# Towards De-risking Disasters:

## Taking stock of microinsurance for disaster risk reduction - Index based microinsurance in South and South East Asia

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## Taking stock of microinsurance for disaster risk reduction - Index based microinsurance in South and South East Asia

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# Content

**Case Studies**

# Abbreviations

| | |
|---|---|
| **AAUI** | Indonesian General Insurance Association |
| **ACA** | Asuransi Central Asia |
| **AIC** | Agriculture Insurance Company of India |
| **ARBY** | Area Yield based Product |
| **ASEAN** | Association for South-East Asian Nations |
| **AWI** | Adverse Weather Incidence |
| **AWS** | Automated Weather Station |
| **BAPEPAM** | Indonesian Capital Market Supervisory Agency |
| **BPR** | Bank PerkreditanRakhyat |
| **BRI** | Bank Rakhyat Indonesia |
| **BTPN** | Bank Tabungan PensiunanNasional |
| **CARICOM** | Caribbean Community |
| **CCE** | Crop Cutting Experiment |
| **CCIS** | Comprehensive Crop Insurance Scheme |
| **CCRIF** | Caribbean Catastrophe Risk Insurance Facility |
| **CLIMBS** | Co-operative Life Insurance and Mutual Benefit Services |
| **CLIS** | Compulsory Crop Loan Insurance Scheme |
| **CPIS** | Coconut Palm Insurance Scheme |
| **CRM** | Climate Risk Management |
| **CRMG** | Commodity Risk Management Group, The World Bank |
| **DID** | Développement International Desjardins |
| **DRIF** | Disaster Risk Insurance Framework |
| **ENSO** | El Niño Southern Oscillation |
| **EQII** | Earthquake Index-based Insurance |
| **EDI** | Ethiopia Drought Index |
| **FADQDI** | FinancièreAgricole du Québec Développement International |
| **GDP** | Gross Domestic Product |
| **GIC Re** | General Insurance Corporation of India |
| **GIIF** | Global Index Insurance Facility |
| **GIZ** | German International Co-operation (earlier known as GTZ) |
| **GoI** | Government of India |
| **GPS** | Global Positioning System |
| **IDR** | Indonesian Rupaiah |
| **IFAD** | International Fund for Agricultural Development |
| **IFC** | International Finance Corporation |
| **IFFCO** | Indian Farmers Fertiliser Co-operative |
| **ILO** | International Labour Organisation |

| | |
|---|---|
| **IMD** | Indian Meteorological Department |
| **INETER** | InstitutoNicaragüense de EstudiosTerritoriales |
| **INR** | Indian Rupee |
| **IRDA** | Insurance Regulatory and Development Authority |
| **IRRI** | International Rice Research Institute |
| **ITGI** | IFFCO Tokyo General Insurance Company |
| **IU** | Insurance Unit |
| **LKR** | Sri Lankan Rupee |
| **MAHYCO** | Maharashtra Hybrid Seeds Company Limited |
| **MBA** | Mutual Benefit Association |
| **MFI** | Microfinance Institution |
| **MIS** | Management Information System |
| **mNAIS** | Modified National Agriculture Insurance Scheme |
| **MoA** | Ministry of Agriculture |
| **MPCI** | Multi Peril Crop Insurance |
| **NAIS** | National Agriculture Insurance Scheme |
| **NASA** | National Aeronautics and Space Administration |
| **NatCat** | Natural Catastrophes |
| **NBFC** | Non-banking Finance Companies |
| **NCMSL** | National Collateral Management Services Limited |
| **NCIS** | National Crop Insurance Scheme |
| **NDMA** | National Disaster Management Authority |
| **NDVI** | Normalised DifferenceVegetative Index |
| **NGO** | Non Government Organisation |
| **NIA** | National Insurance Academy |
| **NISCO** | Nyala Insurance Company |
| **NRSP** | National Rural Support Programme |
| **NTB** | West Nusa Tenggara |
| **NTT** | East Nusa Tenggara |
| **OJK** | Financial Services Authority of Indonesia (OtoritasJasaKeuangan) |
| **PACE** | Product Access Cost Experience |
| **PACS** | Primary Agricultural Co-operative Societies |
| **PACC** | Climatologic Contingency Attention Programme |
| **PCIC** | Philippines Crop Insurance Corporation |
| **PHP** | Philippine Peso |
| **PKR** | Pakistani Rupee |
| **PPAF** | Pakistan Poverty Alleviation Fund |
| **R & D** | Research and Development |
| **RBC** | Risk Based Capital |

| | |
|---|---|
| **RDI** | Rainfall Distribution Index |
| **RFE** | Rainfall Estimate |
| **ROSCA** | Rotating Savings and Credit Associations |
| **RUA** | Reference Unit Area |
| **RVAN** | Raytu Vyasaya Akshaya Nidhi |
| **SAA** | State's Department of Agriculture and Supply |
| **SACCO** | Savings and Credit Co-operative |
| **SANASA** | Thrift and Credit Co-Operative Societies in Sri Lanka |
| **SDIP** | Sovereign Disaster Insurance Programme |
| **SECP** | Securities and Exchange Commission of Pakistan |
| **SF** | Sowing Failure |
| **SHG** | Self-help Group |
| **SICL** | Sanasa Insurance Company Limited |
| **SIDS** | Small Island Developing States |
| **SMS** | Short Messaging Service |
| **SVDP** | Soon Valley Development Program |
| **TOPS** | Terrestrial Observation and Prediction System |
| **TSKI** | Taytay Sa KauswaganInc |
| **USA** | United States of America |
| **USD** | United States Dollar |
| **WB** | World Bank |
| **WBCIS** | Weather-basedCrop Insurance Scheme |
| **WFP** | World Food Programme |
| **WIBI** | Weather Index Based Insurance |
| **WII** | Weather Index-basedInsurance |
| **WRMS** | Weather Risk Management Services |

Currency conversions (where the corresponding USD figures are not available) in the report are done as per the table below.

| Currency | Conversion To | Conversion Rate |
|---|---|---|
| USD1 | Indian Rupee | INR45.84 |
| USD1 | Pakistan Rupiah | PKR85.17 |
| USD1 | Sri Lanka Rupee | LKR130.46 |
| USD1 | Philippine Peso | PHP43.31 |
| USD1 | Indonesian Rupiah | IDR9910.8 |

# Key Points

- The poor across the world are very vulnerable to disasters such as drought, heavy rains, cyclones, storms, typhoons, earthquakes etc. These disasters have a detrimental effect on the lives and livelihoods of the poor.
- Weather based index insurance is one of the ways of dealing with these disasters. This report speaks of the role of weather index insurance as a disaster management tool for the poor. This report focuses on the progress of index insurance schemes in five countries of South and South East Asia viz. India, Pakistan, Sri Lanka, Indonesia and the Philippines.
- Some of the distinct advantages of index insurance when compared to the traditional multi-peril crop insurance schemes are: faster assessment time resulting in faster pay-out to the farmers, financially sustainable (but with Government subsidy), actuarially priced structure, use of technology in the form of weather stations and lower / no cost of assessments of farmers' fields.
- Index insurance in India started in 2003 as a private sector effort from ICICI Lombard and BASIX. It was followed by the public insurer AIC of India which runs the world's largest scheme, the Weather based Crop Insurance Scheme (WBCIS). India success is categorised by factors such as Government support (subsidy), active private sector contribution, thrust on weather infrastructure, large farmer base, linking loan with insurance and re-insurance support.
- Index insurance in Pakistan and Sri Lanka is also relatively nascent. Both the countries have started experimenting with index insurance with support from international agencies. Pakistan is working with agencies such as IFAD whereas Sri Lanka is working with ILO, DID and IFC. Only a couple of insurance companies are offering the index products as of now. Both the countries have effectively demonstrated the use of NGOs and co-operatives as a distribution mechanism.
- In the Philippines, the public insurer PCIC is working with World Bank, GIZ and ILO on two index pilots. One of the more established player in disaster index insurance is MicroEnsure. MicroEnsure offers index products against typhoons and calamities.
- Indonesia is yet to have an index insurance product. A private insurance company failed with its flood index insurance initiative. Other private players are still in the conception stage.
- Though index insurance is a good tool against disasters, it faces some challenges. Even though the challenges are different in different countries, some of the common challenges are as follows: poor weather infrastructure (leading to basis

risk), no / less support from Reinsurance companies, excessive dependence on Government subsidy, index insurance distribution challenges to the end client, farmer literacy, higher initial investment for the insurer and lower uptake of index insurance amongst non-loanee farmers (in India).

- Based on the experiences of these countries, some of the factors which can be listed for the rapid up-scaling of index insurance are: selection of the right index parameter, working with Government of the country, tying up re-insurance support, improved focus on the weather infrastructure, creating research and development capacities for the insurance companies, capacity building of local stakeholders, use of Bancassurance model for distribution of products and finally client education.
- The success of an insurance programme depends upon the value clients derive from the scheme. The PACE framework (Product, Access, Cost, Experience) conceived by ILO has been used to derive therelative performance of the different index insurance programmes/pilots in these five countries.
- The report also incorporates the discussions with the key stakeholders in these five research countries in the form of case studies which are attached at the end of the report.

# Executive Summary

Communities across the globe have always used conventional wisdom to tackle natural disasters. However, the economic vulnerability of low-income people to natural disasters in developing countries cannot be overlooked. The livelihood of most low-income people, especially those living in rural areas in developing countries, depends highly on the vagaries of nature. Drought, for example, can cause havoc in rain-fed areas. Similarly, winter and frost are also severe risks for agriculture and livestock. In addition, in case of catastrophes like flood, earthquake or typhoon, it is mainly low-income people whose assets are depleted even before the associated income loss following a disaster. In recent years, with rapid climate change and the detrimental effects of natural hazards, covering disaster risks have become more important than ever before.

Being fully prepared to reduce the effect of disaster risk has become an important part of any development activity targeted at the vulnerable population. Disaster insurance is one such financial tool with which to manage the disaster shocks. Although available in developed countries, developing countries, which host most of the economically vulnerable population, have lagged behind in disaster insurance. Conventional disaster insurance involves high-transaction costs in selling, marketing and loss assessment, which in turn restrict insurers from developing the low-ticket size disaster insurance products needed by low-income people. Besides, the insurance market is nascent in most of these countries and unaccustomed to underwriting such complex and low-margin products.

Index-based disaster insurance products are a new approach in disaster insurance, reducing the transaction cost and justifying entry of insurers to develop disaster coverage, even for low-income people. In index insurance, substantial variation of a well-monitored natural parameter, such as rainfall, wind-speed, temperature or humidity, is considered as a proxy for the actual loss. To design these products, historical trends of change in the parameter are matched with the corresponding crop or economic loss so that a minute variation in the parameter will indicate a corresponding potential loss caused by the event.

In index insurance, an area-wide approach is taken and claims are automatically paid to the insured if the parameter changes, so the insurer incurs negligible costs in assessing loss. Index-based disaster insurance products have been piloted in Ethiopia, Malawi, Mexico, Nicaragua, some Caribbean islands and Vietnam. In the

countries of interest to this study (India, Indonesia, Pakistan, Sri Lanka and the Philippines) there have also been disaster-specific index insurance products (and pilots) targeted at crop loss. In this study, we have studied these schemes to learn about the potential of designing index-based disaster insurance.

**Index Insurance Experiences in Countries of Study**

*India was the first country of study in developing index- based agricultural insurance schemes.* Index insurance in India developed mainly through the initiatives of private insurers. From 2003 onwards, several private insurers started piloting weather index-based crop insurance scheme in partnership with NGOs, private contract farming companies, fertiliser companies and seed companies. In 2007, the government owned Agriculture Insurance Company (AIC) launched Weather-based Crop Insurance Scheme (WBCIS), the universal index-based crop insurance scheme of India. The premiums of WBCIS are subsidised by the central and state governments and the scheme is open for all general insurers to participate. WBCIS is mandatory for any farmer taking crop loans from any bank in the country. The product covers against drought as well as excess rainfall in *Kharif* and against frost, high temperatures, humidity, excess rainfall and other localised climate risks in Rabi. So far, more than 10 million farmers have been insured through this product.

*Unlike India, index insurance in all the other countries of study are in the pilot (or even pre-pilot) stage.* In Pakistan, for example, the current (and only)index pilot is funded by the Pakistan Poverty Alleviation Fund (PPAF) along with the International Fund for Agricultural Development (IFAD). These index products are offered by two insurance companies, Alfalah and United Insurance, and are distributed by the Soon Valley Development Programme (SVDP) and the National Rural Support Programme (NRSP), two community-based organisations. The pilot covered rain-fed areas of the Soon Valley and Talagang against inadequate rainfall. In the first of pilot, 2,376 ha of cropping land was insured in the pilot.

In Sri Lanka, Sanasa Insurance Company Limited (SICL) conducted two index insurance pilots funded by the International Labour Organisation (ILO) and the Global Index Insurance Facility (GIIF) of the International Finance Corporation (IFC). SICL insured only southern districts of Sri Lanka, since crop production in northern states does not depend on rainfall, the index for the product. For the next phase, SICL plans to extend the benefit to paddy and banana crops in addition to tea-growing areas.

The Philippines Crop Insurance Corporation (PCIC) in the Philippines is currently running a weather index pilot for rice and corn with World Bank in Regions 2 (Isabela) and 6 (Iloilo) and in Butuan with the help of the ILO. MicroEnsure has also launched a weather index-based typhoon insurance product to protect smallholder rice farmers from the financial risk of crop damage by typhoons. It started in May 2009 on Panay Island. MicroEnsure plans to significantly increase the scale if the pilot proves successful.

Indonesia has seen pilots of disaster insurance implemented by private insurer PT ACA and MAIPARK. IFC has also conducted an index insurance feasibility study for

maize crop in Eastern Indonesia. MAIPARK Reinsurance Company and GlobalAg Risk have been planning to pilot an index-based earthquake insurance product in Indonesia. PT Wahana Tata (an insurer) with support from German International Co-operation (GIZ) and Munich-Re, introduced a flood index insurance product in Jakarta last year but could not achieve scale.

**Characteristics from the Index Insurance Experiences**

Although not specifically targeted for disaster, index insurance products and pilots in the countries of study are important to understand the index insurance platform in these countries.

*Government support helps reach scale*. Conventional crop insurance schemes and/or disaster insurance programmes in India, Pakistan and the Philippines are led either by the governments or public-sector insurance companies. Apart from the advantage of direct subsidy by the government, such schemes attain high scale since governments often couple them with other social security or development programmes. However, most of these schemes have witnessed unsustainable claim ratio due to management inefficiency and high level of moral hazards in conventional agriculture insurance. In India and the Philippines, government programmes have slowly shifted their focus from conventional insurance to index-based insurance because of its many advantages. These are mainly the subsidy allocation, the negligible moral hazard and the low administration cost. The governments only subsidise the premium of the product, while any eventual claim is the liability of the insurer. The subsidy can be easily budgeted and is not open ended.

*Investment-wary private insurers enter the market only if they are sure of outreach and demand*. Index insurance and disaster insurances require high investment in creating an adequate weather infrastructure, index development and information infrastructure. Besides – in spite of high profit margins in percentage points – in absolute terms, the margin is miniscule in index-based microinsurance. Private insurers, therefore, enter the index insurance market and disaster insurance market only if they are sure of a substantial market size. The interest of private insurers in index-based disaster insurance is seen only in the case ofIndia, where the index-based product has been made compulsory in many states by bundling it with agriculture loans, and Indonesia, where disaster insurance is bundled with property insurance, a product category high in demand due to rapid economic growth.

*Donors support financially and technically*. The role of international donors becomes very pronounced when index insurance is offered for the first time (such as in Sri Lanka, Pakistan and the Philippines). These donors help in either or both these ways: financial support and technical support. They support the pilot for a limited period of three-five years before the results can be presented to the government and the insurance sector develops confidence in the feasibility of the product. Some donors also contribute to the premium subsidy, which helps to achieve sufficient scale for test running small pilots.

*Index insurance projects (and pilots) involve community based organisations*. Apart from the insurers and government, community-based organisations, NGOs

and other civil society organisations are also very important stake holders for index insurance projects. They act either as distributor of the index products or as marketing and education medium for such products. Their rural outreach and vintage (read popularity) help in the faster and effective distribution of policies.

*Like traditional insurance, index insurances are still costly for clients*. Although administration and transaction costs are low in index insurance, the risk premium calculated on historical burn analysis shows that index insurance remains costly for clients in absence of any subsidy. With the probability of basis risk, such products often become unaffordable and uninteresting to low-income people, necessitating subsidising the premium. With the exception of the Sri Lanka pilot, the premiums of all the index insurance programmes in these countries are subsidised.

*Multiple distribution channels need to be employed to attain high outreach*. High outreach is necessary for the success of any index insurance. Apart from attaining the break-even point for administration costs, the claims are paid on a parametric basis so the moral hazard is negligible and the adverse selection problem is taken care of by making the product mandatory. In India, Pakistan and Indonesia, the banks, co-operatives and microfinance institutions (MFIs) are deployed by the index insurance players to cross-sell index insurance products along with loans and other related products. Such product bundling approaches often go beyond financial products, as seen in some Indian products in which index insurance was bundled together with fertiliser, seed and even contract farming contracts.

**Challenges of Index Insurance**

Index insurance is neither the panacea for all disaster risk issues nor devoid of challenges. Some common challenges of the index insurance products are important to understand for development of future programmes.

*Weather infrastructure in the developing countries is inadequate for index insurance products*. The index is constructed after collecting the accurate historical weather data of the last two to three decades. The weather stations need to be present at a radius of 20 to 25 km. If the weather infrastructure (weather monitoring stations) is inadequate, the basis risk increases. In most of the countries of the study, weather monitoring infrastructure is limited, making it almost impossible to cover microclimatic variations(to counter this problem, most countries now use satellite imagery, which is more accurate and cannot be tampered with. The information is also free of cost and may eventually make weather stations irrelevant). In case of WBCIS in India, the insurers have employed private weather data providers to increase the weather footprint. Such an investment-oriented approach, however, is possible only if the programme is large enough.

