



PAPER No. 47

## BUNDLING TO MAKE AGRICULTURE INSURANCE WORK

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Bundling to make agriculture insurance work

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## ACRONYMS AND ABBREVIATIONS

ACRE	Agriculture and Climate Risk Enterprise
COOP	Cooperative
MNO	Mobile Network Operator
NAIS	National Agriculture Insurance Scheme
NGO	Non-governmental organization
SACCO	Savings and Credit Cooperative Organisation
SFSA	Syngenta Foundation for Sustainable Agriculture
USSD	Unstructured Supplementary Service Data
WBCIS	Weather based Crop Insurance Scheme
WRMS	Weather Risk Management Services

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## 1. INTRODUCTION

Bundling agriculture insurance with other services like credit and better farm inputs is fast emerging as a possible solution to help agriculture insurance to achieve better social outcomes, make insurance more tangible and enable schemes to scale faster.

There is evidence that states that access to agricultural insurance leads to significantly larger agricultural investment and riskier, yet more rewarding, production choices in agriculture. The binding constraint to farmer investment is uninsured risk: when provided with insurance against the primary catastrophic risk they face, farmers are able to find resources to increase expenditure on their farms.<sup>1</sup> Such evidence establishes risk as the most binding constraint, even more than access to finance.

However, this is not to say, just insurance, more so standalone insurance, on its own is enough. Providing standalone insurance products – especially in new markets where they are untested and consumers lack understanding and trust – can be difficult and unprofitable. Bundling insurance offers the opportunity to the insurer or the implementing entity to bundle their product with a value chain component (output or input) that is necessary for the farmer. By bundling insurance with other smallholder-focused financial and non-financial services practitioners can develop a customised suite of products, services and delivery modes that offer substantial and tangible client value.

One of the main objectives of any development programme is to create a dynamic path to livelihood improvement - improving farming practices, access to quality inputs and access to market. However, insurance as a standalone product may not be sufficient to overcome the binding constraints of farmers. Hence, bundling provides more value for all the players in the value chain.

For the insurer bundling is an opportunity to:

- Leverage existing non-insurance services to increase outreach and penetration, and compensate for lack of own staff/distribution in rural markets;
- Utilise the partner's goodwill and get customers to try the insurance offering;
- Reduce costs of distribution, customer education, and premium collection through pre-financing by the partner or the aggregator;
- Have reduced anti-selection/fraud due to bundled nature (especially for mandatory products).

For the provider of non-insurance services such as a bank or farming input provider, bundling with insurance can offer several advantages. These include:

- Reduction of agriculture lending risk;
- Use of insurance as a sales promotion tool for farming inputs;
- Increased loyalty to the product;
- Additional revenue stream in terms of commission or service fees from the insurer.

From the farmer's point of view, a bundled insurance product can provide:

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<sup>1</sup> D. Karlan et al., '[Agricultural Decisions after Relaxing Credit and Risk Constraints](#)', *The Quarterly Journal of Economics*, vol. 129, no. 2, 2014, p. 597

- Access to insurance on a cost-effective basis;
- Easier access to credit and improved farm inputs;
- Loan repayment relief and access to loans for the next season (in case of default due to unfavourable production);
- Ease of payment of premiums, if service provider pre-finances or subsidises premiums;
- Access to multiple services at a competitive price through the “one-stop” shop.

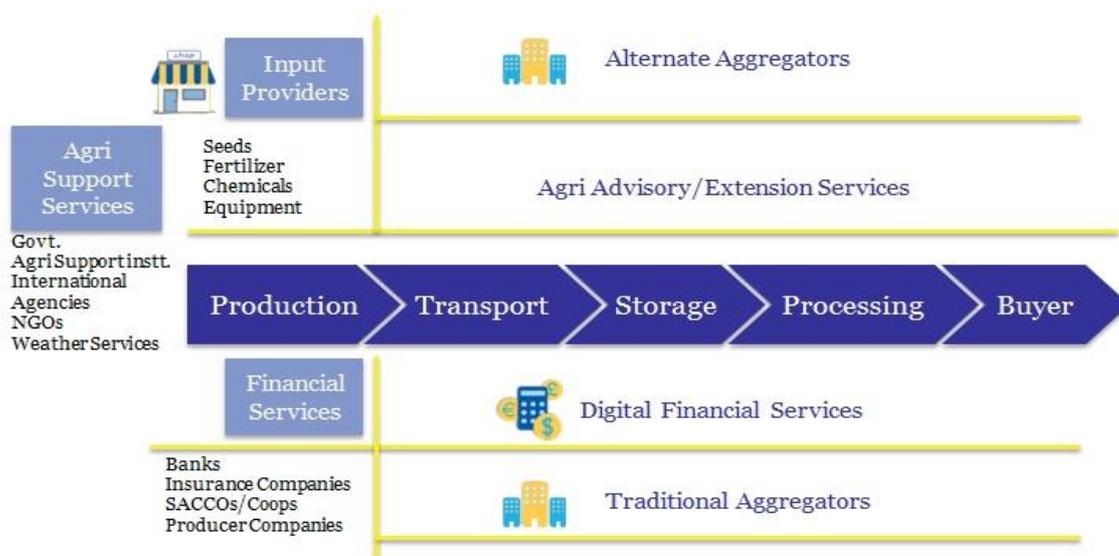
Bundling services is not always easy. First of all, the bundled solution should provide value to all stakeholders. Bundling is ultimately a question of aligning value, i.e. not only should such bundling make sustainable business sense for each stakeholder, it should offer real client value to the smallholder farmer, while being accessible and affordable. To understand how such value alignment can be achieved, we need to consider the entire value chain for smallholder farming in the market of focus. Second, the context matters in agriculture, more so than other insurance types. Each crop has different requirements and a distinct value chain. The model that may work for one crop may not work for another. Lastly, some specific success factors for agriculture insurance products, such as use of technology and subsidies, need to be taken into account to make specific solutions work. Bundling provides a great opportunity to make agriculture insurance work but should be designed with care.

The remainder of the paper is organized as follows. Section 2 provides details on the generic value chain, which forms the basis for the specific value chains discussed later in the cases, in section 3. Section 4 draws the key insights from the cases and Section 5 concludes.

## 2. THE AGRICULTURAL VALUE CHAIN

A bundled solution requires the involvement of various entities that form a part of the agricultural value chain. Value chain players such as credit providers, input sellers or output buyers may need to participate in the process. A generic agriculture value chain (illustrated in Figure 1) involves many players (apart from the farmers), including (but not limited to): input providers of seed, fertilizers, chemicals or inputs, providers of support services (such as weather or farming advisories), financial providers (banks, insurance companies, SACCOs, cooperatives) and output buyers (farmers' cooperatives or local, national or multinational producer companies).

