2923000 • **C** +254 (724) 319706, (735) 319706