*Reinsurance is not available for small programmes*. Due to lack of data, complexity of product structures and the relatively low economic value of coverage, reinsurance companies mainly concentrate on programmes with high outreach (with a total premium value of more than USD1 million). On the other hand, the insurance companies initially prefer to test the market through small pilots and keep the price of index insurance low in order to attain client traction and high outreach. To

validate the pricing, these companies carry very small portions of the risk on their books and depend on reinsurance companies to validate the pricing. This instigates a vicious circle in which the programmes cannot be expanded without reinsurance support and, in turn, there is no reinsurance support because the programmes are not sizeable. However, when compared to conventional insurance, reinsurance is more easily available for index-based insurances since they are actuarially priced. Although they prefer a commitment for long-term scalability, most of the global reinsurers are looking towards emerging markets in Asia with interest because they are keen to diversify their portfolios beyond the already-saturated developed countries.

*Index insurance programmes are subsidy dependent.* Since the price of index insurance often becomes unaffordable for low-income people, the schemes are subsidised. WBCIS, the largest index insurance in the world, is subsidised by central and state government to the tune of 50-82% of the premium. The pilots in the Philippines and Sri Lanka do not have direct premium subsidies but overall the programmes are subsidised by international donors. Although disaster index insurance is by definition subsidised, the sustainability ultimately depends on consistency in the fiscal policies of each government. However, with index insurance there is a change in the way subsidies are given to the insurers. Unlike the earlier regime of claim subsidy in conventional insurance, which ultimately becomes a bottomless pit, it is only the premium that is subsidised in most of the index insurance schemes.

**Potential for Scaling Up Index-based Disaster Insurance in the Countries of Study**

Since the platform of index-based insurance has been prepared, disaster-focused index insurance can be scaled up in these countries. However, certain suggestions must be taken into consideration.

*Identification of the right parameter is essential for a successful programme.* The inherent basis risk of index insurance is magnified in developing countries as the microclimatic variation in livelihood patterns and cropping practices creates discrepancies in triggered claim and actual loss. Only weather parametric data, therefore, has been found insufficient in most of the countries. Remote sensing and satellite imagery data needs to be incorporated to capture the localised events and corresponding losses accurately. However, a similar approach cannot be replicated across all areas of these countries, since they are of varied geographical types.

*Governments should be part of the programme.* Index-based disaster insurance needs to be part of the government's overall disaster risk-reduction framework. Apart from ensuring the high outreach of a government sponsored programme, making the product compulsory helps in reducing the problem of moral hazard and adverse selection. Due to global warming, the frequency and severity of natural disasters is likely to increase and it will not be possible for the insurance sector to provide disaster insurance to entire populations on their own. The governments must set up Sovereign Disaster Insurance Programs (SDIPs) to cope up with the huge magnitude of disasters.

*Ensure reinsurance before piloting*. Reinsurance is critical for an index-based disaster insurance programme. Since most of the disaster index insurance programmes are national in nature, transferring the risk to international risk carriers is the only viable solution.

*Investment in weather infrastructure is a must*. In India, Indonesia, Pakistan and the Philippines, where farmland holdings are scattered over a wide geography, there is a need to set up more weather stations so that microclimatic variations can be captured in the index. This is more important for a disaster index insurance product, since most of the natural disasters affect a relatively small microclimatic region. An enhanced network of weather stations would produce a better correlation of weather parameters measured at the weather stations and the actual weather near the farmland of the clients.

*Capacity of local stakeholders should be increased*. Product development is an intensive process that includes steps such as product design, costing/pricing, prototype testing, training of the field staff, training of aggregators and pilot testing. All this has to be done before the product is launched onthe market. A local champion is necessary to overcome these initial set-up challenges; having someone on the ground to manage the detailswith the various agencies and stakeholders involved is critical ingetting everybody working together. Similarly, it is important to employ locally based and connected partners for project management as they can also work as aggregators for policies.

*Bancassurance channels should be put to use*. In the case of index insurance, bancassurance modelsdrastically reduce the administrative cost of delivering the product. Besides, the existing bank databases provide a ready market for the insurer. Since high scale and outreach is essential for the success of index insurance, such a ready market helps the insurer in reaching high volume in a short time and at little cost. Moreover, approaching bank customers works as a systemic client-selection process, reducing the risk of moral hazard and adverse selection in index insurance products. However, in developing countries withlow financial inclusion, the scope of accessing low-income people through bancassurance channels is limited. MFIs and savings and credit co-operatives (SACCOs) also need to be treated as bancassurance partners in such countries.

*Client literacy and education must be a priority*. Insurance is a product with latent demand. Convincing people of the need for insurance, traditional or index-based, is a challenge most insurers try to address. To sell a voluntary insurance product, the target clientele must be willing to pay for the product. Willingness to pay also depends on understanding the product, its perceived value in someone's life and its affordability. The problem of understanding becomes more acute with index-based insurance products as these are highly technical products and people are not familiar with the idea of a single-risk coverage product (i.e. one that pays out only for the triggering of the indexed risk). Index insurance programmes that include initial training and an overall continuous approach to capacity development have a clear advantage in effective implementation compared to those that do not. When clients are trained both in the use of index insurance as a risk-mitigating investment

and in general financial literacy, they are better positioned to understand when and how to expect a claim and they also have more realistic expectations regarding payments. Similarly, they can make well-informed decisions about their overall risk-reduction strategy, whether index insurance could complement it, and what products best suit their needs.

# 1. Introduction

A disaster is defined as 'aserious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.'[1] Disasters stem from events such as earthquakes, floods, catastrophic accidents, fires or explosions. Disasteris a phenomenon that can cause damage to life and property and destroy the economic, social and cultural life of people.

At ahousehold level, risk management against possible disaster has always been a part of the life and livelihood of low-income vulnerable people. Farmers anticipate rains using conventional wisdom and time their planting and inputs based on their best estimates; they install irrigation systems if they can and they reduce risk exposure by diversifying their livelihoods as far as possible (Dercon, 1996; Ellis, 2000). Based on altitude and topography, farmers access the farming practice that best suit their climate and expected natural hazards, but low-income people remain vulnerable to disasters, with disaster-related economic loss pushing them towards a vicious cycle of poverty.

Although common in developed countries, risk-transfer approaches such as insurance are not generally available in developing countries, where insurance markets are limited and not oriented towards low-income clientele. High transaction costs, the possibility of adverse selection and the need for initial investment keeps insurers away from microinsurance for disaster protection in these countries. Index insurance is a new type of insurance that offers new opportunities for managing climate risk in developing countries. It is linked to an index, such as rainfall, temperature, humidity or crop yields, rather than actual loss. If designed and introduced carefully, it has the potential to contribute significantly to sustainable development by addressing agap in the existing climate risk management portfolio. Index insurance can be applied across adiverse range of weather-related risk problems, from loss of crops due to drought to loss of livestock in harsh winter conditions and losses resulting from hurricanes. It can be purchased at different levels of society– at micro-level by small-scale farmers, atmeso-level by input suppliers or banks and/or at macro-level by governments. One key advantage

[1] UNSIDR definition

of index insurance over traditional crop or disaster insurance is that the transaction costs are lower and they are less vulnerable towards adverse selection and moral hazard.[2]

Index insurances can be used for two fundamental purposes: for development and for disaster risk reduction. In most of the countries, index insurance is used to safeguard farmers against possible crop loss due to unfavourable weather events. Even if the weather event is not catastrophic, index insurances indemnify the insured against possible opportunity lost in their production due to weather. Index insurance for disaster risk reduction, on the other hand aims to indemnify governments and relief agencies against lives, assets and crop lost due to extreme natural disasters. Such index insurances are built into the disaster preparedness of the country and its government against possible shocks.

**Difference between Index Insurance for Development and Disaster Risk Reduction**

| | **Index Insurance for Development** | **Index Insurance for Disaster Risk Reduction** |
|---|---|---|
| Intended Use | To help farmers escape poverty by removing barriers that prevent them from being more productive, e.g. enabling access to credit so that farmers can be more effective in 'good' weather years. | Save lives and livelihoods through more cost-effective and timely disaster response. The timelier response may help prevent people from falling into poverty traps |
| Target Beneficiary | Smallholder farmers and agricultural labours with growth potential, or their suppliers and financers; institutions within the agricultural supply chain that work with farmers. | Those vulnerable to disaster, particularly those in chronic poverty. Contract is held at macro-level by government or relief agency. |
| Subsidy | Subsidies can severely distort incentives and encourage the promotion of ineffective or inappropriate products. However, if used responsibly, subsidies may play an important role inlaunching products. | Disaster relief programs are by definition subsidised. The insurance is a financing mechanism designed to ensure more effective use of these subsidies. |

*Source: Index insurance and climate risk: Prospects for development and disaster management; IRI, 2009*

In this report, we concentrate on the experiences of the index-based crop and/ or disaster insurance products in five Asian countries: India, Pakistan, Indonesia,

[2] Adverse selection occurs when potential borrowers or insurers have hidden information about their risk exposure that is unavailable to the lender or insurer, who then becomes more likelyto erroneously assess the risk of the borrower or insured. Moralhazard occurswhen individuals engage in hidden activitiesthat increase their exposure to risk as a result of borrowing orpurchasing insurance. These hidden activities can leave thelender or insurer exposed to higher levels of risk than anticipated when interest or premium rates were established.

Sri Lanka and the Philippines. Since most of the index-based products in these countries are agriculture based (index insurance for development), they are limited in their impact in designing index-based disaster insurance products. Therefore we focused on common issues that affect both 'development oriented' and/or 'disaster oriented' index-based insurances. Since we discuss in detail the evolution and characteristic of overall index insurance environments in these countries, some of that key learning can be used for the design of disaster insurance products for each country. We also cover the experiences of traditional crop and disaster insurance products in these countries, to highlight the differences introduced by new index insurance regimes. Where appropriate, we refer to index-based disaster insurance products from beyond the study countries, which will help in any index-based disaster insurance design for the regions targeted.

In the following section, we detail the difference between traditional crop insurance and index insurance approaches, which helps the reader understand the role and benefit of the index insurance programmes later discussed. The section concludes with a discussion around the common challenges faced by index insurance products across the globe; this information is necessary to make sense of the observations and characteristics we discuss in further sections of the report.

In the fourth section, we briefly introduce index insurance experiments in the countries of study, so the following discussions are put into context. Detailed discussions of all the schemes are attached as case studies in the annexures to the report. In the fifth section, we discuss the disaster-orientated focus of the index insurance experiments in the target countries. The sixth section elaborates on the common characteristics of the index insurance programmes and pilots in these countries. Here we discuss the macro-level, product design level, sustainability level and distribution level trends of these experiences.

The seventh section of our report details the challenges faced by all the index insurance experiments, including the debate around subsidy, claims and infrastructural issues that affect growth and efficiency of index-based insurance in the countries of study. This leads on to the last section of the main body of the report, where we suggest some common themes that can help build and scale up index-based disaster insurance in the countries of study. In this section, we refer to the learning of index-based disaster insurance programmes in Ethiopia, Mexico, Nicaragua, Vietnam, the Caribbean and Malawi, where similar insurance programmes are at a higher level of development. Aninth section is attached, in which the index insurance programmes of each country of study are mapped for client value using Product Access Cost Experience (PACE) framework developed by the ILO's microinsurance innovation facility.

# 2. Microinsurance Products

Microinsurance is defined as the 'protection of low-income people against specific perils (that cause vulnerability in their livelihood) in exchange for regular payment of premiums proportionate to the likelihood and cost of the risk involved.'[3]

Due to its worldwide focus on a low-income people risk mitigation agenda, microinsurance is becoming popular as an effective disaster-risk reduction tool. Disaster insurance broadly comes under the crop insurance domain.

Disaster related microinsurance products are of many types:

- Traditional crop insurance
  - Yield-based crop insurance or Multiple Peril Crop Insurance (MPCI)
  - Damage-based indemnity insurance or Named Peril Crop Insurance
  - Area-yield index insurance
- Traditional disaster insurance policies such as policies against earthquakes, storms etc.
- Traditional livestock insurance
- Weather-based index insurance policies
- Livestock index insurance policies

Let us understand the design and dynamics of different types of crop and index insurance products so we can appreciate the role index-based microinsurance can play in disaster insurance.

## 2.1 Traditional Crop Insurance

In traditional crop insurance products, the losses are indemnified on an individual farm basis. As mentioned above, these products are of three types:

### 2.1.1 Multiple Peril Crop Insurance (MPCI)

An MPCI product protects crop loss against multiple perils, i.e. many different causes of yield loss, and is a useful product if it is difficult to attribute crops losses to a single peril. In a typical MPCI, an insured yield (e.g. kg/ha) is established as a percentage of the historical average yield of the insured farmer. MPCI indemnifies

[3] IAIS and Microinsurance working group, CGAP; Social Finance Programme, ILO

a claim if the actual farm-level yield is less than an agreed percentage of the average yield established for that farm. A farm-level loss assessmentis needed to estimate each individual policyholder's losses and to calculate indemnity payments. MPCI is predominantly used in the United States, Canada, Spain and other developed countries. Owing to the administration cost incurred in farm-level loss assessment, MPCI is a costly insurance model. Such products can only be implemented successfully in regionswhere agriculture is an organised activity and farm size is large enough to justify the administration costs.

### 2.1.2 Named Peril Crop Insurance

Damage-based indemnity insurance is crop insurance in which the indemnity is calculated by measuring the percentage damage to a field caused by a specific cause of loss. The percentage damage measured in the field, less a deductible expressed as a percentage, is applied to the pre-agreed sum insured. The sum insured may be based on production costs or on the expected revenue. The cost of offering named peril crop insurance is significantly less than the cost of offering an MPCI since it is easier to conduct risk assessment for a single named peril than for multiple perils.

### 2.1.3 Area-yield Index Insurance

Area-yield index insurance bases the indemnity on the deviation of realised or actual yield of an area from the insured average yield. The insured yield is established as a percentage of the average yield for the area over a long term. An indemnity is paid if the crop yield for thatareain one seasonis less than the insured yield. Since the actual crop loss is calculated for an area, such products do not consider the actual yield on a policyholder's farm. In this model, there is no cost incurred in farm-level loss assessment. This type of index insurance requires historical area-yield data and standardised procedures to make and verify yield estimates.

The price/cost of an MPCI, named or area yield index insurance will depend on:

**Price Equation of Traditional Insurance**

**Price of Insurance:**

***Cost of Expected Annual Loss***

\+ ***Expense Loads:***

\+ *cost of information to control adverse selection*

\+ *cost of monitoring to control moral hazard*

\+ *cost of loss adjustment*

\+ *cost of delivery*

\+ *cost of administering the insurance programme*

\+ *cost of product development*

\+ ***Cost of Correlated Risk***

\+ ***Cost of Capital***

Traditional crop or damage insurance is subject to high administrative costs and prone to the problems of adverse selection and moral hazard. It also requires significant investment in monitoring farm yields to prevent both higher losses than the initial

rating and serious actuarial problems. In addition, traditional crop insurance has large correlated risks so it requires the extra cost of providing reinsurance. These extra costs can be quite high in an emerging economy that has little or no experience in providing insurance of this type. Traditional crop insurance is therefore not a workable solution for most of the developing countries.

Most of the largest crop insurance programmes in the countries of our study are of a traditional nature. The Compulsory Crop Insurance Scheme (CCIS) and National Agriculture Insurance Scheme (NAIS) in India, Compulsory Crop Loan Insurance Scheme (CLIS) in Pakistan, Rice/Corn Crop Insurance in the Philippines and the Crop Insurance Scheme of Sri Lanka are examples of such high-cost traditional crop insurances, where loss ratios often go beyond 100%.

Even beyond these countries, experiments with traditional crop insurance have not met with success in the developing nations.

> *'The financial experience with publicly provided, multiple peril crop insurance has been disastrous. In all cases, programmes are heavily subsidised and governments not only pay part of the premium, but also most of the delivery and service costs, and they cover aggregate losses'*
>
> **– Skees, Hazell and Miranda (2005)**

A series of studies have underlined that traditional crop insurance policies are challenged by:

- Dependence on subsidies not only for premium but also for losses in paying claims;
- Distorted incentives leading to moral hazard;
- High cost in terms of excessive environmental risk-taking;
- Being inequitable as large farmers tend to pocket most of the subsidies;
- Requirement of high level of expertise in loss adjustment, something not readily available in developing countries.

## 2.2 Traditional Disaster Insurance Programmes

There are indemnity-based microinsurance products covering people against disasters such as earthquakes, storms, hurricanes and so on. Some countries in South-East Asia have experimented with theseproducts with varied level of success. PT ACA in Indonesia offers traditional disaster insurance products for earthquake and dengue fever and Micro Ensure in the Philippines offers them for typhoon. Along with these products, there are also property insurance products available in these countries, which protect households from unforeseen losses during calamities. Indemnity-based disaster insurance products face challenges similar to traditional crop insurance schemes. In traditional disaster insurance, the loss adjustment often takes time to administer and the claim payment gets delayed. In terms of disaster management, such delay is unwarranted and reduces the attraction of these products among potential customers.

## 2.3 Traditional Livestock Insurance Programmes

The livestock sector is an important sector of the national economy, especially rural economies. The supplemental income derived from the rearing of livestock is a great source of support to farmers facing uncertainties of crop production, quite apart from providing sustenance to poor and landless farmers. Livestock insurance provides protection for farmers who own livestock as it covers death of livestock due to accidental death or diseases. Examples of livestock insurance include the Tani Malaysia livestock insurance pool, livestock insurance scheme in India and PCIC's livestock insurance programme in the Philippines.