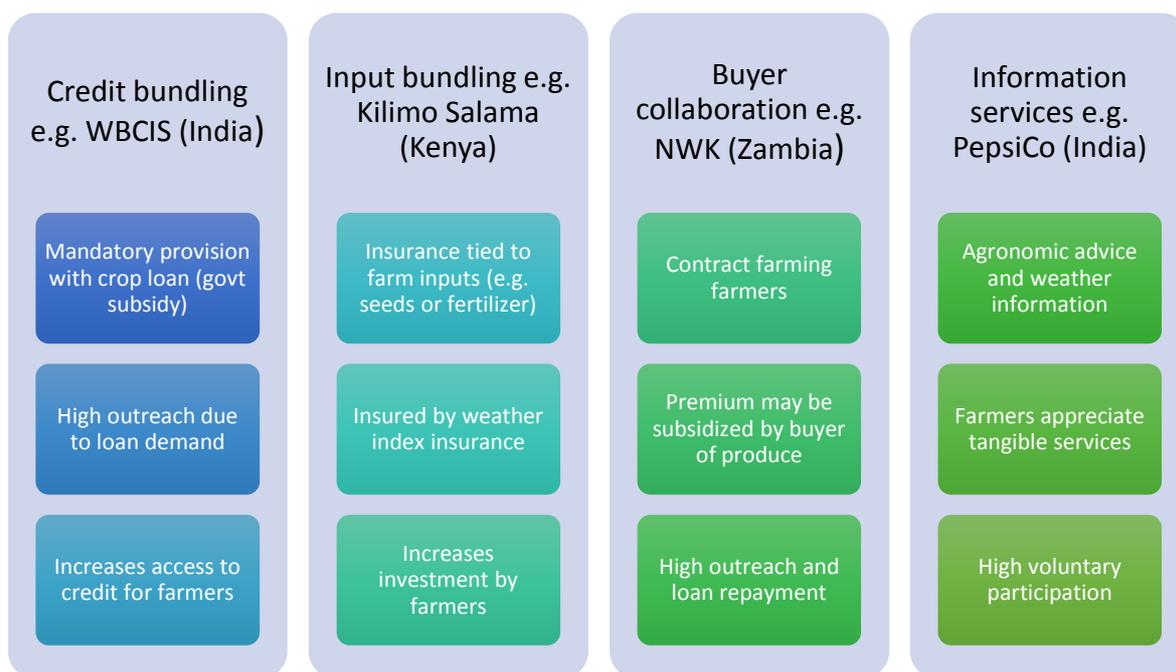
Figure 1. A typical agricultural value chain



Insurance can be bundled in multiple ways (see Figure 2):

1. **Credit bundling:** This is the model where credit to farmers is bundled with agriculture insurance. This more often than not happens as a mandatory cover. Examples of such bundling are the agriculture insurance schemes offered by the Government of India. The schemes mandate all farmers that take an agriculture loan from a bank to buy agricultural insurance. The coverage is also offered on a voluntary basis to farmers who do not take on a loan.
2. **Input bundling:** Another model is to bundle insurance with agriculture inputs like seeds (Kilimo Salama, Kenya) and fertilisers etc. (IFFCO, India).
3. **Contract farming and insurance bundling:** Two approaches are seen under contract bundling models:
  - a. **Buyer collaboration:** In this model the end buyer of the contract (farming output) offers bundled agriculture insurance along with the loan it offers to the farmers, in a mandatory manner (e.g. NWK Agri Services, Zambia).
  - b. **Information and support services:** In this model, the contract buyer offers insurance, on a voluntary basis, to its farmers as a set of services that includes support services like weather advisory, to maximise the value proposition to the farmer (e.g. PepsiCo's contract farming for potato procurement in India).

Figure 2. Bundling option features



This input bundling model offers great potential on impact but it also poses special challenges, particularly around sustainability for the input providers. See Box 1 for more details on the strengths and weaknesses of this model.

## BOX 1. Input insurance – bundling agriculture insurance with agriculture inputs

Input insurance refers to the practice of bundling of an agriculture insurance cover with farming inputs like seeds (Kilimo Salama), fertilisers (Iffco Tokio, India) etc. Typically, the insurance product is index-based and leverages mobile technology (such as SMS, USSD) to enrol clients and provide information on weather, claims etc.

### Strength

The core idea behind the model is to insure the farmers against the loss of investment into farming inputs in case of a poor or failed harvest. This enables them to have the money to buy the inputs for the next season. Also, with the risks associated with the inputs covered in case of crop failure, it is an incentive to invest and use good quality inputs that offer a better upside in terms of crop output. The model leverages the existing relationship between the farmers and the input sellers who have a network to cover the last-mile, making distribution cost effective. Also, the bundling with an essential input like seeds or fertilisers makes it an attractive option for the farmers.

### Weakness

Most of these models use premium subsidies, usually by the input providers, which is not a sustainable model in the long run. The business case has still to become clear for the model, especially for the technology partners like MNOs, and last-mile connectivity points like input sellers, who at times have to invest substantial amount of time to explain the product to farmers. With just the cost of inputs covered, the cover doesn't help the farmers to recover their economic loss in forgone income due to the crop failure. In such a situation, the insurance payout may be used for consumption needs post-crop failure rather than reinvestment that defeats the purpose. The products in these models are very limited and would need more work to be able to offer wider coverage, with substantial investments by stakeholders and hence with higher premiums.

### Potential of impact

This is a bundling model that has great potential, once the business case for the stakeholders becomes more established. The model has seen good uptake, especially in the African markets and is a great way for farmers to have a first, hands-on experience of agriculture insurance (index-based products). This also highlights the need of the farmers to insure their investment risks. Also, the model would have to find ways to reduce dependence of subsidy and also expand coverage to covering potential economic loss of farmers due to crop failure. This is a major challenge.

### 3. CASES

The paper offers practical insights to practitioners based on four different cases of successful programs: two in India and two in Africa. The case analysis took into account the following key questions:

1. What is making bundling work?
  - a. How is the value alignment being achieved?
  - b. What role are partnerships playing in success/failure of the model?
  - c. What is the role of technology?
2. What is the rationale of stakeholders choosing between mandatory vs. voluntary bundling?
3. What parts of the business model is context specific and what can be replicated elsewhere?

**Table 1. Summary of cases**

	WBCIS	Kilimo Salama	FarmerShield	PEPSICO – 360 degrees
Risk covered	A weather based crop insurance scheme covering most kind of products in India	An index based insurance product that covers farmer's inputs cost in the event of drought or excessive rainfall	A combined life and weather index insurance cover for cotton farmers	An index insurance that covers weather related crop losses of potato farmers contracted with PepsiCo India.
Players involved	The Central and State governments in India Agriculture Insurance Company, India + selected group of pre-qualified private insurers.	Syngenta Foundation/ACRE UAP Insurance Safaricom The Seed Co. Kenya and its stockists	NWK Agri Services, Zambia MicroEnsure, Focus General Insurance African Life	PepsiCo, ICICI Lombard General Insurance Company Limited Weather Risk Management Services
Services bundled	Index based crop insurance with Agriculture credit – Mandatory bundling. Non-credit taking farmers can take up the product voluntarily	Agriculture insurance bundled to a pack of seed	Bundled with inputs given on credit in contract farming program by NWK. It's a voluntary insurance.	Insurance product bundled with other services offered as part of contract farming that includes – access to credit, access to better inputs for standard output, guaranteed buyback arrangement
Target audience	All Farmers in India	Small hold farmers	NWK Zambia's contract farmers	Potato Farmers in various Indian states contracted by PepsiCo India
Year of launch	Piloted in 2007	Piloted in 2009	Piloted in 2013	Piloted in 2007
Value for stakeholders	Farmers: <ul style="list-style-type: none"> <li>• fixed time frame for paying the</li> </ul>	The Seed Co. <ul style="list-style-type: none"> <li>• Increased sales</li> <li>• Customer loyalty</li> </ul> SafariCom	Farmers: <ul style="list-style-type: none"> <li>• Access to affordable Insurance</li> </ul>	PepsiCo: <ul style="list-style-type: none"> <li>• Uninterrupted supply chain</li> <li>• Improved retention</li> </ul>