## 2.4 Weather Index-based Insurance (WII)Programmes

Index insurance products are different from the traditional forms of crop and/ or disaster insurance. In index insurance, indemnity payments are based on values obtained from an index that serves as a proxy for losses rather than upon the individual losses of each policyholder. The underlying index is based upon an objective weather measure (e.g. rainfall pattern, rainfall quantity, wind speed, humidity, sunshine, temperature or a combination of these parameters) that exhibits a strong correlation with the variable of interest (e.g. crop yield loss, livestock death, property loss). Once the product and the index are designed, the weather observations work as proxies for losses in production or quality and do not require actual loss assessments.

**Price Equation for Index-based Insurance**

**Price of Insurance:**

***Cost of Expected Annual Loss***

\+ ***Expense Loads:***

- \+ ~~cost of information to control adverse selection~~
- \+ ~~cost of monitoring to control moral hazard~~
- \+ ~~cost of loss adjustment~~
- \+ *cost of delivery*
- \+ *cost of administering the insurance programme*
- \+ *cost of product development*

\+ ***Cost of Correlated Risk***

\+ ***Cost of Capital***

The price equation of index insurance is as follows:

The risk of adverse selection and moral hazard is at a minimum in the case of index insurance due to the homogeneous approach.

## 2.5 Livestock Index Insurance Programmes

In countries such as Mongolia, traditional indemnity-based livestock insurance (based on individual losses) has proved ineffective because of the high cost of covering animals spread across vast areas as well as ex ante moral hazards (herders failingto protect their livestock) and ex post moral hazards (herders falsely reporting animal deaths). With technical assistance from the World Bank, Mongolia now offers a livestock index-based product.

**The Concept of an Index-based Insurance Product**

***How does index insurance work?***

For index insurance to work, there must be a suitable indicator variable (the index) that is highly associated with the event being insured but is not prone to manipulation by either the insured or insurer. For example, when insuring against drought, an indicator such as rainfall may be suitable. The basic premise is that rain failure during the rainy season would result in some level of crop failure or yield reduction. Having sufficiently modelled this relationship, an index insurance contract could be underwritten based on rainfall to protect against various degrees of crop yield loss. Users would pay a regular insurance premium and receive payouts when the index crosses an agreed trigger point.

***Example: Features of a rainfall index insurance contract:***

- Rainfall index insurance contracts are based on rainfall indices structured to reflect variability of crop productivity, and focus on deficits or excessive rainfall that cause loss in crop yields;
- The indexes underlying the insurance contract are computed on the basis of rainfall data collected from a weather station that is representative of the climatic characteristics of the area in which crop production is carried out;
- Potential purchasers of insurance contracts are restricted to the area covered by the reference weather station;
- Different contracts are designed for areas with different climatic conditions (i.e. different seasonal rainfall patterns);
- The total amount insured by the contract is usually set at a level equal to the difference between input costs and potential crop revenue under normal conditions;
- The coverage period of a rainfall index insurance contract usually spans one complete crop cycle, starting at the time of sowing and ending at the time of harvest;
- The perils covered by rainfall index insurance are either deficit or excess of rainfall. Any other source of crop loss is not covered by the index policy;
- As index insurance policies are settled on the basis of rainfall measurement, there is no requirement of field-based loss adjustment. Payouts are provided in a timely manner as soon as the weather data is available;
- In a given area, all parties insured under a specific contract pay the same premium to purchase the coverage and receive the same payout if a paying event is triggered.

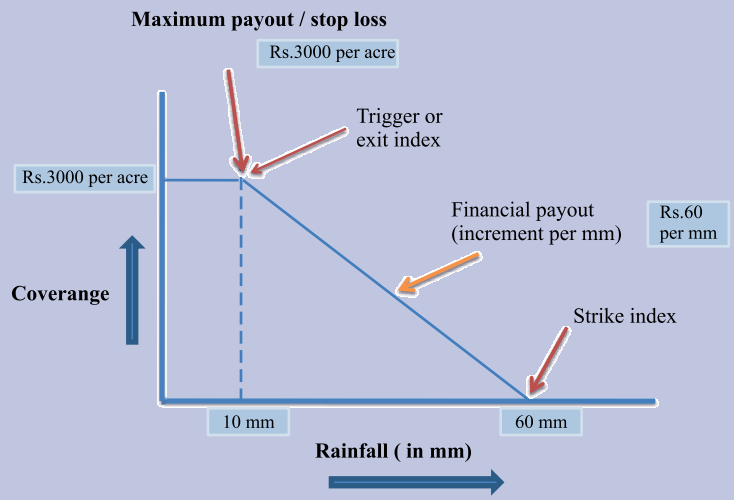
***Example: A hypothetical rainfall index insurance contract:***

*Product:* Rainfall index weather insurance product;
*Crop covered:* Cotton;
*Perils covered:* Deficit rainfall cover;
*Observed weather index:* Aggregate rainfall during the cover period, which means total rainfall as recorded by reference weather station from 1st May 2011 to 1st June 2011;
*Reference weather station:* The reference weather station is the weather station at the Indian Meteorological Department, Nagpur, which records rainfall data on the basis of which the claim amount (if any) for the policy will be calculated;

*Policy period:* Risk inception date of the policy is 1st May 2011 and risk end date of the policy is 1st June 2011;
*Sum insured:* Sum insured is Rs3000/acre, meaning the maximum claim amount that farmers can get per acre is Rs3000;
*Strike index:* Strike Index is 60 mm which means if the aggregate rainfall during the cover period is less than 60 mm then claims will be payable;
*Exit index:* Exit Index is 10 mm which means if the aggregate rainfall during the cover period is equal to or less than 10 mm then farmers will get full claim amount of Rs3000 per acre;
*Observed weather index:* The actual rainfall reading recorded in the weather station;
*Notional payment rate:* Notional payment rate is Rs60/mm, which means that if the observed weather index is less than strike of 60 mm, farmer can the claim amount of Rs 60 per acre per mm less than 60 mm.
*Calculation:* If the observed weather index (total rainfall during cover period from 1st May 2010 to 1st June) is 40 mm, claims payable will be calculated as follows:

***Claims Payable/acre= Maximum (Sum Insured, (Strike Index - Observed Weather Index) * Notional payment rate)***
= Maximum (3000, (60-40)*60) =20*60=Rs 1200/acre

If the observed weather index is more than the strike index of 60 mm then no claims will be payable.




**Payout Structure of the Product**

The farmer keeps getting the financial payout at a fixed rate untila particular exit index, after which they receive the sum insured. The payout for an excess rainfall product will be calculated as below:

***Claims payable/acre= Max (Sum Insured, (Observed Weather Index-Strike Index)*Notional payment rate)***

It can be seen that to calculate the payout to the farmer, there is no requirement of a visit to the farmer's field to calculate the actual yield loss, and so the payout in index products is faster compared to the traditional insurance payouts.

Despite the advantages described above, index insurance is not devoid of limitations. While index insurance can potentially overcome many of the problems associated with traditional disaster insurance, there are still significant challenges to overcome before index insurance becomes a viable risk mitigation mechanism in developing economies.

**The main risks or challenges in index insurance are:**

**Basis Risk:** Basis risk is the chance that the indemnity payment triggered by the index does not match the actual loss experienced by the insured. This could take two forms:

- The policyholder might suffer a loss for which they do not receive any or enough indemnity that compensate for the loss; or
- A policyholder could receive a claim even if they have not suffered a loss that is consistent with the payment.

One of the fundamental preconditions for index insurance is that the indexed weather event causes similar patterns of loss over a broad geographic area, and it does not work well for weather events that cause isolated and random loss in the same geographic region. For example, hailstorms or tornadoes are unlikely to be effectively covered through an index insurance product. It also cannot be used where many microclimates or different cropping practices exist within a small geographic area. In the disaster index insurance pilot of Ethiopia, basis risk issues arose when the sorghum variety used for building the index and the multitude of actual varieties cropped differed. The lower the correlation of production losses across an area, the higher the basis risk becomes. High basis risk reduces the demand for the insurance product whenpotential buyers perceive that the index is not likely to represent their loss experience and will therefore offer them inadequate protection against the risk.

**High Investment:** Index insurance programmes require a significant amount of start-up investment, whichoften inhibits the private market from developing these products independently. Examples of start-up costs include feasibility analysis and risk assessment, product and index design, capacity building, legal and regulatory review and so on. Private firms are reluctant to incur these costs as once a product is on the market, competing firms can easily replicate it and takeclients away before development costs are recouped. As a result, governments and/or donors often finance some of the start-up costs to support market development. Creation of weather stations and an adequate infrastructure to capture weather data also adds to the investment cost of developing an index insurance product.

**Not Suitable for Complex Risks:** Index insurance relies on identifying a suitable measure that can sufficiently serve as an indicator of losses. For example, a rainfall index can adequately capture drought events in most of the areas. However, some risks are more dynamic and then losses become more difficult to attribute to a single variable. It is hardto create an index measure that correlates strongly with these types oflosse If the index cannot accurately serve as a good proxy for losses, there will be a basis risk problem and dissatisfaction on the parts of both insurer and insured. In Mongolia, the major risk to livestock herders was catastrophic livestock losses from severe winter conditions, which occur from a combination of weather variables such as drought, low temperature, snowfall and wind speed. However, no single weather variable exhibited sufficient correlation with such livestock mortality.

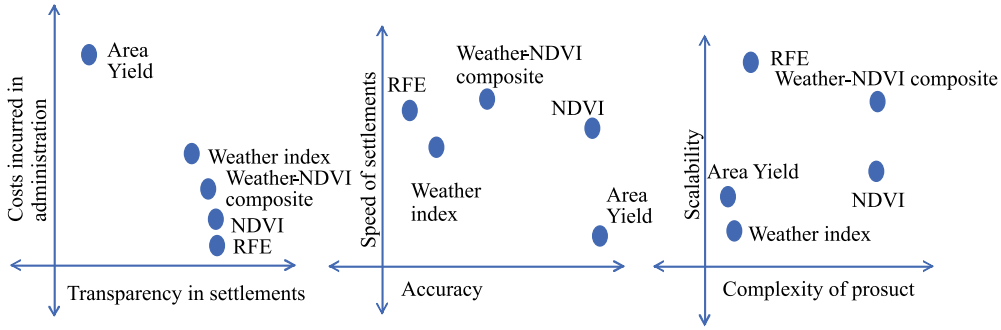
For a similar reason, flash flood, typhoon and sea surge are complex risks for which it is difficult to design index insurance; identifying a suitable index that proxies losses is not possible for these risks in most cases. Flood risk is also extremely complicated as both natural conditions and management decisions influence the occurrence of flood and its impact. The index insurance for flood developed for Dong Thap province in Vietnamwas only made possible because there are negligible management influences on the annual flood and because there hadbeen on-going rigorous monitoring and modelling of flood effects in the province.

**Data Infrastructure:** To design the index as well as to monitor the trigger, an index insurance programme needs adequate infrastructure that can monitor the weather data (on the indexed parameter) on a real-time basis. The weather stations should also be close to the policyholders so that a microclimatic variation can be identified, indexed and insured. However, in most of the developing countries, weather stations are either inadequate or ineffective or both. Unavailability of reliable real-time weather data often adds to the basis risk problem, where the indemnified amount is not appropriate to the actual loss.

In the last decade, several projects and pilots have experimented with multiple approaches to take care of the basis risk, complex risk and data problems. The emerging trends are:

- Development of hybrid index insurance models, where rainfall estimates (RFE) and satellite imagery (in the form of Normalised Difference Vegetative Index (NDVI)) are piloted either independently or in combination with index insurance data;
- More than one weather parameter has been incorporated to develop complex indexes;
- In many countries, the implementer established weather stations specifically to cater to the need of index insurance.

The comparative performances of these different types of microinsurance are shown below:




*MicroSave Analysis and CIRM presentation 2009*

Conceptual difference between traditional crop insurance and index insurance

| | **Traditional Crop Insurance** | **Index Insurance** |
|---|---|---|
| Access to Insurance | Access to these products is largely limited to farmers who have access to bank credit, with which the insurance cover is bundled. This leaves out a large section of small and marginal farmers who still do not have access to bank credit. | Access to this form of insurance is not limited to those that have access to bank credit. On account of the retail thrust that these products have seen, a significant section of customers who have taken up this type of cover are small and marginal farmers who are not active bank customers. |
| Level of Risk Cover | The crop insurance cover per farmer is generally capped to the size of the loan. This leaves the farmer with an inadequate level of cover, often not covering even the investment costs. | There is no cap fixed for the level of cover. The farmer can choose a desired level of cover to protect both his investment and yield. A wider enrolment in the scheme, both in numbers and geographical representation, will translate into lower premium rates, which may enable farmers to take larger covers compared to the current levels. |
| Timeliness of Claim Payout | Due to the manually intensive process of collection of data for claim assessment, the claim payments are often delayed, sometimes in excess of 12 months. | Index-based insurance allows assessment of claims in an objective and speedy manner, allowing claim payouts to be made in a timely manner to the farmers. The main advantage here is that the insurer does not have to visit the farms to ascertain/evaluate the losses. |
| Financial Sustainability | Traditional crop insurances schemes in many countries have been loss making inspite of the government subsidies on premium. The claim amount has been much more than the premiums collected. | With an increasing enrolment and spread to wider geographical locations, the weather insurance is showing an early trend of being financially sustainable due to the pricing of risk on an actuarial basis. |
| Pricing | Non-actuarial pricing renders it unsustainable. | Actuarial pricing has ensured that the scheme has lower loss ratios. |

# 3. Experience of South and South-East Asian Countries in Index-based Disaster CropInsurance Programmes

Index-based disaster insurance is pioneered by Ethiopia, Malawi and Vietnam. Although the success of these schemes is not always encouraging, many developing countries have tried to implement some form of index-based insurance in last five to seven years. In this section, we will discuss about the various index insurance schemes and pilots implemented in the five countries of the study.

## 3.1 India: Started by Private Players, Government Schemes Are Now Dominant

In India, private players took the first leap in offering index insurance. ICICI Lombard introduced index insurance in 2003 with its rainfall insurance product, which was developed for members of BASIX, a leading NGO of India. Many more index insurance pilots have followed in last decade, culminating in the government undertaking a massive universal Weather-based Crop Insurance Scheme (WBCIS) in 2007. WBCIS is the flagship index insurance scheme of the government of India and can be offered by any general insurance company. Every year, based on the state government's notifications, the insurance companies bid for districts to offer WBCIS.

Currently the pilot is running in 21 out of 28 states of India[4]. In all these states, WBCIS runs as a pilot for selected crops. During *Kharif*,[5] WBCIS covers rice, sorghum, pearl millet, groundnut, soy, sunflower, cotton and other crops against both deficit and excess rainfall. During *Rabi,*[6] it covers wheat, mustard, chickpea, potato, cumin, coriander and other crops against frost, high temperatures, humidity, excess rainfall and other localised climate risks. The scheme operates on the principle of area approach, where a Reference Unit Area (RUA) is considered as a unit-area of insurance for the dual purpose of acceptance of risk and assessment of compensation.


[4] http://agricoop.nic.in/WB%20-%20b.pdf
[5] Rainy cropping season
[6] Winter cropping season

Although WBCIS can be offered by any general insurance company in India, the public sector Agriculture Insurance Company of India (AIC) holds the largest market share.[7] AIC implemented WBCIS in 14 states in *Kharif* in2011 and 13 states in R*abi* during 2011-12, covering more than 35 different crops, including perennial crops like apple, citrus crops, grapes, mango, pomegranate, cashew nut, oil palm and so on.[8]

Unlike the conventional insurance schemes, where the government used to subsidise even the distribution and claim losses, in WBCIS, the government's contribution is limited to the subsidy element offered in the premium payment. The onus of marketing the product, selling policies to farmers, collecting premiums and settling of claims is on the insurance company.

AIC has also designed and offered several index products such as mango insurance, wheat insurance, rubber insurance and coffee insurance. Recently, the government of India approved another index insurance scheme, the coconut palm insurance scheme (CPIS), covering death/loss of coconut-bearing palms on a pilot basis in eight Indian states.[9]

For more detailed discussion on index insurance products in India, refer to Annexure I case studies in:

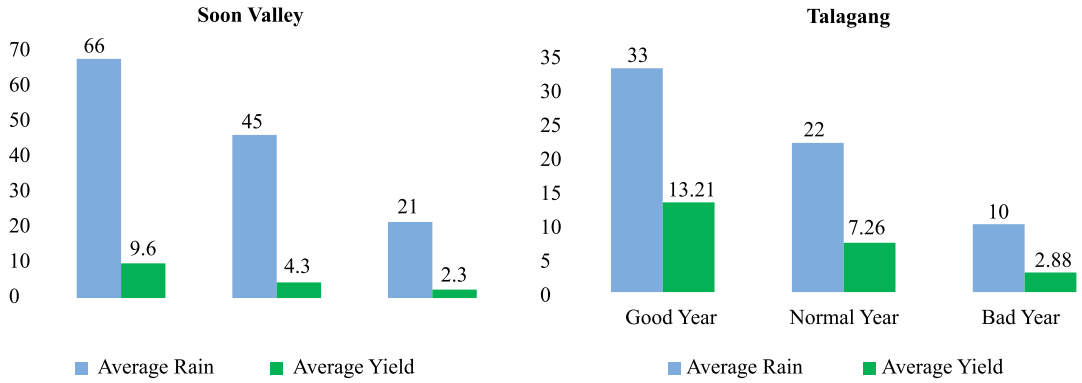
Case 1: Growth of Crop Insurance in India: The Journey from Indemnity to Index Insurance
Case 5: India: Challenges in Index Insurance Products – ICICI Lombard
Case 6: India: BASIX-ICICI Lombard Rainfall Index Product – Good Beginning, Sad End
Case 7: India:Weather-based Crop Insurance Scheme (WBCIS) – Largest Index Insurance Scheme in the World
Case 8: India: HDFC ERGO – A Rising Star in Index Insurance

## 3.2 Pakistan: Donor Driven, Government is Yet to Catch Up

The National Disaster Management Authority (NDMA) has been set up by the government of Pakistan with the mandate to develop a Disaster Risk Insurance Framework (DRIF) for the vulnerable communities in the country. This is being developed by a team of international consultants and is likely to be finalised by the end of 2013. The NDMA has advised the consultants to develop a sound mechanism for providing index-based solutions for the agriculture sector, which is becoming increasingly vulnerable to the vagaries of weather due to global warming. This would kick start the index-based products in the country on a big scale, but the current index pilots in


[7] The scheme is also open to nine other private players who are chosen by the respective state governments: ICICI Lombard, HDFC ERGO, IFFCO Tokio, Royal Sundaram Alliance, Future Generali India, L&T General, Cholamandalam MS, Tata AIG and Reliance General Insurance.
[8] Annual report, 2011-12: Agriculture Insurance Company of India
[9] Andhra Pradesh, Maharashtra, Goa, Karnataka, Kerala, Orissa, Tamil Nadu and West Bengal.

Pakistan are funded by private parties, namely the Pakistan Poverty Alleviation Fund (PPAF) and the International Fund for Agricultural Development (IFAD). These index products are offered by two insurance companies, Alfalah and United Insurance.




These index pilots are just over a year old and are operating in the rain-fed areas of the Soon Valley in Khushab district and Talagang in the Chakwal district of Pakistan. The locations are chosen because of their poor irrigation facilities and drought conditions as the crop yield is totally dependent on rainfall and there are no alternate sources of irrigation.

As of April 2013, 1,200 acres were insured in the Soon Valleyand 1,176 acres in Talagang.[10] The pilots ended in the month of April 2013 with the finishing of the harvesting season. Due to the unusually high rainfall in both areas there was no claim.

For more detailed discussion on index insurance products in Pakistan, refer to Annexure I case studies in:

Case 4: Pakistan: Experience with Index Insurance – Alfalah Insurance Company Limited
Case 9: Pakistan: Regulator's Perspective
Case 10: Pakistan: Aggregator's Perspective- National Rural Support Programme

## 3.3 Sri Lanka: Entirely Donor Driven

In November 2008, with the help of BASIX, Développement International Desjardins (DID), FinancièreAgricole du Québec Développement International (FADQDI) and ILO, SanasaInsurance Company Limited (SICL) conducted a feasibility study to evaluate the possibility of implementing a weather-based crop insurance model in Sri Lanka. SICL piloted the scheme in two areas in the Kurunagala and Kaluthara districts on an experimental basis and then expanded the benefits to 12 other areas.[11] By the end of the pilot, the product configuration was developed for a proposed 25 locations.

[10] Interview with project team
[11] Districts include Kaluthara, Kurunagala, Galle, Ratnapura, Matara, Polonaruwa, Anuradhapura, Kegalle and Badulla.

In June 2011, IFC's Global Index Insurance Facility (GIIF) programme partnered with SICL to develop another simple, flexible, affordable Weather-Index-based Crop Insurance option that caters to diverse client needs and affordability levels for food crops in Sri Lanka. Since the only climate parameter in the index is rainfall, the product is not very suitable for the northern part of Sri Lanka, where crop yield does not predominantly depend on rainfall. The scheme was implemented as pilotin Ratnapura in April 2012 and was extended to other areas of southern Sri Lanka after three months of the pilot. SICL distributes the product with the help of Sanasa societies, the NGO parent of the insurance company. The project also aims to educate farmers on risk management while raising awareness on the availability of index insurance and its benefits. The project receives capacity building funding from the IFC's GIIF programme and additional guidance from the local Access to Finance team of the IFC. This index product is currently offered to tea farmers and SICL plans to extend the product benefit to farmers of banana and paddy crops.


For more detailed discussion on index insurance products in Sri Lanka, refer to Annexure I case studies in:

Case 2: Sri Lanka: Experiences of Development of a Weather-based Index Insurance (WII) Product

## 3.4 The Philippines: Government and Donor Working Together

The Philippines Crop Insurance Corporation (PCIC) is currently collaborating with three international agencies: the International Labour Organization (ILO), the World Bank (WB) and the German International Co-operation (GIZ) for pilot testing of three index insurance products in four locations in the Philippines. PCIC is currently testing the weather index pilots for rice and corn with the World Bank in Regions 2 (Isabela) and 6 (Iloilo) and in Butuan with the help of the ILO. The PCIC is also pilot testing area-based yield index crop insurance for rice crops with GIZ in Region 8 (Leyte Provinces).


Micro Ensure (a private development organisation) in the Philippines also offers index insurance products with the help of Malayan Insurance Company. Micro Ensure has launched the weather index typhoon insurance product to protect smallholder rice farmers from the financial risk of crop damage by typhoons. It started in May 2009 on Panay Island. Micro Ensure plans to increase the scale significantly if the pilot proves successful.

For more detailed discussion on index insurance products in the Philippines, refer to Annexure I case studies in:

Case 11: The Philippines: Disaster Index Insurance Products Offered by Micro Ensure

## 3.5 Indonesia: Dominance of Private Players

Disaster insurance is offered in Indonesia purely through the conventional mode. PT ACA offers earthquake and dengue index insurance, both of which are indemnity-based covers. Conventional earthquake insurance cover is available across Indonesia, but uptake of the coverage is so far concentrated in Java, which accounts for almost 25% of the premium ceded to MAIPARK (the reinsurer of earthquake insurance) and accounts for 21% of MAIPARK's risk exposure. About 70% of the total premium and/or exposures are concentrated in the four provinces of Jakarta, East Java, Bantenand West Java.[12]

Index insurance initiatives in Indonesia are mostly led by private players. IFC conducted an index insurance feasibility study for maize crop in Eastern Indonesia. MAIPARK and GlobalAgRisk have been planning to pilot an index-based earthquake insurance product in Indonesia. This initiative targeted the dryer part of Indonesia's islands, including South Sulawesi, NTB and NTT.

PT Wahana Tata(an insurer) with support from GIZ and Munich-Re introduceda flood index insurance product in Jakarta last year but could not achieve scale.

> MAIPARK, in collaboration with Aon Benfield Asia Pacific and GlobalAg Risk, is developing an innovative financial product that will protect the business operations of financial lenders against earthquake risks. This insurance product will be known as Earthquake Index-based Insurance (EQII). IFC is planning to engage in the project and support the initiative. However, the project is still in the concept stage after two years and nothing much has progressed since then. So far, the development of the concept is conducted with participation and funding from the Ford Foundation.
>
> – Interview excerpt with Mr Bisma Subrata, Director, MAIPARK

For more detailed discussion on index insurance products in Sri Lanka, refer to Annexure I case studies in:

Case 3: Indonesia: Distribution Channels for Disaster Microinsurance Products

[12] Expert interview with management of PT ACA and MAIPARK

# 4. Disaster Specific Focus of the Index Insurance Products

Index insurance is not meant for disaster insurance only. In fact most of the conventional and index insurance schemes in the countries of study are primarily meant for crop loss protection. There are instances of disaster specific insurance only in Indonesia. PT ACA and PT Asuransi Wahana Tata, two local insurers, have offered earthquake *(Dana Gempa)* and flood insurance respectively without much success. The Earthquake Index-based Insurance (EQII) product of MAIPARK is the first index-based disaster insurance product designed on a parametric mechanism so that payments can be made quickly.

The traditional crop insurance schemes in India, Pakistan and the Philippines, however, are multiperil insurance schemes. Being indemnity-based schemes covering all perils that affect the yield of the crop, these schemes cover farmers against most of the disasters that can potentially affect their livelihood. For example, the NAIS in India covers all the risks such as drought, excess rainfall, flood, hail and pest infestation.

Index-based insurance schemes are more specific to the disasters they cover. WBCIS of India is designed to provide insurance protection against losses in crop yield resulting from specific adverse weather incidences. It provides payouts against adverse rainfall incidence (both deficit and excess) during *Kharif* and adverse incidence in parameters like frost, heat, relative humidity, and un-seasonal rainfall during *Rabi*. It is essential, therefore, for any index-based disaster insurance to select the parametric weather parameters that account for the majority of crop losses. The community dialogues in Pakistan confirmed that the biggest threat to the farmers in the areas of the pilot (Soon Valley and Talagang) was drought. It was therefore decided to develop the index triggers for drought in the first phase and gradually refine the product to cover other weather-related risks.

The pilots in Sri Lanka also chose areas where excess or deficit rainfall isthe major weather issue for farmers. However, such approaches are limited in their scope to scale up. Owing to the variation of climate and topography in India, the index in WBCIS is therefore designed for each state to cover the hazard most prevalent in its small geographies. For example, since high wind speeds affect banana plantations, wind speed is taken as an index parameter in areas where banana plantations are prevalent.

Such matching of index and disaster does not always happen smoothly. There was an attempt to implement a livestock insurance product in Pakistan on the lines of the index-based livestock insurance in Mongolia. Owing to lack of data, this could not be done as the animal census in the country is only carried out once every 10 years. The Kenyan model of Normalised Differential Vegetative Index (NDVI) also could not be emulated because lack of fodder due to drought is not a serious hazard in these areas. Herd owners migrate to surrounding regions in search of fodder and there has been no animal mortality through starvation.

Some examples of index and non-index disaster insurance initiatives in the five focus countries of this study are:

**Some examples of index and non-index disaster insurance initiatives in the five focus countries of this study are:**

| Country | Name | Launched in | Index / Non-index | Type of Disaster | Crop Covered | Index Used | Insurance Company | Re- insurer | Technical Support by |
|---|---|---|---|---|---|---|---|---|---|
| **Pakistan** | Weather-based index insurance pilots | 2012 | Index-based | Drought | Wheat and groundnut | Rainfall | Alfalah and United Insurance | Hanover Re and Swiss Re | Pakistan Poverty Alleviation Fund (PPAF) and the International Fund for Agricultural Development (IFAD) |
| **India** | Weather index-based crop insurance scheme (WBCIS) | 2007 | Index-based | Adverse weather conditions such as deficit rainfall, excess rainfall, temperature, unseasonal rains, frost, humidity etc | All major cereals, pulses, millets, oilseeds and commercial/ horticulture crops during *Kharif* and Rabi seasons | Rainfall, temperature, humidity | Agriculture Insurance Company of India, HDFC Ergo, ICICI Lombard, IFFCO Tokio | GIC Re, foreign reinsurers such as Paris Re, SCOR Re, Endurance Re and Swiss Re | Agriculture Insurance Company of India, Govt of India, IMD, Private weather data providers (SkyMet, Komoline, WRMS etc.) |
| **The Philippines** | Weather index-based pilot | 2011 | Index-based | Drought and excessive rains | Rice and corn | Rainfall | Philippines Crop Insurance Corporation (PCIC) | | PCIC, World Bank, ILO, GIZ |
| **Indonesia** | Earthquake index-based insurance (development stage) | 2012-2013 | Index-based | Earthquake | Not applicable | Richter reading | | | Pt Asuransi MAIPARK, Aon Benfield Asia Pacific, GlobalAgRisk |
| | Flood index insurance (discontinued) | 2009 | Index-based | Flood | | | PT ACAAsuransi | | Munich Re and GIZ |
| **Sri Lanka** | Weather index insurance | 2010 | Index-based | Drought | Paddy, tea and banana | Rainfall, wind speed | Sanasa Insurance Company Limited | GIC Re | DID and ILO, IFC, Pandit Actuaries |

# 5. Trends in Index-based Microinsurance Products in South and South-East Asia

Although index insurance is in formative stages in most of the countries of study, there are some trends visible in almost all the implementations. In this section, we will discuss the trends, innovations and lessons learned in several aspects of the programmes.

## 5.1 Players in Index Insurance

Microinsurance value chains often comprise of macro-meso and micro-level players. Regulator and government often are the policy makers at the macro level, while insurance companies and donors are the meso level players who either underwrite the risk or provide funds for initial sustainability. Microfinance institutions, community-based organisations and NGOs are mostly micro-level players who distribute market and manage the field-level issues in the product. Index insurance, however, is an exception to this common rule. In the countries of study we have seen index insurance launched by all these players with either limited or no involvement from other players. There is also no delineation of players in their roles. In this sub-section, we discuss the common threads and uniqueness of the two main types of players in index insurance: government and insurance companies.

### 5.1.1 Government Initiated Schemes: Slowly Allowing Private Players

Since the government of India suffered an unsustainable claim ratio of 571% in the earlier crop insurance scheme (Comprehensive Crop Insurance Scheme), it established the Agriculture Insurance Company (AIC), a fully owned public sector insurance company, for the better management of future crop and index insurance schemes.

The flagship NAIS scheme is still entirely underwritten by AIC. Inspite of AIC's involvement, the product suffered a high claim ratio, inordinate delay in claim settlement and huge administrative costs. Since inception, claims of about INR242.46 billion have been paid against a premium income of about INR75.8 billion, benefiting about 51.1 million farmers.[13]

[13] 2013 Indian Budget document: http://indiabudget.nic.in/es2012-13/echap-08.pdf

From 2004, several private insurers in India started to implement index-based products. Apart from being pioneer in index insurance, these schemes were innovative in bundling insurance with other products such as fertilisers and contract farming schemes. 95% of PepsiCo farmers chose to buy index insurance offered by ICICI Lombard and HDFC Ergo. This is an extremely high percentage given the national uptake of agricultural insurance in general.

Seeing the success of private schemes, AIC also launched weather index insurance in India. WBCIS, the latest weather index insurance scheme from the government of India, is the largest index-based insurance scheme in the world.

There were two important changes in the approach of the government in WBCIS:

- Unlike the erstwhile NAIS, WBCIS can be implemented by any general insurance company, including private players;
- In WBCIS, the government subsidy is limited to the premium of the scheme. In all of the earlier schemes, the government even subsidised the claims in case claim ratio went beyond 100%.

The table below shows the scale of weather index market in India[14]:

**Scale of weather index market in India[14]**

| Agriculture year | Farmers insured | Sum insured (million INR) | Premium** (million INR) | Claims paid (million INR) | Loss ratio |
|---|---|---|---|---|---|
| **2003-04** | 1,000 | N/A | 5 | 5 | 100% |
| **2004-05** | 11,300 | N/A | 9 | 5 | 50% |
| **2005-06** | 112,500 | NA | 72 | 9 | 13% |
| **2006-07** | 181,900 | NA | 72 | 45 | 63% |
| **2007-08*** | 678,425 | 17,910 | 1,490 | 1,076 | 72% |
| **2008-09*** | 375,100 | 9,360 | 846 | 639 | 76% |
| **2009-10*** | 2,278,407 | 49,185 | 4,496 | 2,790 | 62% |
| **2010-11*** | 9,278,000 | 142,830 | 11,651 | 5,625 | 48% |
| **2011-12*** | 8,373,000 | 150,250 | 14,012 | 6,777 | 48% |

*Source: Weather-based crop insurance in India, March 2012*
**WBCIS only, N/A: not available*
***Premium includes government contribution as well*

The table above shows that farmers are slow in adopting index insurance despite the rigorous marketing efforts by the players involved in selling insurance. When seen as a standalone product, index insurance is definitely expensive for farmers. However the government contribution is helping the scheme to stay afloat.

[14] Weather-based crop insurance in India, March 2012, page 3

With only four years of matched premium and claim payment data, it is not possible to make strong statements about the loss ratio (the ratio of claim payments to commercial premium) of WBCIS, since it is challenging to differentiate between favourable weather experience and expensive products. Over the 2007-10 agricultural years, the un-weighted average loss ratio was 65% and the un-weighted producer loss ratio, the ratio of claim payments to farmer premiums, was approximately 130%; that is to say that for every $1 of farmer premium paid in each of the four years, $1.3 of claims were paid in each of the four years. This is lower than the producer-loss ratio of 300% for borrowing farmers purchasing NAIS cover between 2000 and 2008 (Mahul et al 2008). It definitely paid off to open the crop and index insurance market to private players.

Although the history of crop insurance in Pakistan is not as old as India, there are similarities. The government of Pakistan launched crop insurance in Rabi 2008 under a public-private partnership for a national crop loan insurance scheme (CLIS). Although CLIS was mandatory in nature for farmers who had taken loans from the banks (similar to NAIS in India), the scheme actually yielded less than 15% of the projected premium targets, since only two million farmers out of the total seven million farm households in Pakistan took loans from the formal banking system. CLIS has also experienced some of the problems of NAIS, such as high claim ratios, long settlement time, fixed premiums, administrative costs, non-actuarial pricing and so on.

Keeping in view the unsatisfactory results of CLIS and the fact that the global weather pattern is becoming quite erratic and thereby increasing the frequency and severity of natural calamities, in October 2011the President of Pakistan formeda task force to formulate a scheme for crop insurance in Pakistan. The country is now working towardsa refined CLIS, which will be called the National Agricultural Insurance Scheme.

Crop insurance in the Philippines is also covered by the government through the Philippines Crop Insurance Corporation (PCIC), similar to the AIC model in India. The experiences there are also similar to those already experienced by NAIS. Only recently has PCIC thought of diversifying into index insurance through involvement of international donor agencies.

As is evident, government patronage helps disaster/crop insurance programmes to attain good outreach. However, the involvement of technical experts in the business, such as insurance companies and international donors, helps in making the programmes well managed and sustainable.

### 5.1.2 Insurance Companies:Pioneers in Areas of Assured Demand

In the last section we mentioned that private insurance insurers pioneered index insurance in India. In Pakistan too, Adamjee Insurance Company and the Eastern Federal Union Insurance Company launched the country's first livestock insurance schemes way back in 1983. However, Indonesia is leader among the countries of study in implanting insurer-launched disaster and crop insurance schemes.