	claims to the farmer, i.e. 45 days <ul style="list-style-type: none"> <li>not required to file claims,</li> <li>Low Premiums</li> </ul> Insurers: <ul style="list-style-type: none"> <li>The elimination of on-farm inspection</li> </ul> Governments: <ul style="list-style-type: none"> <li>The subsidy bill for the governments are much more predictable in the system</li> </ul>	<ul style="list-style-type: none"> <li>Acquire new customers and retain existing ones</li> <li>Revenues on transactions resulting from a pay-out</li> </ul> UAP: <ul style="list-style-type: none"> <li>Access to a new market and product line</li> </ul> Stockists: <ul style="list-style-type: none"> <li>additional exposure by introduction of new service</li> <li>build relationships with new and existing customers</li> </ul> Farmers <ul style="list-style-type: none"> <li>Access to insurance for inputs</li> <li>Pay-outs via Mpesa</li> </ul>	and life coverage Insurers: <ul style="list-style-type: none"> <li>Access to new products and market segments</li> </ul> NWK Agri Services: <ul style="list-style-type: none"> <li>Increased deliveries and reduced side selling by contracted farmers</li> </ul>	rate of farmers ICICI Lombard: <ul style="list-style-type: none"> <li>Product Distribution at low cost</li> <li>Improved client education on Insurance</li> </ul> Weather Risk Management Services: <ul style="list-style-type: none"> <li>Additional revenue stream</li> <li>Information and access leading to better product design</li> </ul> Farmer: <ul style="list-style-type: none"> <li>Enhanced income and reduced indebtedness</li> <li>Capacity to plan better</li> </ul>
Outreach	Over 25million farmers - 20% of all Indian farmers + 23% of all cropped area covered in 2016 (Government of India estimates)	By 2016, over 1,000,000 farmers in Kenya, Tanzania and Rwanda insured for over 56 Million USD	26,000 cotton farmers (as per 2014-15 data, latest available online)	50,000 farmers across six states in India.

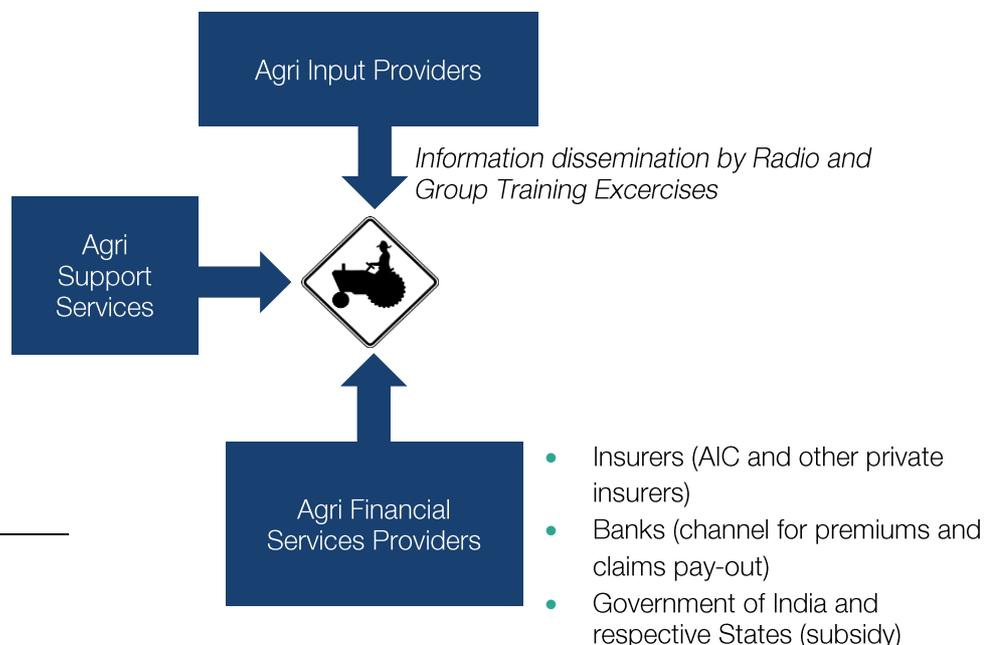
### 3.1 CASE 1: WEATHER BASED CROP INSURANCE SCHEME (WBCIS), INDIA

The WBCIS scheme offers weather-based crop insurance bundled with the agricultural loans taken for defined crops from commercial banks in India. All loans sanctioned for those crops in pre-selected locations (districts) by the state governments are required to be covered under WBCIS, which makes it a mandatory scheme for all farmers availing the loans. The sum insured in the scheme reflects the per unit input costs and as such WBCIS is not a yield-based product. The sum insured is pre-declared before every sowing season by the insurer in consultation with the state governments. The scheme is also open to non-loanee farmers. Non-loanee farmers can purchase the insurance from a network of banks, insurance intermediaries and authorised representatives of the insurance companies, but the majority of sales go to farmers who have received loans from the banks.

The scheme is heavily subsidised by the government with premium subsidies reaching up to 75%. WBCIS covers over 25 million farmers and, based on the number of adherents to the scheme, the government is currently evaluating increasing subsidies for insurance (both credit linked and otherwise) to 97.5% under a new scheme, the Prime Minister Fasal Bima Yojana, to be implemented from the Kharif (monsoon) season of 2016.

	WBCIS – basics
What?	A weather-based crop insurance scheme
Why?	<p>The NAIS (National Agriculture Insurance Scheme), the predecessor to WBCIS, had three inherent challenges</p> <ol style="list-style-type: none"> <li>1. Low Coverage</li> <li>2. Delay in Indemnity payments</li> <li>3. Poor financial performance</li> </ol> <p>The WBCIS was introduced to take forward the work done by private insurers in the field and also take care of the issues with NAIS.</p>
Where?	The pilots of WBCIS started with Karnataka in Kharif 2007. Since then 19 states have adopted the scheme. The scheme runs in parallel with the NAIS. The state government can choose to adopt either NAIS or WBCIS.
When?	The programme started in 2007.
Who?	The WBCIS is managed by the AIC and a selected group of pre-qualified private insurers. The State government notifies the areas under WBCIS and seeks competitive proposals from private insurers.
How?	The WBCIS follows an area-based approach. A defined area is linked to a weather station which usually does not exceed 25 kilometres in radius. All farmers in this area are considered to have the same level of damage. Based on any predefined trigger events claims to the farmers are processed and paid.

### WBCIS – stakeholders



#### The value propositions for the stakeholders:

##### Farmers:

- It made access to credit possible.
- Premiums are low for the farmers due to the subsidy provided by the government.

- The WBCIS offers a fixed time frame for paying the claims to the farmer, i.e. up-to 45 days from the end of the insurance period.
- The farmers are not required to file claims, all claims processes are done automatically.
- Trigger events like rainfall and temperature can be independently measured and verified.

#### Insurers:

- The WBCIS is offered at actual actuarial rates, with the gap between premium paid and actual premium being met by the central and state governments.
- The elimination of on-farm inspection speeds up the process of claims settlement.

#### Governments:

- The subsidy bill, and therefore expenses on the programme, for the governments are much more predictable in the system.
- The elimination of on-farm verification reduces the burden of the government in arranging for crop cutting experiments.