Indonesian insurers PT ACA and MAIPARK offer specific conventional indemnity-based disaster insurance products. Indonesia's emerging insurance market also offers disaster cover with its sharia-compliant property insurance options. Across Indonesia in general, however, the property insurance offerings of different insurers include indemnity cover for disasters such as seismic events and flooding. As Indonesia's economy grows, the property insurance business has also picked up. Net premiums collected for combined property and motor insurance almost doubled between 2006 and 2010, as reported by BAPEPAM. Since disaster insurance is included in some property and motor policies, this is also set to grow. PT ACA also launched an index-based flood insurance policy that indemnifies if waters at local flood[15] gates reacha certain level.

The popularity of disaster covers among Indonesian insurers stems from the fact that such schemes have a ready market in the country. Indonesia is considered one of the more vulnerable countries to hydro-meteorological risks in Asia. In some agricultural areas, harvest and production dip significantly during ENSO (El Niño Southern Oscillation) events due to below-average rainfall. Crop production in Indonesia is also highly dependent upon rainfall. Only 17% of the country's cultivated area has access to irrigation infrastructure, and only 10% of this land is effectively irrigated. More than 80% of agricultural activity depends on rainfall for irrigation. Out of a population of 235 million, 57% earn their living from the agricultural sector and 90% of them are farmers susceptible to weather risks. Hence insurance (not necessarily weather index) is a pressing requirement of these farmers.

## 5.2 Donor Agencies: Neutral of Scheme Ownership Type

Index insurance has developed in all the countries of study with direct or indirect help of some international donor agencies. While in the Philippines the government-owned PCIC is supported by ILO, the World Bank, GIZ and IRRI for the pilot test of two index pilots for corn and rice, the NDMA of Pakistan is working closely with international donors including CDKN to develop index-based disaster insurance. PPAF and IFAD, donors of the index insurance pilot of Pakistan, chose however to work with two insurance companies for the scheme. Although the index insurance schemes in India were developed by the government alone, some of the initial pilots by insurance companies were supported by ILO's microinsurance innovation facility.InIndonesia, planned index-based earthquake insurance (EQII) is supported by GlobalAgRisk, an international donor in the area of agriculture insurance. In Sri Lanka, however, the only index pilot was initiated by SICL, the insurance arm of the Sanas a societies.

Donors, therefore, do not seem to distinguish between players for development of index insurance pilots. However, the overall project portfolio of ILO's microinsurance innovation facility, the largest microinsurance donor in recent times, suggests that donors are more comfortable working with insurance companies and civil society organisations than government agencies.

[15] Manggarai Water Gate

## 5.3 Sum Insured of the Schemes

Sum insured is the maximum payout that the farmer gets in case of unfavourable conditions. The coverage period of an index insurance contract usually spans one complete crop cycle, starting at the time of sowing and ending at the time of harvest. The sum insured in almost all cases is the cost of cultivation of the crop. However, there are exceptions. In the Compulsory Crop Loan Insurance schemes (CLIS) of Pakistan, the sum insured was determined by the amount of loan subject to the per-acre borrowing limit with a maximum of PKR two million (approx. USD23,482) per farmer, per crop, per season. Hence the farmer was covered only to the extent of the loan borrowed while the actual losses suffered were much higher. In National Crop Insurance Scheme (NCIS), a modified version of CLIS, indemnity and sum insured are based on the per acre input cost estimates of the Agriculture Policy Institute of Pakistan.

For the index pilots of Pakistan and Sri Lanka, the sum insured is based on the cost of cultivation of the crop. In Sri Lanka, the cost of production was derived from the farmers' survey response during the initial product development phase. In the ILO pilot, the premium was 10% of the sum insured.

For the WBCIS of India, the sum insured is pre-declared by AIC. The sum insured for an individual cultivator is the product of the cultivator's declared 'area under cultivation' (in hectares) for that notified crop and the sum insured per hectare as mentioned in the notification.

**Sum insured = Area under cultivation X Sum insured per hectare as per notification**

Sum insured is further distributed under the key weather parameters used in the insurance in proportion to the relative importance of the weather parameters. It is generally equal to cost of cultivation.

## 5.4 Product Pricing: Premium

Premium is the amount charged by the insurance company from the buyer of insurance to indemnify himself against any damage. Generally for all index products:

**Premium= Risk Premium + Administration Cost + Commissions**

Risk premium rates depend on the 'expected loss', which in turn depends on the patterns of weather parameters of historical periods of about 25 to 100 years in the context of ideal weather requirements of a crop. For example, in case of the index insurance pilot in Pakistan, the index and pricing were designed by a team of scientists who accessed rainfall data from the nearest meteorological stations for last 30 years and linked it to the wheat production data of the last 30 years. The data linkage clearly endorsed that even a one-millimetre shortfall of rainat different stages of crop production reduced the wheat yield by a few kilograms per acre.

As far as non-index disaster insurance is concerned, Indonesia's standard earthquake insurance product is priced according to the type of structure that is insured and the riskiness of the area where the insured assets are located. The typical earthquake insurance tariff for MAIPARK pricing is as follows[16]:

| Typical Earthquake Insurance Tariff for MAIPARK pricing | | | Zone I | Zone II | Zone III | Zone IV | Zone V |
|---|---|---|---|---|---|---|---|
| **Commercial Buildings** | Steel, wood or RC frame | Upto 9 storeys | 0.9 | 0.95 | 1.25 | 1.5 | 1.9 |
| | | Over 9 storeys | 1.35 | 1.45 | 1.55 | 1.6 | 2 |
| | Others | | 1 | 1.1 | 1.55 | 3 | 4.7 |
| **Dwelling** | Steel, wood | | 0.85 | 0.95 | 1.15 | 1.35 | 1.6 |
| | Others | | 0.9 | 1 | 1.55 | 2.75 | 4.5 |

*Tariff: % of sum insured*

The pricing of catastrophic risk under other property insurance schemes in Indonesia are, however, found to be insufficient, with the full premium of the product being just enough to cover the true price of earthquake and related risk.[17] Flood insurance – which is also frequently covered in property insurance – has recently experienced a change in pricing. In March 2013, AAUI, the industry body of general insurers, put into place new guidelines to increase the property insurance price by 20-30%, based on flood risk areas (high, low and medium risks). Pricing of flood risk may be further refined after the on-going flood-mapping project for Indonesia's cities is completed.

If actuarially priced, MPCI or other indemnity-based insurance becomes much costlier than their index insurance versions (for reasons explained in section 3.4). However, in most conventional insurance products the price is calculated based on affordability (and not actuarial calculation) while claims beyond 100% are subsidised. These under-priced products give a false impression that they are cheaper than index insurance products. In the Sri Lankan index insurance pilots, for example, the premium comes to about 10% of sum insuredas compared to 7% of the sum insured for the traditional insurance product. WBCIS in India is also priced higher than its NAIS counterpart.

However, if properly designed, index insurances can become less costly than conventional insurance. In the Philippines, index insurance is priced lower as compared to traditional crop insurance products by PCIC, who normally charges a premium in the range of 10-11%of the sum insured for the traditional multi-peril crop insurance contract. As compared, the index-based crop insurance contracts offered by PCIC have premiums in the range of 3-6%, which is far lower than the traditional crop insurance. Since disaster insurance products are targeted at vulnerable areas only (inviting adverse selection), they are priced higher than typical

[16] http://www.maipark.com/content/display/tariff
[17] Interview with MAIPARK

crop insurance products. Munich Re and Asuransi Wahana Tata's flood index microinsurance product for Jakarta (Alert 1 Manggarai Protection Card) is priced at IDR50,000 for cover, and pays out five times cover in the event that water at the Manggarai Water Gate in Jakarta rises above 950 cm. Hence the premium stands at 20% of the sum insured.

## 5.5 Subsidy in the Scheme

Since the price of index insurance is often high, these schemes are subsidised by government or the parent body to make them affordable. In India, for the WBCIS, the premium (rates) is shared by the central and concerned state government on 50:50 basis beyond the farmer's premium. The subsidy comes in the range of 50-82% of the actuarial premium. The premium paid by the farmers is kept in-line with what they pay in NAIS. The premium rates payable by the cultivator for different crops are as follows.[18]

**For food crops and oil seeds**

| Sr No | Crops | Premium Payable ( as a Percentage of Sum Insured) by the Insured Cultivator |
|---|---|---|
| 1 | Wheat | 1.5% or actuarial rate, whichever is less |
| 2 | Other crops (other cereals, millets, pulses, oilseeds | 2.0% or actuarial rate, whichever is less |

**For annual commercial and horticulture crops**

| Sr No | Slab on Premium ( as a Percentage of Sum Insured) | Subsidy / Premium |
|---|---|---|
| 1 | Upto 2% | No subsidy |
| 2 | >2-5% | 25%, subject to minimum net premium of 2% payable by farmer |
| 3 | >5-8% | 40%, subject to minimum net premium of 3.75% payable by farmer |
| 4 | >8% | 50%, subject to minimum net premium of 4.8% and maximum6% payable by farmer |

In the index pilot in Pakistan, the premium of subsistence farmers with land holdings of up to three acres was subsidised by 50% in the Soon Valley and 60% in Talagang. Index insurance schemes in Sri Lanka and the Philippines are however devoid of any subsidy component.

[18] http://www.indg.in/agriculture/schemes/weather-based-crop-insurance-scheme-wbcis

## 5.6 Distribution of the Index Insurance and Ensuring Outreach

It is necessary for conventional and index-based crop insurance to have high outreach. Apart from attaining the break-even point for administration cost, conventional and index insurances need to avoid moral hazard and adverse selection by making the product mandatory rather than depending on voluntary uptake. Most of the large-scale crop insurance schemes, therefore, prescribe a mandatory subscription along with other products. For example, WBCIS is a compulsory product for farmers in India who take crop-loans from any of the banks. The premium amount is deducted by the bank from the loan account of the farmer and directly transferred to the insurance company. The former CLIS of Pakistan also followed a similar process. However, there are newer models emerging in different countries for delivering index-based insurance products to people who are not necessarily mandatorily bound by credit obligation.

AIC in India started using the services of insurance intermediaries in 2006, two years after the launch of its first index-based product, *Varsha Bima*. For direct selling, AIC recruited temporary staff called 'agri-preneurs' (agriculture graduates trained in entrepreneurship), who visited locations and talked with stakeholders such as village leaders, farmers' associations and NGOs. The main purpose was to explain the product, distribute product literature and enrol interested farmers. With only one underwriting office in each state however, AIC found that direct selling was inefficient, expensive and ultimately hampered scaling up. Thus from 2006 AIC began enrolling insurance intermediaries, starting with insurance brokers, followed by corporate agents and finally microinsurance agentsin 2008.

[19] http://marsh.co.in/

**Microinsurance Agents in India**

The microinsurance agent (as defined by Insurance Regulatory and Development Authority (IRDA) of India) can be a Non-Governmental Organization (NGO), microfinance institution (MFI) or other community organization such as Self Help Groups (SHG) appointed by an insurer to distribute microinsurance through specified people. Microinsurance agents enter into a 'deed of agreement' with the insurer. They abide by the code of conduct defined by the IRDA and attend 25 hours of training (down from the 100 hours originally required for conventional insurance agents) in the local language at the expense of the insurer. There is no qualifying examination, unlike the case of ordinary insurance agents.

The IRDA decision to permit (not-for-profit) Section 25 companies to become microinsurance agents has added to the potential for this space to expand, but the actual appointment of such agents by insurers is constricted by extensive market conduct rules, especially commission caps, limitations on the number of insurers an agent can deal with and the central bank's restrictive approach that defines any amounts collected by MFIs on behalf of a client as deposits (it is illegal for Section 25 companies to accept public deposits). Also, 'for profit' entities such as Non-Banking Finance Companies (NBFCs) remain excluded from this space.

*Source: Microinsurance regulation in the Indian financial landscape, MCRIL report*

Private insurance companies also adopt various distribution strategies for WBCIS. ICICI Lombard has appointed agents (individuals) and brokers (institutions such as MARSH India[19]) to distribute their products. HDFC ERGO, another insurer, also appoints individual agents. These agents and brokers educate the farmers on weather index insurance and its benefits. ICICI Lombard ensures that these agents belong to the local area, so that they have a good connection with the farmers and can market the product effectively. Other channels of marketing used by private players are village meetings, camping, expos, press releases and *kisanmelas* (farmers' fairs).

PepsiCo in India bundled their index insurance product with a contract farming agreement for farmers. IFFCO-Tokio cross-sold its insurance policies with the seeds and fertilisers and offers insurance through its parent company's fertiliser programmes, Indian Farmers Fertiliser Co-operative(IFFCO) and uses its rural network for distribution. This unusual alliance leveraged cost-efficient delivery channels to cross-sell insurance with fertiliser and seed, two standard farm purchases. In this partnership, the company also provided technical advice, product education, training and marketing skills to the secretaries and staff of member co-operatives to enable them to sell the insurance products. In Indonesia, banks and co-operatives are predominant institutional channels for distribution. In relation to micro index insurance, some relevant distribution partners emerged as the agricultural co-operative KUD, Bank Rakyat Indonesia (BRI), a leading commercial bank providing microfinance in Indonesia, and awide network of rural banks (Bank

[19] http://marsh.co.in/

Perkreditan Rakyat-BPR), which are reported to have 3.5 million borrowers and eight million savers across Indonesia.

However, such agent-based distribution or partnership with financial institution is possible only if either the insurance company or the local financial institutions have enough outreach and access amongst the target community. In most of the developing economies, however, the financial inclusion level is very low, limiting the potential for such distribution. The farmers in the areas of the pilot (of the sole index insurance programme) in Pakistan, for example, are very thinly spread out and accessing them is not possible for the insurance companies without the support of an established network in that area. Therefore, PPAF appointed two of its partners, the Soon Valley Development Programme (SVDP) and the National Rural Support Programme (NRSP), as aggregators of the product. Since these organisations have been present in these areas for a long time, they enjoy a high level of credibility and trust amongst the local communities. They also have a wide network of activists who can be entrusted with the task of running an efficient delivery channel to facilitate community dialogues, distribute the insurance policies, collect the premiums, to remit premiums to the insurance companies and to disburse the claims. The aggregators also hold sessions with the communities in local languages to ascertain their demand for insurance. This in turn helped design a need-based small ticket-sized product keeping in view the affordability of the local community. Use of community-based organisations as aggregators is also seen in Sri Lanka. The Sanasa Insurance Company Limited (SICL) uses the extensive network of Sanasa[20] societies (more than 8,400 societies across Sri Lanka) for premium collection, marketing and claim settlement.

> "Interactive games were used in Pakistan with farmers to make them understand the concept of index insurance. Farmers were able to grasp the complex product features because it was presented to them by way of interesting games and competitions," says Nasreen Rashid, index insurance expert in Pakistan.

Microfinance institutions (MFIs) are another potent channel for distribution of such products. ICICI Lombard-BASIX weather insurance policies were sold by BASIX using their microfinance channel. The rural outreach of BASIX helped to sell the policies effectively. In Indonesia too, several types of microinsurance are distributed successfully in co-ordination with community-focused organisations and/or microfinance institutions (MFI). For example, Allianz is partnering with number of MFI ssuch as BTPN and Vision Fund to distribute Tamadera, a savings-linked micro-life insurance product that is one of Indonesia's microinsurance success stories.

In Indonesia, the use of cards for microinsurance products is common and this is an innovation that offers wider distribution at lower costs. Munich-Re and PT Wahana Tataused the Alert 1 Manggarai Protection Card tooffer flood index insurance in Jakarta. Itis an example of using card-based formats for insurance products. Furthermore, ACA uses a scratch card to sell dengue insurance, which isavailable

[20] Sinhala acronym for the movement of thrift and credit co-operative societies in Sri Lanka

at supermarkets, post offices and similar stores, having received special regulatory permission to market the scratch and text voucher cards for the product. The use of these cards and their availability has ensured that clients can purchase them and get access to insurance cover easily.

## 5.7 Claim Settlements (Payout)

In any index-based insurance product, the claim settlement process is very simple and fast.The indices used in loss computation makes the process transparent, with lower operational costs, and it consumes much less time as compared to indemnity base schemes, where farm-level loss assessment takes time and invites errors in the system. In most index-based insurance schemes, weather data is collected on a daily basis by the nearby weather stations, and the data is sent to the insurers on a daily or weekly basis. Based on this data, the insurance company monitors the trigger levels of the index insurance contract continuously. The moment the index is triggered, the farmer is entitled for apayout. The insurance company calculates the amount for the farmers of a particular region and sends the claim cheques to the designated bank in that particular area, and the bank deposits the amount into the bank account of the beneficiaries.

For the WBCIS scheme, AIC has defined a systematic methodology for insurance claim payout.AIC is responsible for all payouts arising out of adverse weather incidence (AWI).[21] AWI is equivalent to the deviation between 'Trigger Weather'[22] and 'Actual Weather'data recorded at a reference weather station during the specified timeperiod. In case of AWI, all the insured cultivators growing the notified crop in the RUA are considered to have suffered the same level of AWI and the same proportion of croploss, and become eligible for the same rate of payout. The payouts are targeted within 30-45 days of the trigger date in WBCIS, as compared to six-eight months taken for the settlement of claims in NAIS. In the case of the Philippines, the claims settlement time of index insurance is further reduced to ten days. However, the promptness of claim settlement depends on the alertness of the providing weather stations. In case of SICL, for example, there are instances of delay in payout since the weather station does not always provide data on a timely basis.

[21] This responsibility of AIC is applicable only when the risk has incepted, that is, AIC has duly received the full premium, directly from
the insured (farmer's own contribution) and also the corresponding premium subsidy part from the governments.
[22] Trigger Weather is a pre-defined weather parameter applicable to a notified crop in a notified Reference Unit Area.