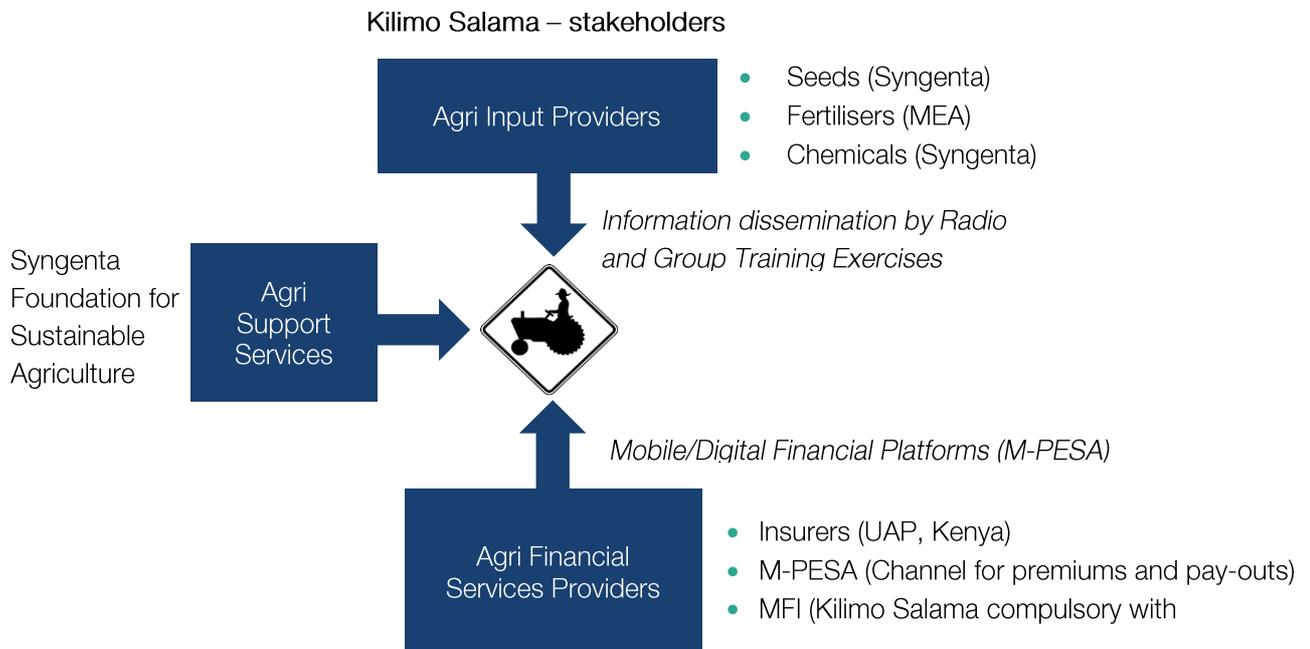
### 3.2 CASE 2: KILIMO SALAMA, KENYA

The Syngenta Company has a large network of seed and chemical stockists in Kenya. The Syngenta Foundation for Sustainable Agriculture (SFSA - now ACRE) was exploring options on how best to insure the crop of the farmers in Kenya. The foundation zeroed in on an index-based model for insurance which would insure the inputs and not the harvest. This would ensure that farmers recover their input costs and could replant in the next cycle.

The insurance is bundled with the sale of seeds. The farmers were encouraged initially to try out insurance through a “pay as you plant” type of insurance. The farmers had the flexibility of insuring as low as one bag of seeds. As farmers learnt to trust insurance, they were comfortable in investing more in their farm to increase productivity and assure food security.

	Kilimo Salama – basics
What?	An index-based insurance product that covers farmer’s inputs cost in the event of drought or excessive rainfall.
Why?	Traditional insurance models were skewed towards large farms, and the cost of insurance for smallholders was prohibitive.
Where?	Started in Kenya, but has since expanded to Tanzania and Rwanda. Kilimo Salama has also started operations in India.
When?	Pilot tested in March 2009 in Laikipia district in Kenya. The product has evolved since then.
Who?	Partnership under the Agriculture Index Insurance Initiative launched by SFSA and UAP Insurance. The other partners including fertilizer supplier, MEA Limited and Syngenta East Africa Limited/Seed Company, the telecommunications company Safaricom, the Kenya Meteorological Department, and the NGO CNFA/AGMARK.

	Syngenta stockists act as the ground force.
How?	The product is offered using low cost mobile technology. Only the inputs are insured. The farmers are free to start with insuring only one bag of seed. The premium amount is 5 per cent of the total cost of the input subsidised by the seed company. The index is a rainfall based index. The farmers receive a pay-out as soon as a pre-approved condition is met. There is no physical verification of the crops.



**The value proposition for the stakeholders:**

**Farmers**

- Increased investment and earnings: Kilimo Salama insured farmers invested 20 per cent more and earned 16 per cent more than neighbouring uninsured counterparts (2014 impact study). Ninety seven percent of the farmers insured by ACRE in 2013 received loans linked to the insurance: 177,782 farmers received \$8.4 million in financing in part due to ACRE’s index insurance products. (2012). Subsidised premiums also make a clear case in favour of the farmer.

**The Seed Co.**

- The Seed Company pays the premium on the farmer’s behalf, which comes out of the profit margin they make on a bag of seeds. The Seed Company does so to differentiate its product on the market and hopes to see a return according to key business objectives – e.g. increased sales and loyalty.

**Safaricom**

- The company has benefitted from marketing of M-PESA, claiming that Kilimo Salama has helped it to acquire new customers and retain existing ones. Since all participating farmers use M-PESA, Safaricom also benefits from other transactions resulting from a pay-out: farmers may use the funds to purchase other goods or save the funds for next year’s planting (a majority of farmers in the focus group in Moiben said they would do the latter).

- The company initially struggled to convince customers of the product's benefits. UAP, through this product, has been able to make insurance more tangible for the farmers and that has helped it to gain their trust as well.

#### Stockists:

- Stockists that sell Kilimo Salama benefit from the additional exposure the product provides. They are advertised on the radio, which allows them to build relationships with new and existing customers. However, selling the product has a few challenges. Several stockists claimed that while few customers ask for the product on their own, stockists have to take time to explain the product to customers who are unfamiliar with the product, which cuts into their core business of selling farming inputs.