An innovative index-based disaster insurance product is being piloted in the Philippines by Munich Re in collaboration with Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (GTZ). This insurance product aims to provide umbrella cover to the portfolio of co-operatives against extreme weather risks in the Philippines and is known as NatCat cover. The co-operatives are organised under CLIMBS (Co-operative Life Insurance and Mutual Benefit Services), which represents more than 1,500 co-operatives. In this project the umbrella organisation CLIMBS acts as primary insurer for the local co-operatives and offers them portfolio protection. The co-operatives receive a predefined percentage of their loan portfolio if a parametric trigger for any extreme weather event such as rainfall or wind speed is reached. The trigger levels vary for different locations and are determined by the historical data of exposure of the area to typhoons. The insurance payout is used by the co-operatives to pass on to the payout benefits to co-operative members.

# 6. Challenges Faced by Index Insurance Pilots/Products

In spite of some exciting trends, index base insurance schemes face some critical challenges. Apart from the global incidence of basis risk, developing countries witness typical challenges that limit the possibility of index-based microinsurance in these countries. In this section, we discuss the challenges of index-based microinsurance that are unique to developing countries, especially ones seen in the countries of study.

## 6.1 Weather Infrastructure: Risk of Enhancing Inherent Basis Risk

**Innovation**

Basis risk was also perceived as one of the risk in the Pakistan pilot. Various options were discussed to take care of this, such as distribution of a certain sum of money to compensate for the losses in case the index does not trigger, reducing the premium rate for the next season, and spending, some money on social welfare activities in these areas to earn the goodwill of the communities.

Weather stations play an important role in successful working of any index insurance product. The main character of WII products is that they offer claim payments based on the weather at a contractual weather station. In so doing, WII products offer little protection against localised events such as hailstorms or cloudbursts and may not capture some aggregate events that affect a whole area, such as an outbreak of pestilence or disease. This imperfect correlation between the index and the loss can result in the insured receiving no or inadequate claim payment, despite having experienced a severe crop loss, further enhancing the inherent basis risk of an index-based insurance. Hence to have successful index-based insurance products, the insurer has to ensure that there are enough weather stations in the area so the chosen index closely correlates to the yield. Historical weather data is needed for an area even to decide the index, and this is not readily available in most developing countries. In the case of designing the pilots in Sri Lanka and Pakistan, the unavailability of historical weather data proved to be a deterrent for scaling up pilots into other areas. In India also, the 580 weather stations of Indian Meteorological Department (IMD) proved insufficient to capture all microclimatic weather variation. WRMS, a weather risk management company,

estimates India needs 1,000 more weather stations to improve the performance of index insurance.

In India, there have been efforts to address the weather infrastructure issue since the PepsiCo-ICICI Lombard pilot. WRMS, as partner to the project, established almost 250 weather stations for the product. In case of WBCIS, private insurance players have networked with private weather data providers to reduce the instance of basis risk. ICICI Lombard has tied up with Skymet Weather Services,[23] National Collateral Management Services Limited (NCMSL),[24] Weather Risk Management Services (WRMS),[25] and Komoline[26] and pays these companies on a monthly basis for the data provided, such as temperature, rainfall, wind speed, humidity etc. Sometimes data is also shared between the two insurers. In case of WBCIS, such efforts can be undertaken as it is a high outreach programme. In the case of most of other countries, the insurance companies cannot justify such high investment and maintenance cost at the pilot stage of the products. Quality of weather stations and their monitoring is also an issue in the case of index-based insurance products. The Indian experience suggests that 'tamper-proof' automatic weather stations reduce, but do not remove, the risk of insurance fraud. In the 2010-11 Rabi season there were reports of insured farmers fraudulently placing ice cubes around temperature sensors of automatic weather stations to trigger claim payments for low temperatures.

TOPS (Terrestrial Observation and Prediction System) technology, developed by National Aeronautics and Space Administration (NASA) scientists, integrates surface weather satellite data with empirical/mechanistic models to monitor and predict crop growth profiles, crop stress and yields. In order to generate village-level historical weather data for past 15 years as well as three years in the future, AIC commissioned a pilot in Maharashtra that sees daily data generated for over 30,000 villages. This data is expected to assist AIC in fine-tuning the WBCIS products and also in minimising the basic risk. If found feasible, TOPS could be used to supplement/complement the existing weather station network, hugely minimising investment in setting up weather stations.
*Source: Annual report of AIC of India: 2011-12*

## 6.2 Reinsurance: A Double Whammy

Reinsurance is insurance that is purchased by an insurance company from one or more other insurance companies (the 'reinsurer') as a means of risk management. By buying reinsurance, insurance companies transfer their risk to another insurer. For this, they pay a reinsurance premium to the reinsurer.

In case of index insurance products, reinsurance rates are high. Due to lack of data, complexity of product structures and the relatively low economic value of coverage, reinsurance companies charge high rates for index-based insurance and mainly concentrate on programmes with high outreach (with a total premium value of more

[23] www.skymet.net
[24] www.ncmsl.com
[25] http://wx-risk-global.com/
[26] http://www.komoline.com/

than USD1million). AIC's weather insurance products, for example, have been well supported by national and international reinsurers, with an average of 50% of the total coverage placed in the international market.

As per the fiscal year 2011-12, AIC ceded 70% to reinsurance on a quota basis to both local and international reinsurers. During discussions, AIC noted that this type of agricultural risk cover is fairly new, and insurers are working with and talking to reinsurers on how to move the project forwards.

Index-based insurance programmes expand gradually, with farmers testing the concept and slowly endorsing it over time. The insurance companies prefer to initially keep the price of index insurance low in order to attain client traction and high outreach. To validate the pricing, these companies carry a very small portion of the risk on their books and depend on reinsurance companies to validate the pricing. The reinsurers, on the other hand, are able to justify their prices only by severely restricting their intervention in smaller programmes. This instigates a vicious circle in which the programmes cannot be expanded without reinsurance support and, in turn, there is no reinsurance support because the programmes are not sizeable.

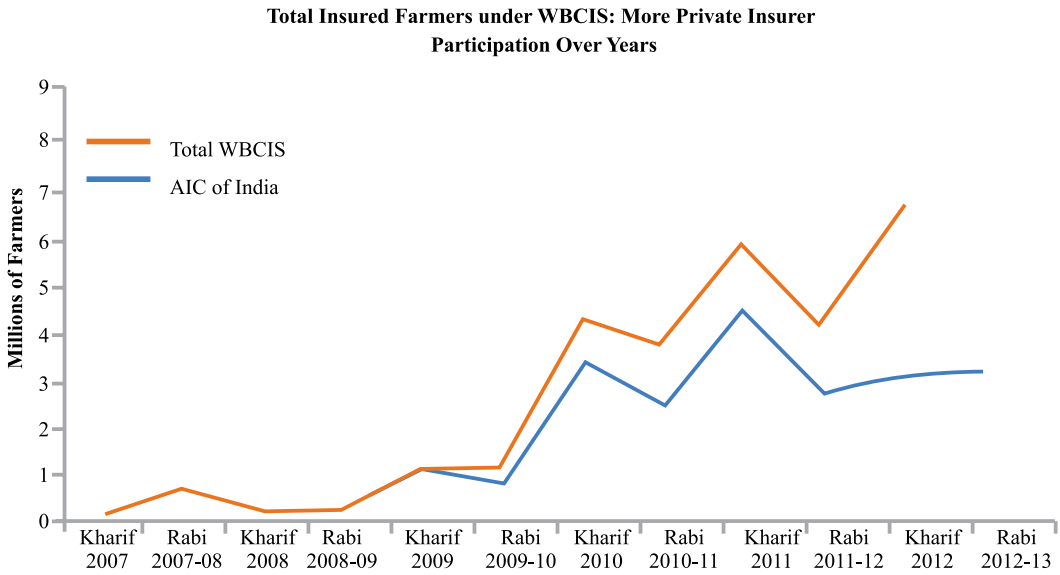
## 6.3 Subsidy Dependence Creates Doubt about Sustainability

As discussed earlier, in conventional MPCI products the premium is not calculated actuarially and is intentionally kept low to make them affordable to farmers. With these products, the claim, which often goes beyond the total premium collected, is subsidised by the government. Compared to traditional insurance, which is priced at 2-3% of the sum insured, the premium of actuarially priced index insurance comes to about 10-12% of the sum insured, depending on crop and area. This makes such products unaffordable to farmers, making premium subsidy imperative in most index-based microinsurance products. In India, for WBCIS, the subsidy component of the premium is shared by the state and central government. The subsidy comes in the range of 50-82% of the actuarial premium.[27] In the Pakistan pilot, PPAF offered premium subsidy to subsistence farmers whose land holding is up to three acres. Their premium was subsidised by 50% in the Soon Valley and 60% in Talagang.

Although the pilots in the Philippines and Sri Lanka are devoid of premium subsidy, both show a high level of dependency on external funds. GIZ provided PHP70 million (USD1.62 million) for development of area yieldbased product (ARBY) in the Philippines, while SICL received a funding of USD160,000 from ILO for its index insurance pilot. These funds were mobilised to fund installation of Automated Weather Stations (AWS), the cost of technology such as remote sensing application, the cost of historical data for developing indices, piloting of the new products and creating awareness about the new products.

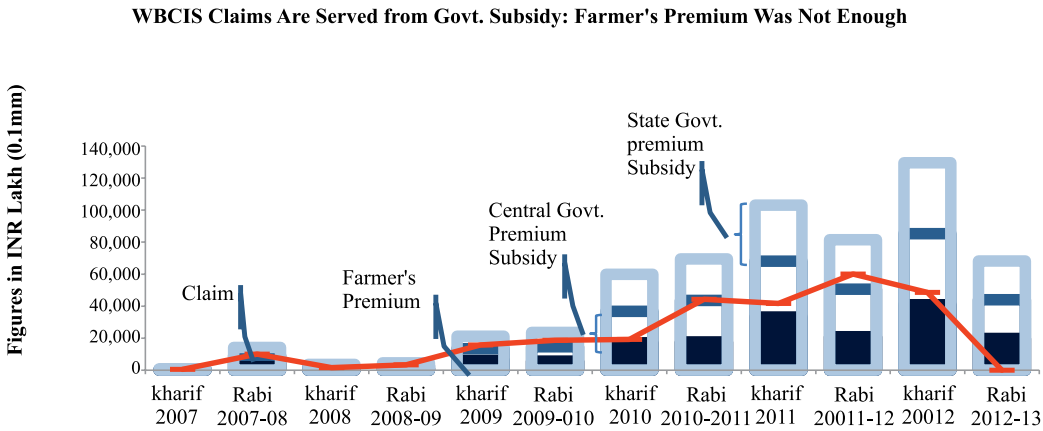
Now let us look at the largest index-based insurance programme amongst the countries of study. Although promoted and initially distributed by government-owned AIC, private insurers have increasingly shown interest in WBCIS over years.

[27] The government contribution is paid to the insurance company separately by the state and central government after the enrolled farmers' list is sent to them.




*Source: AIC Data, MicroSave analysis*

However, most private insurers believe that without government subsidy, it is impossible to justify the pricing of WBCIS. To keep their rates competitive, private insurers charge WBCIS premium in-line with the traditional NAIS and appropriate the balance from the government as subsidy. Since inception, farmers have typically paid only about 25-30% of the gross premium collected for WBCIS.Without this subsidy element, WBCIS becomes prohibitively expensive for farmers as well as insurers.




*Source: Data from AIC and Other Insurance Companies, MicroSave Analysis*

As the graph shows, in WBCIS the claims as a percentage of farmers' premium come to nearly 300% for Rabi 2011/2012 and 130% for *Kharif* 2012. Without the subsidy, therefore, the productis not viable for insurers, who also use the premium revenue to cover management expenses (around 3%for AIC overall, including the

WBCIS portfolio)and variable costs including payments to insurance distributors (for example 5% of net premium paid to aggregators under certain WBCIS agreements).
However, the type of subsidy in WBCIS – a premium subsidy – is a departure from the earlier regime of claim subsidy, where government subsidised even in case of losses experienced by the insurer. Encouragingly, premium subsidy does incentivise efficiency in the system. Since the claims liability ultimately rests with the insurance companies that provide WBCIS (including AIC, ICICI Lombard, IFFCO TOKIO, etc.), there is an incentive to monitor closely for fraud and other violations of standard procedures. Since every additional rupee of claims will detract from the insurer's margins, it makes sense for them to work with distributors and other stakeholders to minimise misuse.

However, as in the case of conventional insurance programmes, reliance on government policy for critical funding makes WBCIS vulnerable to changes in fiscal policies and prioritiesin subsequent governments.

**Indonesia: Example of a Failed Product – Flood Index Microinsurance Product**

*With input from Mr Iwan Gunawan (Senior Disaster Management Adviser, World Bank) and Mr Suntan Hidayat (Consultant, Disaster Risk Financing and Insurance Specialist, World Bank).*

A local insurance company, Wahana Tata, launched this product with support from German reinsurer Munich Re and GTZ for low-asset village dwellers in Jakarta in May 2009. For a premium of USD4.72 (IDR50,000) per year, the product paid USD23.60 (IDR250,000) in the case that water levels at a nearby floodgate rose to 950 cm, which was a good proxy for severe inundations in the area (GTZ 2009). Such severe inundations had occurred in the past in Jakarta.

The author of the referenced thesis had predicted that this product would not sell well because of: 1) its low payout to premium ratio, 2) low-asset people in Jakarta have found effective ways to adapt to flood risk (Wilhelm 2009), and 3) the product was more of a push from the service providers and development organisations instead of a consideration of the needs and preferences of the target community.

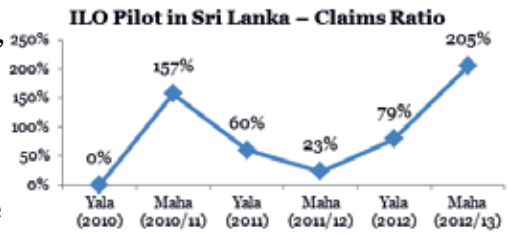
Further microfinance institutions operating in the area declined the offer to sell this product because of the perceived low customer-value proposition. The distribution of the product was later on tried through local Arisans (Rotating Savings and Credit Associations (ROSCA).

During interviews with Mr Iwan Gunawan and Mr Suntan Hidayat, *MicroSave* learned that just 50 policies (an approximate figure) of this product had been sold and it is now discontinued. The experts cited low value proposition, high premium charge, and failing to understand the needs and preferences of the target community as a few of the reasons for product failure. Another possible reason for the failure was the construction of a canal near the target community, which made it impossible for the water levels to surpass the trigger point.

*Source: Micro-Impact, Deconstructing the complex impact process of a simple microinsurance product in Indonesia, Martin Hintz, November 2009.*

## 6.4 Unpredictable Claim Experience

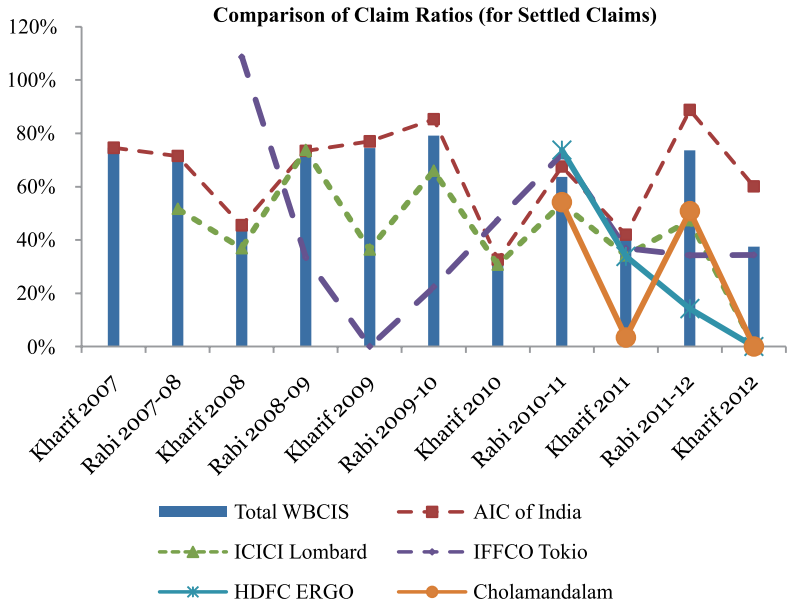
While a higher claims ratio can make it harder for a product to achieve sustainability, a very low claims ratio may indicate that clients are not getting value from the product. Similarly, there is a trade-off between the level of premium paid and the ultimate payouts.Low premiums can indicate greater affordability, but they can also mean a lower payout or a lower likelihood of




*Source: SICL data, MicroSave analysis*

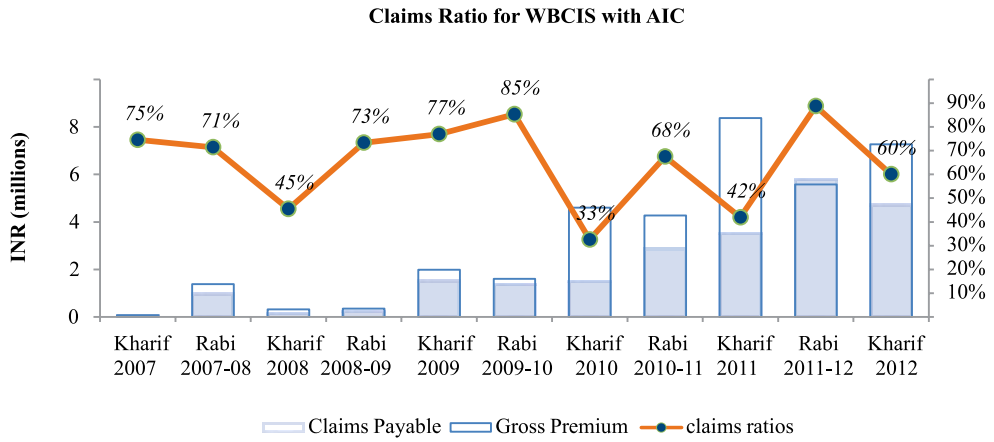
payout. For any index insurance to have enough demand, the sum insured must be close to the actual expected loss.

The graph below tries to compare the claim ratios of the different players in WBCIS:




*Source: AIC data, MicroSave analysis*

The graph shows a high claim settlement ratio by AIC as compared to private players in almost all the years. Since insurers apply for allocation of districts in WBCIS, it is possible that private players have selected districts where claim expectation is marginally less than more risk-exposed areas. Data from AIC, the largest market shareholder in WBCIS, shows that overall claim ratio is sustainable in the scheme.




*Source: AIC data, MicroSave Analysis*

In other countries, claims have been paid in most of the products at the pilot stage. The Nat Cat product in the Philippines has made a payout of PHP100,000 (USD2,309) to one of the co-operatives (Mactan Island Multi-purpose Co-operative) in the year 2011-12. MicroEnsure also made payouts of PHP18 million (USD0.42mn)to nearly 1,800 families who suffered losses due to Typhoon Sendong in the year 2011. Similarly, both ARBY and WIBI products piloted by PCIC have made payouts. In the ILO index pilot in Sri Lanka, the claims ratios dipped in initial years but have started increasing since 2011-12. As all these pilots are in their initial stages, it is difficult to establish their profitability unless their operational data is available for a longer temporal dimension.

Overall, it seems index-based insurance has lower claim ratio than indemnity based products, which can either be a function of high basis risk or due to actuarial pricing in case of index-based insurance products.

**Lessons Learned from the Pilots in Pakistan (as Told by WII Practitioners in Pakistan)**

- The policies should be sold at least one month before the sowing season commences because if the farmers are privy to information about weather forecasts, there is likely to be adverse selection against the insurance companies.
- It is very important to conduct community perception surveys and focus groups in the local language, making them into participatory sessions for dissemination of product knowledge. Even the best projects fail if they are not properly communicated to the final consumer. The dissemination of product information to the vulnerable communities that are the recipients of claims compensationis crucial for a sustained outreach. Such communities are generally uneducated and limited in their understanding of insurance. It is important to reach out to them on a grass-roots level.
- The element of subsidy plays a very important role in selling index products thatare otherwise an expensive product like all agricultural products.
- The insurance industry needs to be motivated and educated. Instead of being wary of index-based products, they should look at them as a viable commercial business proposition because this product has the capability and the inherent strength to be replicated across the rural landscape of the country.
- The role of aggregators is extremely important in selling insurance policies. The microfinance banks, commercial banks, microfinance institutions, NGOs, district organisations, local bodies, co- operatives, village organisations etc. can take up the role of effective delivery networks. No matter how good the index-based products are and no matter how huge their demand in the local communities is, the entire project can fail if these aggregators do not discharge their responsibilities efficiently.
- It is important that index-based products are supported by 'A' rated international reinsurers, such as Hanover Re and Swiss Re, who remain actively engaged with the local insurers. Natural catastrophic disasters are huge in their magnitude and can erode the premiums in the initial years, thus jeopardizing the financial viability of the reinsurance programmes.

For the explored cases, index insurance can be considered 'technically feasible'. As for economic or commercial feasibility, the estimated 'pure risk premiums' seem close to the upper boundaries of what is likely to be acceptable to farmers. The final verdict on the actual suitability of the prototype contracts should be left to the end-user, who may still find it convenient to purchase expensive insurance coverage if it provides significant protection from a relevant risk, or if it grants access to sources of funding otherwise not accessible. Therefore, the actual 'economic/commercial feasibility' of a WII product can only be determined through an appropriate pilot test.
*Source: Weather Index Insurance for Maize Production in Eastern Indonesia, IFC Study*

In 2005-06, HDFC ERGO launched the Rainfall Index Insurance Policy in collaboration with MAHYCO (Maharashtra Hybrid Seeds Company Limited) for farmers cultivating cotton in the Akola, Parbhani and Buldhana districts of Maharashtra. This rainfall index product was bundled with Bollgard cottonseed packets sold by MAHYCO and for every seed packet purchased by a farmer, one unit of Rainfall Index Insurance Policy was given. The Rainfall Index Insurance Policy was designed to cover deficit rainfall during the germination phase of the cotton. The maximum sum insured offered under the policy was INR1,600 at a premium amount of INR50 per unit.The scheme received extremely good response from farmers across the three districts and a total number of 48,489 units were sold. The claim calculation was done on the basis of data procured from independent data agencies such as IMD (Indian Meteorological Department) to provide a transparent and hassle free claims procedure. Total amount of claim disbursed was INR8.39 million, benefiting 7,166 farmers in Buldhana district. Payment of claims was made to individual farmers directly at their addresses.

But the product was not highly successful and it was scrapped within a year as the claims ratio became too high for it to remain sustainable.

# 7. Scaling-up Potential of Index-based Insurance Products for Disaster

In the earlier sections, we detailed how index-based microinsurance programmes have performed in the five countries of the study. Apart from discussing the learning and trends, we have detailed the challenges and worries of most of the programmes. In this section, we discuss how learning from the on-going index-based microinsurance programmes can be utilised for the design and implementation of efficient index-based disaster insurance in any of these or similar countries. As seen in the earlier sections, none of the index insurance pilots in these five countries specifically target disasters beyond the ones that affect crop production. Hence they are limited in suggesting their learning for disaster index insurance. We have, therefore, used reference from the programmes of other developing countries to capture the scope of index-based disaster insurance. We believe this learning from other countries is equally valid for any index-based disaster insurance programme in the countries of the study.

## 7.1 Identifying the Index Parameter is Critical

In earlier sections, we discussed the challenges of designing a weather index for disaster insurance but unless that index is perfect, clients will cease to find value in such products. Several countries have tried to design index-based insurance on weather parameters specifically for disasters, with various levels of success.

**Ethiopia**:The Ethiopia Drought Index (EDI) was developed using historical rainfall data from the national meteorological agency and a crop-water balance model. Standard growing cycles from the Standard Famine Early Warning System Network (FEWS-NET) were also used to estimate crop loss. However, cropping practices and varieties under cropping were found to vary in Ethiopia depending on altitude and topography, causing discrepancies in index trigger and actual loss. The World Bank has developed a software called LEAP (Livelihoods, Early Assessment and Protection) to deal with this problem. Based on the FAO Water Requirement Satisfaction Index (WRSI), the software quantifies and indexes the drought and excessive rainfall risk in a particular administrative unit in Ethiopia. LEAP uses ground and satellite rainfall data to cover the whole of Ethiopia, even areas where weather stations do not exist, so that every administrative unit in the country can be included. It runs localised models to convert rainfall data into crop and production estimates and subsequently into livelihood stress indicators for vulnerable populations. It then estimates the financial magnitude of the livelihood-saving interventions these people need in the event of a weather shock.

**Caribbean**: Historic hurricane and earthquake activity records were used in case of the Caribbean product for estimating catastrophic risk model and probable economic loss. A country risk profile is created for each member country, around which indices are developed. The index for hurricanes is based on wind speed, while that for earthquakes uses level of shaking. In 2007,the first year of operation, contracts were designed to cover hurricane or earthquake events of a magnitude that would be expected less frequently than once in 20 years. Contracts based on more frequent (less catastrophic) disasters would have required higher premiums than the countries were willing or able to pay. However, following experiences in the first year, an optional lower deductible (the part of the loss paid by the insured) was offered in the second year, taking coverage to an event that might occur once in 15 years.

**Vietnam**: A flood index insurance was designed for the Thap province of the Mekong Delta, where flood is influenced predominantly by upstream water flow and where delta-wide flood modelling has previously confirmed that downstream and overland flooding in the province is highly correlated with water levels measured at the Tan Chau water-level gauging station on the upper Mekong River at the Vietnam-Cambodia border. This is similar to weather index insurance using weather measurements at meteorological stations, but using river gauge data as a proxy for flood damage. The flood event index is calculated as the maximum three-day moving average of daily water levels at the Tan Chau station during the period of cover, 20 June to 15 July. Indemnities are paid for each centimetre of water once the river level index reaches the 2.8 m threshold, with maximum payout occurring when the index reaches 3.5 m.

## 7.2 Work with Governments

Disaster index insurance is often a part of government's disaster response system. Since governments generally have a disaster relief mechanism in place, people do not find it relevant to be part of any additional risk management mechanism. Besides, disaster index insurances are costly and require subsidies thatprivate players cannot afford. A feasible solution emerges only if the government becomes part of the programme and transfers some its disaster-related fiscal risk to the insurer. Globally, only government-supported disaster index insurance programmes have been able to reach scale and sustainability.

***Ethiopia***: In 2006, the government of Ethiopia, with help from USAID and the World Food Programme (WFP), wrote a disaster index insurance contract of USD7.1 million(for a premium of USD930,000) to AXA Re for funding its disaster relief programme to five million 'transiently food insecure' population, who otherwise received relief only when the government approached donors proving that people are 'hungry' due to drought.

***Caribbean***: 16 Caribbean countries joined together to purchase an index-based disaster insurance product. Underwritten by Caribbean Catastrophe Risk Insurance Facility (CCRIF), the product covers all the member countries against earthquake and hurricane. Each country is charged a premium based on the countrywide risk profile, based on historical incidence rates and the risk was further transferred by CCRIF to international reinsurers.

***Mexico***: In the case of disaster, farmers in Mexico with a monthly income in the range of USD74-222receive a tax-funded federal assistance fund from the Climatologic Contingency Attention Programme (PACC) for post-disaster recovery. The state reinsurance company Agroasemex launched an index insurance product for flood and drought for the state and federal governments. Paid by the governments, the premium comes to 13% of the sum insured, thereby reducing fiscal burden on PACC by 87%.

***Brazil***: The state government of Rio Grande do Sul set up a seed distribution programme in 1989 to help farmers grow maize for animal feed. The programme supplies farmers with certified maize seed and payment for the seed is delayed until after the harvest. Hence, the state government loses the potential seed payment if any disaster affects the crop and harvest. Agro Brasil, a private insurance company, developed an index-based area-yield index insuranceso that farmers are indemnified even in the case of a disaster and crop loss. The state government pays 90% of the premium for the scheme, which covers nearly 200,000 farmers.

## 7.3 Reinsurance is Critical to Scaling Up

Reinsurance is critical for an index-based disaster insurance programme. Since most of the disaster index insurance programmes are national in nature and outreach, transferring the risk to international risk carriers is the only viable solution for such product. However, as discussed earlier, in most of the index insurance pilotsthe reinsurer does not enter the project asit is small and the project does not grow in scale asit does not have reinsurance.

***Ethiopia***: The Nyala Insurance Company (NISCO) programme aims to protect the livelihoods of small-scale farmers vulnerable to severe and catastrophic weather risks, particularly drought. For NISCO, reinsurance is a major challenge to effective scaling up. It is currently negotiating a reinsurance arrangement that it hopes will ease this constraint.

***The Caribbean***: The Caribbean Catastrophe Risk Insurance Facility (CCRIF) was developed at the request of the Caribbean Community (CARICOM) to facilitate a risk model for hurricane and earthquake hazards. The CCRIF makes payouts to a country in a policy year, limited by the exhaustion point of the coverage selected by each country. It retains the bottom US$10 million, with USD10 million reinsured by various reinsurers. US$20 million of the top layer of risk was placed in the capital markets through a risk swap between the CCRIF and the World Bank treasury, which is the first time such an instrument has been used to transfer risk.

***Malawi:*** In 2008 the government of Malawi brought a weather index-based derivative from the World Bank treasury to secure the maize price of the country against drought. As per the contract, if rainfall falls below 10% of the historical average, the government will receive a payout at the end of season of up to a maximum of USD5 million. The government planned to use this payout to buy an option to cap the import price of maize in the international market. By this innovative index insurance, the government of Malawi has ensured a stable maize price in the country even in case of a drought. This was part of Malawi's overall food security strategy.

## 7.4 Improve the Weather Infrastructure

Two things are of utmost importance to settle claims faster in an index insurance product.First is the availability of weather data, and the second is making this data available to the insurer in frequencies of one-two days. In countries such as India, Indonesia, Pakistan and the Philippines, where farmland holdings are scattered over a wide geography, there is a need to set up more weather stations so that microclimatic variations can be captured in the index. This is more important for a disaster index insurance product, since most of the natural disasters affect a relatively small microclimatic region. An enhanced and improved network of weather stations would bring in better correlation of weather parameter measured at the weather stations and the actual weather near the inhabitation or farmland of the clients. In India, private weather stations have to a large extent helped reduce the basis risk problem. However, getting data from multiple locations with sparse population can be costly for the projects. One way to reduce infrastructure cost is to use stations for multiple services. Some data providers sell weather information to farmers, newspapers and media companies, input suppliers and agricultural processors.

Satellite data can be an alternative to or can supplement data collected on the ground. Data from remote sensing hastwo advantages: it is more difficult to tamper with and is available across large areas of the globe in real time. However, satellite data can be more suited for markets such as India where index insurance is nearing stabilisation. For countries such as Sri Lanka, Pakistan and Indonesia, where the index insurance is at a nascent stage, satellite data is an expensive option. New technology such as the Normalized Difference Vegetation Index (NDVI) comes from satellite measures of vegetative 'greenness', which should correspond to the level of photosynthesis on the ground and thus help calculate the healthiness and

abundance of crops. In 2005 in India, AIC introduced an index insurance product in the states of Haryana and Punjab to cover wheat using NDVI, though this faced problems because of cloud cover during critical growth periods.

***India***: ICICI Lombard and HDFC Ergo have tied up with private weather data providers such as Sky met Weather Services, National Collateral Management Services Limited (NCMSL), Weather Risk Management Services (WRMS) and Komoline. ICICI pays them monthly for the data provided on temperature, rainfall, wind speed, humidity and so on. This data is given on a real-time basis, except for in places that have issues with connectivity. Sometimes data is shared between two insurers. With the increase in the number of weather stations, ICICI Lombard is of the opinion that they will be able to handle basis risk efficiently. The idea is to have weather stations at close vicinity to the farmers' fields so that data is representative of the actual condition (a radius of 10 km would be ideal).

***Malawi***: Designed by the World Bank, this insurance programme aims to strengthen maize markets in Malawi by using index insurance at the macro level. The programme depends on a rainfall index constructed using data from 23 weather stations across the country. The presence of the stations was essential in launching this product and enabling a sophisticated, market-based risk transfer, despite the generally poor conditions of the country's weather data services (Hess and Syroka 2005).

***Nicaragua***: Nicaragua has introduced index insurance faster than other countries in Central America, owing largely to the availability of reliable, accessible weather data. The weather service, Instituto Nicaragüense de Estudios Territoriales (INETER), has played a key role in supporting the market development of agricultural insurance, which in turn provides confidence to the local industry, reinsurers and regulatory authorities. Much greater investment is needed to increase the density of historical weather data in agricultural areas and ensure the availability of data for contract monitoring.

## 7.5 Creating R & D Capacities

Most of the index insurance programmes in developing countries have started with financial and technical help from international agencies such as the World Bank, ILO, GIZ etc. There were two basic reasons for this. Insurance companies did not have the technical expertise or the know-how to create these products, and secondly the initial investment was expensive for local insurers in most of these countries. Simply put, many insurers did not want to burn their cash for a venture when they were not sure of the scale and success. Investment in research and development, therefore, remains a significant barrier to WII.

Given the amount of resources required, the insurers could think of setting up collaboration with a consortium or pool to develop WII products. In addition, such a pool could be aided by a donor agency, which might also provide subsidised funding.

***India***: Countries such as India have passed the R&D investment phase. Many large- to medium-size insurers in India are now capable of designing and offering index products. Private insurers are bidding enthusiastically for the WBCIS programme and even now this programme forms the major source of revenue as far as the index insurance vertical is concerned for private insurers. Looking at the huge potential of index insurance and also at government support, private insurers have built in technical capabilities over the years.

***Indonesia***: Indonesia does not have a commercial index insurance product. The private insurance provider MAIPARK is in collaboration with AON and GlobalAgRisk indeveloping index insurance for earthquake, which is a prominent disaster risk in Indonesia.

## 7.6 Capacity Building of Local Stakeholders

Developing local stakeholders is very important for an index insurance product. Development of an index product typically takes three-five years. Product development is an intensive process that includes steps such as product design, costing/pricing, prototype testing, training of the field staff, training of aggregators and pilot testing. All this has to be done before the product is finally launched in the market.

A local champion is necessary to overcome these initial set-up challenges. Having someone on the ground to manage the details, especially with the various agencies and actors involved, is critical to getting the various organisations and interests working together. Similarly, it is important to employ locally based and connected partners for project management who are also able to work as aggregators for policies.

***India***: In India in 2003, an IFC/World Bank design for an index insurance product sparked the interest of BASIX into piloting it. Together they cultivated the interest of reinsurers and launched the first successful pilot of index insurance in India. The local insurance product manager at BASIX, who was key to the success of this pilot, later went on to become an insurance broker, further developing the weather index insurance market.

***Sri Lanka***: The importance of local partners has been very well demonstrated in Sri Lanka, where SICL is the local implementing agency. It has established relations with all the stakeholders involved in the project from the weather agency to the reinsurer.