### 3.3 CASE 3: FARMERSHIELD, ZAMBIA

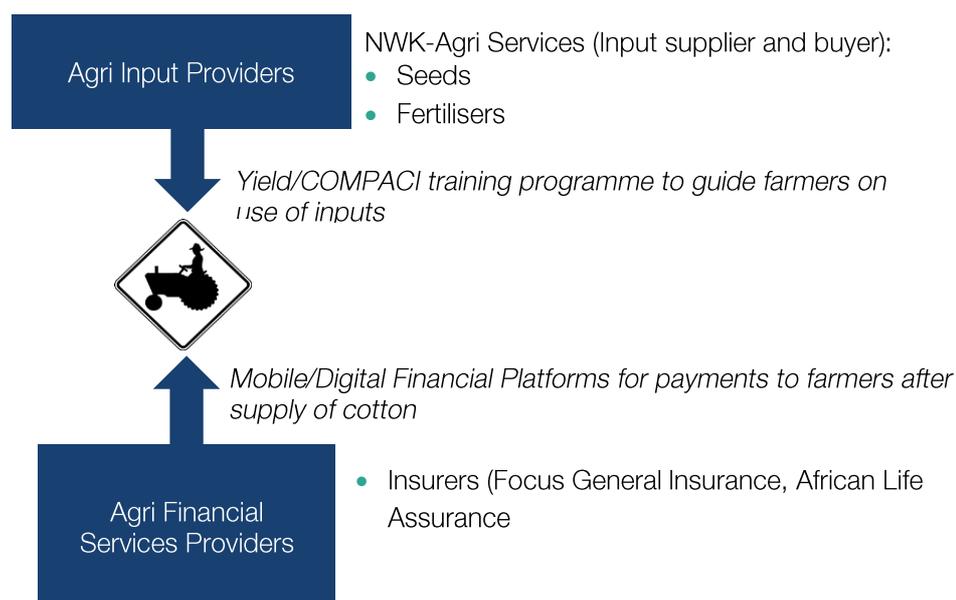
NWK Agri Services in Zambia is a contract farming buyer with approximately 80,000 farmers on its books. NWK has built weather and life insurance into their cotton farming contracts in order to enhance farmer's loyalty and outputs delivered, and secure them against debt and livelihood problems in case of weather failures.

FarmerShield Weather is a weather-index insurance product for cotton farmers that is linked to inputs given on credit in contract farming program by NWK. It is a voluntary product. It protects farmers against a severe dry spell or excess rain. The coverage will pay up to US\$20 per hectare in the case of severe drought or rain. Coverage costs just US\$3 and can be added to the farmers' loan balance so that there is nothing to pay upfront.

NWK Agri-Services rewards their farmers who delivered their cotton early in the previous season and achieved 100 per cent loan repayment – by providing free life insurance through FarmerShield Life – if they took a contract-farming package with NWK Agri-Services in the following season. As farmers became comfortable with insurance, this loyalty benefit was withdrawn.

	FarmerShield – basics
What?	FarmerShield is a combined life and weather index insurance cover designed for NWK-Agri Services' farmers.
Why?	NWK-Agri Services was suffering from the problems of farmer loyalty and side selling. Farmer Shield is expected to increase farmer loyalty and increase the amount of land and care farmers dedicate to cotton production.
Where?	Farmer Shield is implemented across all NWK Sheds in Zambia.
When?	The programme started in November 2013.
Who?	NWK Agri-Services, MicroEnsure, Focus General Insurance and African Life Form Partnership to provide insurance for farmers. Farmer Shield Life is underwritten by African Life Assurance.
How?	FarmerShield Weather is a weather insurance cover that protects farmers against a severe dry spell or excess rain. The coverage will pay up to US\$20 per hectare in the case of severe drought or rain.

## FarmerShield – stakeholders



### The value proposition for the stakeholders

#### Farmers:

- Access to Insurance - 25,000 farmers got access to life insurance (often for the first time) and approximately 7,000 farmers in 10 locations got access to weather-index insurance.<sup>2</sup> After realising the benefits of life insurance, farmers demanded for additional cover for their families resulting in now about 52,000 farmers having an insurance cover.
- Affordable Insurance - Weather Index insurance coverage costs just US\$3 and can be added to the farmers' loan balance so that there is nothing to pay upfront.
- Higher income and protection for families - In order to avail free life insurance cover farmers, increased the amount of land and care to cotton production to supply at least 350 kg cotton per hectare to NWK Agri-Services. Weather index insurance helped farmers to mitigate their risk, which allowed them to grow more, knowing that they can receive a pay-out from their insurance company if weather conditions affect their yields significantly.

#### Insurers:

- Increased demand for scale up of insurance products in the Zambian rural market. More insurers (Focus Insurance and Mayfair insurance) are now involved in offering index based insurance in the market. Anecdotal presentations also mention the products being actuarially priced and expected to be profitable and sustainable for insurers.

#### NWK-Agri Services

- NWK noticed a positive impact on its business with increased deliveries and reduced side selling.
- NWK recovered much more of the in-kind credit given to insured farmers compared to non-

<sup>2</sup> A. Mookerjee, *Mobile Insurance: Micro Product, Macro Impact*, [website], 2014, <http://www.slideshare.net/ctaspaces/s47-agrotosh-mookerjee#>, (accessed 30 May 2017).

insured farmers.<sup>3</sup> Due to droughts, pay-outs were made in some locations in both 2013 and 2014, and the timely income contributed to this higher loan recovery rate from insured farmers.

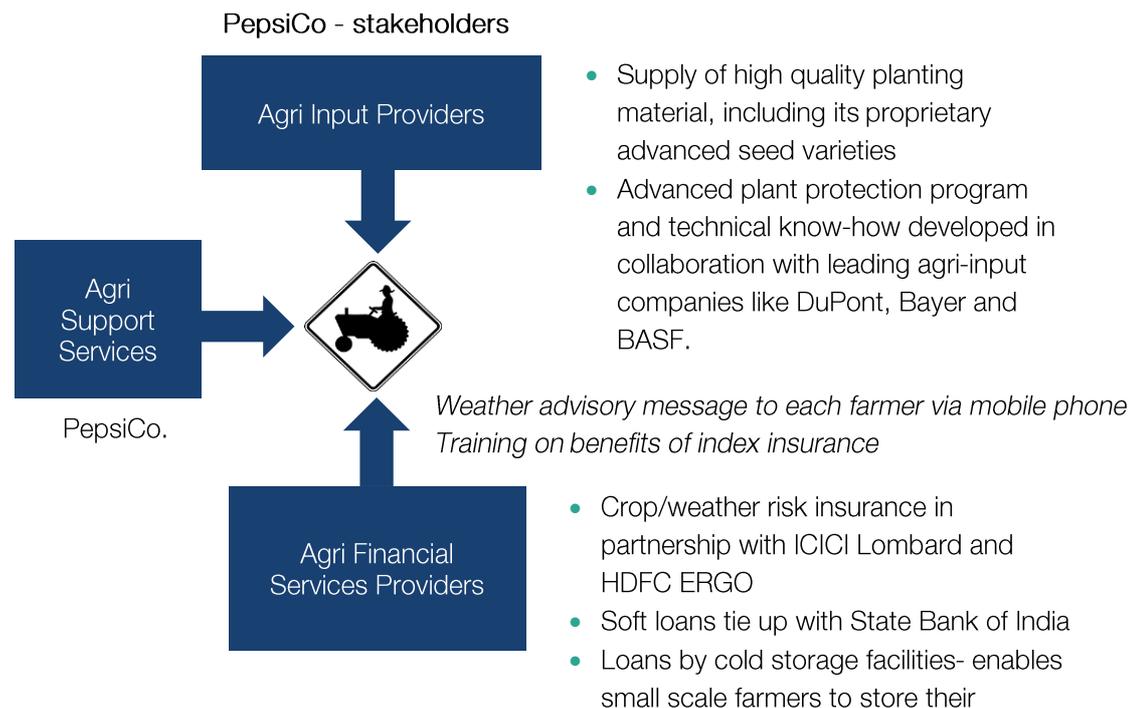
- Farmers appreciated both the direct (claim pay-outs) and indirect (integration into value chain) benefits of insurance offer

### 3.4 CASE 4: PEPSICO. 360 DEGREES FARMER CONNECT PROGRAM, INDIA

PepsiCo in India bundled their index insurance product with a contract farming agreement for farmers. The plan, offered by ICICI Lombard, is based on humidity levels and temperature and is focused solely on potatoes. The premium is approximately 3-5 per cent of the sum insured. The product is structured to cover losses above 40 per cent of yield, with farmers covering losses up to this point through various risk coping mechanisms. The maximum payout is designed to be equal to the cost of production plus a bit more to include family farm wages and opportunity costs. Weather forecasts and updates were also provided to the insured farmers through a tie up with the Weather Risk Management Services (WRMS).

Pepsi Co. 360-degree farmer connect program – basics	
What?	An index insurance that covers weather related crop losses. It covers losses above 40 per cent of yield with farmers covering losses up to this point through various risk coping mechanisms. The insurance programme is based on a disease index, incorporating both humidity and temperature levels.
Why?	To limit the weather related risk to potato crop to the farmer and the supply chain. National area-yield insurance was not considered transparent and its claim settlement record in India has been poor. Weather-based index insurance is a more fair, transparent and quick way to assess crop loss as it uses weather indices, such as rainfall and temperature, rather than a possible consequence of extreme weather, such as crop failure, to determine pay-outs.
Where?	Started in India by PepsiCo as part of its contract farming with the farmers
When?	It was piloted in 2007 for farmers in three states of Karnataka, Maharashtra and Punjab. Today the coverage is available across 6 states to over 50,000 potato farmers.
Who?	The product offering by the PepsiCo is done in partnership with ICICI Lombard General Insurance Company and managed by Weather Risk Management Services (WRMS). PepsiCo acts as the input supplier, provides technical know-how and buys the produce of the farmers.
How?	Triggers payouts for late blight disease are triggered if crops experience consecutive days of average relative humidity greater than 90 per cent and average temperature of 10-20°C. In subsequent years, a frost index was also added to the coverage, which triggers payout when the temperature falls below 1-2°C. Farmers need not lodge a claim. Instead the insurance company monitors the policy and calculates claims based on the certified data received from the third-party agencies during the policy period.

<sup>3</sup> GPFI et al., *Synthesis Report: New Trends in Agricultural Finance*, [website], 2015, <http://www.gpfi.org/sites/default/files/documents/02-New%20Trend%20Agricultural%20Finance%20Report-Final-LowRes.pdf>, (accessed 30 May 2017).



### The value propositions for the stakeholders

#### Farmers

- Enhanced income and reduced indebtedness - Insurance has increased economic stability for farmers by immediately offsetting the effects of disasters, flooding, and drought through pay-outs (with pay-outs being as high as 90 per cent of all sum insured as in 2008-09). Farmers have been further incentivised to be able to shift more production towards higher-risk, higher return cash crops as PepsiCo offers an incentive of + INR 0.15/kg for insured farmers. PepsiCo farmers who had taken loans (96.4 per cent) were of the opinion that contract farming with PepsiCo had helped reduce their debt. The entire package led to 45 per cent productivity and substantial increase in farm incomes.
- Faster pay-outs - Affected farmers are saved from filing claim and expensive loss verification procedure, as in the case of weather index insurance pay-outs are automatically triggered once the thresholds are breached as there is no need for on-site loss evaluation.
- Prevention of avoidable losses - The value of the index insurance product was further enhanced by bundling weather data advisory messages to farmers. WRMS sent a weather data advisory message to each farmer via mobile phone to promote corrective measures in advance of bad weather, so that farmers knew what measures to take in the field to prevent avoidable losses.
- Better planning - Internal surveys conducted by WRMS indicated that farmers trusted the programme for its capacity to reflect actual losses and provide appropriate claim settlement. Farmers seemed to have a good grasp of the quantitative impact of weather on yields. In many locations, farmers had calculated claims and expected the forthcoming indemnification, which allowed them to plan future investments accordingly.<sup>4</sup>

<sup>4</sup> International Fund for Agricultural Development and World Food Programme, *The Potential for Scale and Sustainability in Weather Index Insurance for Agriculture and Rural Livelihoods*, [website], 2010, <https://www.ifad.org/documents/10180/32647150-6e8a-41f3-8642-404768cfc99f>, (accessed 30 May 2017).

## PepsiCo

- Uninterrupted supply chain - Less susceptible to the losses incurred from weather related risks.
- Improved retention rate of farmers - PepsiCo has created a more long-term relationship with their contracted farmers.

## Insurer – ICICI Lombard

- Product Distribution at low cost - ICICI Lombard was able to access a new segment and reach scale (more than 10,000 farmers across 4 states) at low cost due to facilitation by PepsiCo, for its Weather Index Insurance. Distribution costs were reduced by 12-15 per cent due to Pepsi's interventions.
  - PepsiCo gives the farmers an additional amount of Rs.0.15 per kg on the buy-back rate of potato tubers. This amount covered approximately 50 per cent of insurance premium. This incentive encourages farmers to invest in the insurance program when they might otherwise have not.
  - PepsiCo partnered with State Bank of India to provide soft loans to farmers, which enables farmers to finance the premium cost along with the investment costs.
- Improved client education on Insurance - As product education was provided by Weather Risk Management Services (WRMS) to the farmers, the insurer did not have to develop a separate elaborate programme for farmer education. WRMS is a private consultancy firm that designed the product, installed weather stations and manages the insurance aspect of the programme, charging PepsiCo a commission of 5 per cent of the premiums. The data generated by WRMS weather stations have been a key input into index insurance policies. PepsiCo too worked closely with WRMS to systematically educate farmers about this product, conducting numerous training sessions and meetings for the various parties involved.

## Weather Risk Management Services (WRMS)

- Education improves product design - Educating farmers and delivery channel stakeholders on the nuances of index insurance can continuously improve the quality of product design through the acquisition of more and better data and farmer/delivery channel input and hence better its performance, to the advantage of the WRMS.
- Additional revenue stream - WRMS earned from the weather data advisory messages sent to farmers.

## 4. COMPARATIVE ANALYSIS

In this section we assess the factors that need to be considered within the design of any bundled scheme. Adhering to these factors are likely to create the best chance of agriculture insurance to achieve better social outcomes, make insurance more tangible and enable schemes to scale faster.

### 4.1. UNDERSTANDING THE VALUE PROPOSITION

#### **Bundling works only when there is business viability for all stake holders involved**

Any agricultural value chain exists because there is a sustainable value proposition for all the stakeholders involved. The value chain should not be seen as existing to carry agricultural insurance but rather insurance should be introduced as a bundled service in a manner that further strengthens the value proposition of most if not all stakeholders. Most importantly, it should not either compete with or adversely affect the core offerings of any of the stakeholders involved.

In the case of PepsiCo, the main focus remains in ensuring uninterrupted supply of process grade potatoes, and bundling insurance is towards ensuring this key business objective. The value propositions of all stakeholders in the value chain are well aligned and well developed. There is no subsidy involved. All stakeholders in the value chain are working on economically viable/profitable terms and are meeting their own primary objectives.

In Kilimo Salama, the value proposition is well-aligned for all stakeholders, apart from the seed company. The seed company is subsidizing the cost of the premium and is yet to measure the benefit in terms of increased sales and loyalty, which would compensate for the premium cost. The dependence on the Seed Company and its retailers is too high. If the seed company/retailers do not see benefits in the long run, the partnership may suffer.

In the WBCIS scheme, from a public policy perspective, the government is providing a key service through insurance. While, prima facie, the huge subsidies being provided does not make a case for optimum economic viability, for the government it helps fix an outflow in terms of premium, as the insurers pay the claims. The amount thus “saved” can be utilised for other services. From an economic perspective, actuarially priced products and using a product model that eliminates other sources of cost like onsite damage inspection and faster pay-out times, reduces overall costs of the programme.

For FarmerShield, packaging insurance both as a value-add service as well as a part of the package of its contract farming agreements (and repayments of its credit to its partner farmers) aligns NWK's mainstream business with its bundling efforts. Insurers gain from the scale that partnering with NWK got, i.e. access to NWK's farmer partners. Subsidy is absent, except for a select group of farmers that are in the 'NWK gold club' of mostly large farmers.

#### **Strong value-add and tangibility increases the perceived value of agriculture insurance**

Bundling an agriculture insurance to an existing service or a part of the value chain makes sense to the farmer but only when there are tangible benefits available, e.g. guaranteed access to credit (WBCIS and FarmerShield); guaranteed end purchaser at a good rate (PepsiCo and FarmerShield) or access to good inputs (Kilimo Salama). Insurance adds tangibility in two ways as seen in Box 2. First, insurance may increase access to other services that farmer's value. Second, providers can use insurance as a value-add service when households desire the additional risk cover.

## BOX 2. Two forms of Value-Add

**Insurance increases access to other value-add services:** In the case of PepsiCo as well as Kilimo Salama, access to insurance also gives access to valuable services like weather related information and advisory that can help them plan better to minimise losses. Apart from these examples, we are aware of certain value added services that farmers can access due to them having insurance, e.g. access to vaccinations and better feed with livestock insurance.

**Insurance as the value-add service:** In the case of NWK, Zambia, it offers life insurance coverage (FarmerShield life) to its better performing members and their families to ensure a more engaged relationship. This has seen good results, initially the coverage was just for the farmer's life but they asked for and got, the coverage extended to their families as well, which led to better bonding between the company and the farmers. Also, in PepsiCo's case we see that insurance is a service and an incentive that is aimed to mitigate the financial losses that the farmer may incur. In addition, it enabled access to other services like weather forecasts and agri advisory services.

### The partnership should build on the strengths of each partner

It is important to leverage the strengths and existing infrastructure of each partner. Through its contract farming model, PepsiCo has an well-defined partnership with its farmers, as partners and suppliers. The partnership with the insurer and the advisory services provider, to handle the specialised insurance activity minimises drift from PepsiCo key objectives. The insurer rides on the existing technical assistance and education efforts of PepsiCo and hence, increases its profitability. Similarly, in WBCIS, the government has involved the private insurers and is utilizing their skills to actuarially price produces. Being primarily a credit linked insurance product, government uses the extensive network of public sector banks to make the product accessible. In Kilimo Salama, the MNO (SafariCom) and the Seed Company are integral in supporting the marketing, distribution, key resources, activities and impacting direct revenues for the product.

## 4.2. UNDERSTANDING THE VALUE OF VOLUNTARY VS. MANDATORY

From the analysis of the case studies we have seen that voluntary and mandatory bundling approaches have their own advantages:

**Table 2. Advantages and disadvantages of voluntary and mandatory bundling**

	Voluntary Bundling	Mandatory Bundling
Positives	<ul style="list-style-type: none"> <li>• Technically more market led as this is demanded by and paid for by the farmer (may be subsidised or not)</li> <li>• Calls for more involvement of the implementing agency in terms of offering – better client education for better product appreciation, looking to add more incentives for the farmer to take the product improving the value proposition of the client</li> <li>• When the value proposition is clear, the uptake is robust e.g. PepsiCo, Kilimo Salama</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to scale up, especially when bundled with desirable services like agri loans, e.g. WBCIS</li> <li>• Lowers distribution costs</li> <li>• Avoids the challenge of adverse selection</li> </ul>
Negatives	<ul style="list-style-type: none"> <li>• Calls for more investments from the implementer and hence a sustainable business case may take time to emerge for all stakeholders involved.</li> <li>• At times, implementing a model like this may hijack the value proposition idea and hence the focus shifts to creating a value chain for the product (Kilimo Salama) rather than looking at ways in which we can positively integrate the insurance in the already proven value chain for more value (PepsiCo)</li> </ul>	<ul style="list-style-type: none"> <li>• Less investment in client education and awareness efforts and hence true appreciation for insurance and its value may not take root</li> <li>• Forces farmers to pay for service. May have a high cost component for the farmer and may need sustained subsidy support e.g. WBCIS</li> </ul>

The biggest risk of a voluntary model is that there may not be sufficient take-up to make the product sustainable. PepsiCo has been able to overcome this risk. The product is voluntary and offered at market rates, yet more than 95% of all farmers who are part of the 360 degree programme have opted to buy the product, without any subsidy, which indicates that if the farmers are well-informed on aspects beyond

insurance, bundling an voluntary insurance is not an obstacle. This is an example of offering a compelling value proposition to the farmer - the farmer being aware that she has a guaranteed buyer, invests heavily into her production and is acutely aware of her risks and hence insurance is a very rational choice, especially if backed by easy accessibility and education. PepsiCo encourages take-up by offering a marginally higher rate (+0.15 Rupees/kg) when the products are insured.

In the case of Kilimo Salama, the product is voluntary, however with over 200,000 farmers covered (by 2015) it is the largest agriculture insurance product in all of Africa; there is proven success in terms of uptake. The price is subsidised as fully paid insurance did not get much traction during the pilot. Education and awareness efforts backed by use of mobile technology and mobile money are key to the scale that the product has reached.

NWK offers index insurance as part of its contract package for its partner farmers which includes credit, hence that leverage can be seen to be a factor in promoting uptake. The agriculture insurance product is voluntary while the life insurance component of the offering is used as an incentive for timely delivery of cotton and repayment of loans.

Mandatory offerings work best when they are offered with a solution that farmers desire and may not have an option to go elsewhere. For WBCIS, making it mandatory has worked as it is a credit-linked product that farmers need. Making it mandatory benefits both the insurer and the government (see Box 3). The insurance companies does not incur any additional cost in sales, marketing and awareness creation and are assured of a large number of buyers. Government could reach vast number of farmers through the programme in a mandatory regime and use the existing network of banks for the same.

### **BOX 3. Bundling of agriculture insurance and its impact on access to credit**

Bundling agricultural insurance with credit facilitates can lead to improved outcomes for the farmers and lending institutions.

In the three of the four cases the access to agriculture insurance makes access to credit easier, at times at softer rates than when the farmer is uninsured. For instance, PepsiCo India facilitates softer loans for its insured farmers in India from State Bank of India.

For FarmerShield, insured farmers get same credit rates as non-insured contract farmers. However, post insurance, NWK made higher credit recoveries from insured than non-insured farmers. This positive impact on the lender is evidence that they can make higher recovery of loans from insured than non-insured farmers. Given this pattern, NWK may in the future reduce the rates for insured farmers as they may be seen as a lower risk.

In case of such a national subsidized product, such as WBCIS, it enables access to credit easier for farmers, while at the same time limits the subsidy bill of the state, as that is used to pay the premiums for the farmers, rather than funding the full cost of the recover and provided disaster support after the event happens.

### 4.3. UNDERSTANDING THE ROLE OF TECHNOLOGY

#### **Technology, when suitably applied, does optimise costs**

Use of technology, may it be for payments of premiums or benefits (mobile money, digital financial services) or facilitating technical aspects of the product offerings (use of GPS, automated weather stations for better data management) when done in a 'value aligned' manner cuts costs, either directly by offering efficiency in managing large number of small transactions cost effectively or by improving the accuracy of the product itself, thereby increasing client value.

Kilimo Salama uses automated weather stations and mobile payments to dramatically reduce administrative costs and make the product affordable to farmers. Provision of location data, ability to make payments using mobile money and investment into the service by covering communication and marketing costs (e.g., SMS promotion, radio and print marketing, etc.) have been made possible by use of mobile money and mobile phone technology.

For the others, technology is mostly used to facilitate the product design and monitoring functions. Pepsico and FarmerShield rely on weather stations and satellite data respectively assess weather patterns. WRMS also uses SMS as the key medium of providing weather-related information and advisory services.

Technology driven aggregation may dilute the context specificity of a value chain, rendering it generically replicable but financial viability of all partners remains unproven

Interventions like Kilimo Salama have proved that at least from an operational perspective, a technology-driven model helps overcome challenges of infrastructure and may be a way of effectively replicating a bundling model. While the appeal of technology in replication of such models is undeniable, one needs to be careful in understanding the 'value proposition' for all stakeholders involved, because if this remains unsustainable over a period, the partner may lose interest, thereby jeopardising the intervention.

### 4.4. UNDERSTANDING THE BUSINESS CASE

#### **Standalone agriculture insurance is often met with low demand; this makes a case for subsidies or mandatory uptake to reach scale**

Standalone agriculture insurance products have seen the least degree of success as most of such interventions have not crossed the pilot stages and success stories remain rare.

In the case of bundling of insurance, say with a loan (or any other service), there is a cost implication. The cost of servicing the loan and bearing the cost of insurance is a steep ask for a low-income farmer and may outweigh the perceived future value that this combination may have in her mental accounting and hence her opting to stick to low investment but low risk strategy.

The above two scenarios make a case for introducing subsidies for the farmers to soften the blow of this high cost of investment in some cases of voluntary agricultural insurance. Alternately, mandatory cover can help lower the cost of the premium and many of the administrative costs related to sales and marketing are reduced and it is possible to reach scale quickly.

#### **A good value proposition and strong partnerships are essential to make the business case**

Contrary to the previous point, FarmerShield and PepsiCo have achieved high voluntary uptake without subsidies. The main reason are solid incentives for the farmer. A farmer always faces market-related risks

and any bundled solution that reduces her market-related risks (e.g. guaranteed buy-back, or guaranteed price for the output) will be valued.

The business model is context-specific given the contract farming arrangement of the 360 degree programme and its execution by a high-resource corporation like PepsiCo. However, it also gives us the message that if the business proposition and value is strong and self-evident, bundling agricultural insurance can be successful. Those conditions being: guaranteed buyers of output, access to technical know-how, quality inputs and access to credit leading to substantial investment into agriculture. When investment is substantial but obviously justified in the presence of a guaranteed price for the produce, de-risking against weather risk through insurance is a very compelling proposition.

The Kilimo Salama model is perhaps the most successful example of bundling insurance with agricultural inputs, sold through agricultural input touch points. This model also highlights the value of a technology-enabled backend for an agricultural insurance bundling model. From an analytical perspective, this model creates a guest value chain of sorts that runs on the host value chain of the agricultural input value chain supported by the technical backend and is an idea that has the potential to gain currency in future implementations. This model however adds more stakeholders in the value chain, and it is being observed that their value sustainability is equally important for the overall model to work.

#### 4.5. UNDERSTANDING THE CONTEXT

##### **Value chains are context specific hence a direct replication may be difficult**

The solution must accommodate the particularity of the crop value chain and create value for all stakeholders. Replicability of any bundling model has to be understood as a function of its value chain. For stakeholders other than the farmers, insurances eases the concerns on investment risk and repayment risks and hence identifying these risks, which are context specific, and designing a win-win combination is the key to success. However, this would make a frame by frame replication of such models quite susceptible to failures.

For example, while the PepsiCo and FarmerShield models are based on the contract based farming arrangements between the facilitating entity and the farmer, their contexts are quite different and nuanced based on the business proposition involved.

PepsiCo has offered agriculture insurance as a part of its array of support services that it thinks fits well with the needs of its partner farmers, however it has not made it a mandatory proposition. However, as the value proposition is strong, 95 per cent of all its partner farmers have opted for the insurance coverage. Contrast that with NWK's FarmShield Weather, a product that it has bundled with the inputs that are provided to the contracted farmers delivering cotton to NWK. Here, the weather insurance is involuntarily bundled by NWK. Both work well and offer value for both the implementer and the farmer, yet, even if the context is the same of contract farming there are differences.

Is there a universally replicable approach to bundling insurance in a contract farming set up? We don't know. What we do know is that whatever the bundling approach, it needs to be customised as per the market and socio-economic contexts of the partners to have a good chance for success.

The WBCIS model can be replicated provided the state has the fiscal capacity to support the program. State-run agriculture insurance programs pay at least 40 to 50 percent of all agriculture insurance premiums globally.

## 5. CONCLUSION

Many lessons can be learned from the existing bundling experiences. Bundling requires the involvement of multiple stakeholders within the value chain. An insurance product can be bundled with credit and farming inputs or offered as a value-add service to build loyalty of contract farmers.

In some of these cases, insurance may not be the primary product, rather it would act as a facilitator for the primary service. Hence, greater effort may be required to highlight the importance of insurance in the entire package of services. In addition, the value-added services provided, such as weather forecasts, need to be relevant and accepted by the farmers. This can help in building trust as well as improving the loyalty to the insurance product. In case the service is not used by farmers, the entire value proposition for insurance can falter.

Bundled agriculture insurance plays an important role in minimising distribution costs, optimising distribution channels and increasing customer loyalty and retention, with the aim of protecting vulnerable farmers. However, care needs to be taken in ensuring proper alignment of the value for all participants in the process, as bundling works only if there is a value proposition for all stakeholders.

The partnerships should leverage the strengths of each player in order to manage costs and deliver solutions efficiently. Implementers must understand the role of technology and the specific context of each crop before deciding on whether to offer the product as voluntary or mandatory and what business model to adopt.

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## IMPACT INSURANCE FACILITY

Housed at the International Labour Organization, the Impact Insurance Facility enables the insurance industry, governments, and their partners to realise the potential of insurance for social and economic development. The Facility was launched in 2008 with generous support from the Bill & Melinda Gates Foundation, and has received subsequent funding from several donors, including the Z Zurich Foundation, Munich Re Foundation, the World Bank Group, USAID, AFD, FSDA, Africa Re and AusAID.

## FEED THE FUTURE INNOVATION LAB FOR ASSETS AND MARKET ACCESS INDEX INSURANCE INNOVATION INITIATIVE (I4) AT THE UNIVERSITY OF CALIFORNIA, DAVIS

I4 is an initiative of the Feed the Future Innovation Lab for Assets and Market Access at UC Davis, the United States Agency for International Development (USAID), the Food and Agriculture Organization of the United Nations, the Impact Insurance Facility of the International Labour Organization and Oxfam America. Since it was first launched, the Index Insurance Innovation Initiative (I4) has grown into a broad effort to ensure resilience and self-reliance for small-scale agricultural and pastoralist households. I4 and the Facility further work together in the Global Action Network on agriculture insurance.



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