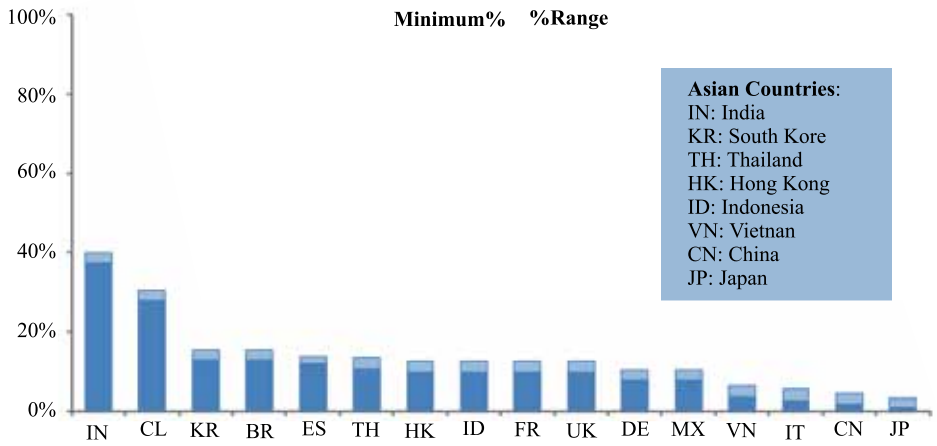
## 7.7 Use of the Bancassurance Model

The banc assurance model is the partnership or relationship between a bank and an insurance company whenthe insurance company uses the bank sales channel in order to sell insurance products and target its products to the bank's client base. Bancassurance allows the insurance company to maintain smaller direct sales

teams as their products are sold through bank-to-bank customers by bank staff and employees as well. Bank staff and tellers, rather than an insurance salesperson, become the point of sale and point of contact for the customer. Bank staff are advised and supported by the insurance company through product information, marketing campaigns and sales training.

Such partnership arrangement is valuable for both companies. Banks earn additional revenue by selling the insurance products, while insurance companies are able to expand their customer base without having to expand their sales forces or pay commissions to insurance agents or brokers. Bancassurance, has proved to be an effective distribution channel in a number of countries in Europe, Latin America and Asia.

**Estimated Distribution Share of Bancassurance in Non-life Insurance in 2012**




*Source: Finaccord Presentation, May 2013, Bancassurance Models Around the World*

In case of index insurance, the bancassurance model reduces the administrative cost of delivering the product by many folds. In addition, a bank's existing database provides a ready market for the insurer. Since high scale and outreach is essential for the success of index insurance, such a ready market helps the insurer in reaching high volume in a short time and at little cost. Moreover, approaching bank customers works as a systemic client-selection process, reducing the risk of moral hazard and adverse selection in any index insurance product. However, in developing countries with low financial inclusion, the scope of accessing low-income people through bancassurance channels is limited. Microfinance institutions and savings and credit co-operatives also need to be treated as bancassurance partners in these countries.

## 7.8 Education of the Target Clientele

Insurance is a product with latent demand. Convincing people of the need of insurance, traditional or index-based, is a challenge most insurers try to address. To sell a voluntary insurance product, willingness to pay for insurance must be high among the target clientele. Willingness to pay depends on understanding the product, its perceived value in their life and affordability. The problem of understanding becomes more serious with index-based insurance products since these are highly technical products and people are not familiar with the idea of a single-risk coverage product (i.e. one that pays out only for the triggering of the indexed risk). Whether people value the product is also questionable. As we see in case of the flood index insurance in Indonesia, people found their conventional risk management systems more suitable than the insurance product. Premium affordability is akey consideration for people with already low levels of disposable income. For most of the current programmes, premium payment has not become a problem as they are heavily subsidised. Without subsidies, such products clearly become unaffordable for low-income target clients.

Index insurance programmes that include initial training and an overall continuous approach to capacity development have a clear advantage in effective implementation compared to those that do not. When clients are trained in the use of index insurance as a risk-mitigating investment as well as general financial literacy, they are better positioned to understand when and how to expect a claim and have more realistic expectations regarding payments. Similarly, they can make well-informed decisions about their overall risk-reduction strategy, whether index insurance could complement it, and what products best suit their needs.

***India***: In India, a big part of the success of PepsiCo's programme is due to its contract farming arrangement with farmers, a package of production information and support that includes an index insurance pilot. Product education was provided systematically, with training and educational meetings conducted with each programme participant. 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. This service was sent in a timely and regular manner and charged separately to participating farmers. Training sessions on index insurance were organized at warehouse facilities, a natural gathering point for farmers.

***Pakistan***: In Pakistan, the aggregators for the index products – namely SVDP and NRSP – educate the farmers about the benefits and needs of index insurance. They have been appointed because of their extensive rural outreach.

***Brazil***: AgroBrasil led an extensive marketing campaign to promote an area-yield index insurance product in the state of Rio Grande do Sul. It dedicated about 45 people to marketing activities, placing ground teams close to distribution points and investing in promotion of the programme via radio, local offices of the state's Department of Agriculture and Supply (SAA), city halls and other distribution sites. AgroBrasil also prepared educational materials to help interested farmers understand the product. In a cartoon booklet, Mr Chico and Agricultural Insurance (AgroBrasil Seguros 2008), a character named Segurito® simplified insurance terms and explained how the insurance product works.

***Ukraine***: In the Ukraine, there is a lack of understanding of insurance providers in the market and only a minority of farmers insure their crops. Insurance is still a foreign concept to most. Producers did not realise that the pilot product was being offered by alocal insurance company; instead, they mistakenly believed it to be an initiative by the IFC and the World Bank's Commodity Risk Management Group (CRMG), which they were reluctant to trust. An inadequate effort to educate clients on the importance and relevance of index insurance was one of the factors that contributed to the very limited achievements of the pilot programme.

**Start Up and Scaling Up of Weather Index Insurance**

Minimum conditions for start-up:

- An enabling environment, including the effective legal and regulatory system to enforce contracts and supervise insurance, and in which subsidised risk-management options donot crowd out market-driven products;
- Adequate infrastructure (e.g. weather stations) to provide unbiased weather data and minimise basis risk;
- Credible, cost-effective and commercially viable national insurers, whose payments are guaranteed by a credible authority, and intermediaries that market and package insurance with relevant inputs, technology, agronomic and weather information, and/or financial services;
- Coverage of the 'right' risks (i.e. infrequent, but high-impact events that threaten livelihoods or cause traditional coping mechanisms to fail), using an index that captures that risk well, minimising basis risk;
- Availability of cost-effective products for which clients find that the benefits of transferring risk are greater than the costs.

Conditions for sustained scaling up:

- Payouts that are based on objective, transparent, verifiable and understandable criteria, and which reach clients soon after the insured event;
- Trusted, credible intermediaries and insurers;
- Tangible coverage. People need to be able to relate to the expected benefits (payouts in certain cases) of the contractual relationship;
- Transparency and understanding. Farmers need a good understanding of their risk exposure and the function and benefits of a risk transfer instrument;
- Adequate and sustained demand for risk transfer products;
- Affordable, high-value products, and new ones over time as conditions evolve and farmers develop their businesses;
- Smart subsidies for disaster insurance products, minimising costs by adjusting the targeting to match changing circumstances (i.e. the number and types of people who remain vulnerable as the local economy develops). Any subsidies used to launch development index insurance products should be phased out over time;
- Access to adequate reinsurance arrangements to prevent insurers from defaulting in years when large payouts are made.

*Source: The Potential for Scale and Sustainability in Weather Index Insurance – WFP and IFAD*

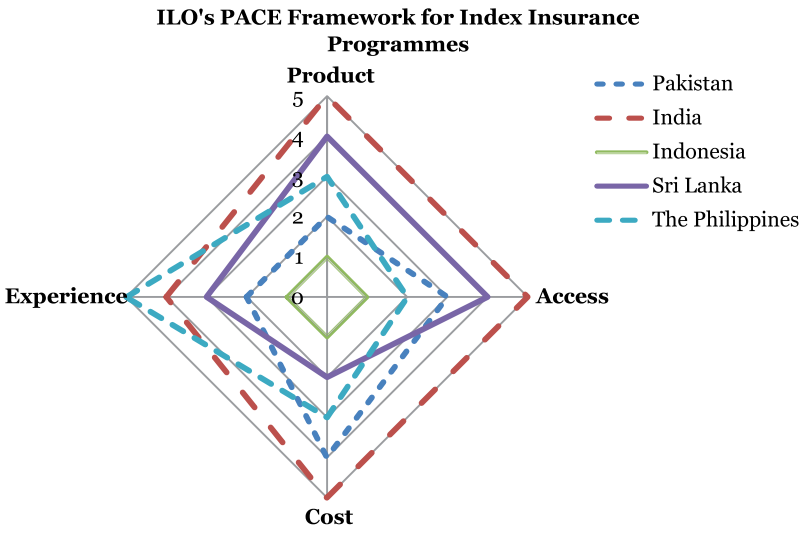
# 8. Client Value in the Product

The success of an insurance programme depends upon the value clients derive from the scheme. The PACE framework conceived by ILO has been used to derive the relative performance of the different index insurance programmes/pilots in various countries:

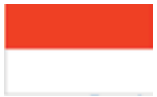
The framework is structured into the following main dimensions:

- ***Product***: describes appropriateness of the product by reviewing the players involved in offering index insurance, coverage, benefit level and eligibility criteria.
- ***Access***: focuses on accessibility and simplicity by investigating choice, distribution mechanism, client enrolment, client education, premium payment method and proximity
- ***Cost***: measures both affordability and cost structure of the scheme. Comments on the elements of actuarial pricing and subsidy elements as well.
- ***Experience***: assesses responsiveness and simplicity by looking at claims procedures, processing time and challenges faced by different countries.

The PACE framework for the index insurance schemes evaluated is described below in a cobweb diagram:




*Source: MicroSave analysis*

| | Pakistan | India | Indonesia | Sri Lanka | The Philippines |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| **Product** | **2** | **5** | **1** | **4** | **3** |
| Players involved in index insurance | Only two local insurance companies involved in the pilot. Pilot funded by PPAF and IFAD. No commercial index insurance product. Large insurance players do not have index insurance products. | Public insurer AIC is going strong with largest market share. The flagship index scheme (WBCIS) is offered by AIC and nineother private insurance companies. Private players are very active in the index insurance space. Commercial index insurance products in place. Large insurance players have index insurance products. | Wahana Tata introduced the index product thatfailed. Other players such as MAIPARK, ACA etc. do not have any index product. No commercial index insurance product. Large insurance players do not have index insurance products. | SICL is the only insurance company to offer index insurance products. Commercial index insurance products in place but on a very small scale. Large insurance players do not have index insurance products. | PCIC running twoindex pilots in limited areas. MicroEnsure also offers index insurance along with Malayan Insurance Company. Other large private insurance players do not have index insurance products. |
| Benefits under the scheme | **Advantage**<br>The two index products are offered to farmers in two locations. Soon Valley and Talagang. The sum insured is the cost of cultivation. The premium is subsidised. Drought is the peril, which is covered for wheat. Pilot is just a year old. Index-based product makes claim settlement faster compared to traditional insurance such as CLIS.<br><br>**Disadvantage**<br>The outreach is very limited. The product is only offered to poor farmers with acreage less than threeacres. The peril is only drought. Other perils not covered. Poor weather infrastructure. The subsidy element is high. PPAF could not get a chance to experience the scheme because of no claims in the first year. Client education is low. | **Advantage**<br>WBCIS scheme covers almost all states of India. The sum insured is cost of cultivation. The premium is subsidised. Covers adverse weather parameters such as: drought, excess rain, dry spells, unexpected rains, temperature, frost, humidity. India has a good vintage of index insurance. Reinsurance not a problem. Private insurance companies also have index products although on a small scale. Index-based product makes claim settlement faster compared to traditional insurance such as NAIS.<br><br>**Disadvantage**<br>Does not cover localised perils such as hailstorms, landslide, flooding, earthquakes, frost, and wind. Less non-loanee farmers. Client education about index insurance is limited. WBCIS is a highly subsidised programme. Poor weather infrastructure sometimes delays. | **Advantage**<br>Large insurers such as MAIPARK are serious about index insurance. ACA has disaster insurance products (butnot index). MAIPARK, Aon and GlobalAgRisk planning for an earthquake based index insurance product.<br><br>**Disadvantage**<br>No much on-ground research in index insurance. The index products will be tougher than a normal rainfall index product since country is frequented by earthquakes also. Studies by external agencies such as IFC confirm that there is good potential, but a commercial product is yet to be launched. Failure of a flood index product was a drawback. Challenges in distribution of the product. | **Advantage**<br>SICL offers twoindex products for paddy and tea. Paddy product is offered in 12 locations. Tea product is launched just in August 2012. Drought, excess rains and flash rains are covered. The sum insured is the cost of cultivation. Sanasa societies offer an excellent distribution channel. Index-based product makes claim settlement faster compared to traditional insurance.<br><br>**Disadvantage**<br>The premium is not subsidised. Hence the product is perceived to be expensive by the farmers. The outreach is very limited. There are delays in claim settlement due to delayed data receipt from the weather stations. Thin weather infrastructure delays claim settlements. | |

| Access | 3 | 5 | 1 | 4 | 2 |
|---|---|---|---|---|---|
| Propagating and reach of index products | Pilots in only two areas, Soon Valley and Talagang. Large scope for expansion. Farmers are the primary targets. Poor geographical penetration of the product considering the fact that pilot is just over a year old. The NGOs appointed as aggregators help in rural outreach. (NRSP and SVDP) No government support in propagation of index insurance. Aggregators NRSP and SVDP help in product marketing, premium collection, claim settlement and creating awareness amongst farmers. | Majority of the clients of index insurance are loanee farmers, which makes index insurance compulsory. Banks play a role in collecting premium and making payouts. No direct contact between the insurance company and the client. Non-loanee farmers are reached out to with the help of agents who can be MFIs or NGOs. Outreach of WBCIS is very extensive. Private insurers appoint individuals and brokers for distribution. Insurance companies also use the microinsurance agents as aggregators. IFFCO Tokio uses its fertiliser programme for product distribution. | No index products in place. Other disaster products are distributed through their branches. Other distribution channels thatare seen for the future are microfinance institutions, NGOs and supermarket chains such as Indomaret. Disaster products such as dengue insurance distributed as scratch cards at the retail outlets. | IFC supported product in onelocation. The ILO supported product for paddy in 12 locations. The northern parts of the country not yet touched. Distribution done with the help of Sanasa societies (thrift and co-operative society network). Product is for farmers only. | World Bank supported product in twolocations. The GIZ supported product in twolocations. Crops are paddy and corn. |
| Ease of premium collection method | Premium is collected from the farmers by the activists of the aggregator's, vizNRSP and SVDP. They have a good rural outreach. The money is deposited by them to the insurance company. The subsidy element is paid by the sponsors of the pilot (PPAF and IFAD) to the insurance company through the aggregators. | For WBCIS, the loanee farmers' premium is directly deducted by the bank before giving the loan and passed on to the insurance company. The subsidy element is received by the insurance company separately from the central and state governments. Non-loanee farmers have to go to the banks in the area thatare authorised to collect WBCIS premiums. | No index product. Other disaster products can be purchased either from retail outlets as scratch cards or from the branch of the insurance company. | The farmers pay the premium to the nearest Sanasa societies in the area. These societies further remit the amount to the regional office of SICL. | No information |

| **Cost** | **4** | **5** | **1** | **2** | **3** |
|---|---|---|---|---|---|
| Cost structure of scheme | **Actuarial pricing:** The index products are priced actuarially. The pricing is done by the consultants hired by PPAF.<br><br>**Subsidy:** Pilot objective is to include small and marginal farmers. Criterion developed by PPAF to include farmers with landholding upto threeacres. Premium is subsidised by 50% in the Soon Valley and 60% in Talagang. Subsidy element is paid by PPAF and IFAD. | **Actuarial pricing:** WBCIS products are actuarially priced by the insurance company thatoffers them(AIC + nineprivate insurers). Other retail index products offered by PepsiCo, ICICI Lombard-BASIX, HDFC ERGO, IFFCO Tokio etc.are all actuarially priced.<br><br>**Subsidy:** Subsidy component in WBCIS ranges from 50-82% of the actuarial premium. The farmers are charged premium in line with NAIS scheme. The remaining amount is paid by the central and state governments in the ratio of 50:50. Subsidy is available for non-loanee farmers as well. | **Actuarial pricing:** The market currently does not have any index products. The index product (failed) by Wahana Tata was actuarially priced.<br><br>**Subsidy:** No subsidy element from the sponsors. | **Actuarial pricing:** The index products are priced actuarially. The pricing is done by the insurance company company with assistance from DID.<br><br>**Subsidy:** There is no subsidy element for the farmers. However the experience of SICL has been that the index product is expensive compared to the traditional insurance product. | **Actuarial pricing:** The index products are priced actuarially. The pricing is done by the insurance company PCIC. Technical support from World Bank, GIZ and ILO.<br><br>**Subsidy:** Aggressive pricing maintained by PCIC. Index-based crop insurance contracts have premium in the range of 3-6%, which is far lower than the traditional crop insurance of about 10-11%. |
| Affordability to the client | The products are subsidised.It is a controlled pilot offered only to marginal farmers. Subsidy element makes it affordable to farmers. | The WBCIS index products are heavily subsidised to farmers. Farmers only pay about 25-30% of the premium. Subsidy element makes it affordable to farmers. Insurance companies feel that without subsidy the product is very expensive. | Cannot comment asthere are no index products. The flood index pilot reportedly failed due to affordability concern. | SICL says that the index products are expensive since they are actuarially priced. Also no subsidy element makes it even more challenging. | No information; hence cannot comment. |

| Experience | 2 | 4 | 1 | 3 | 5 |
|---|---|---|---|---|---|
| Faster claim processing at the client end | The claim processing will be faster compared to CLIS because it will be on a parametric basis(TAT of about 30-40 days). But due to sufficient rains in the last year, there has been no claim till April 2013 (product was launched in Oct 2012). | Well organised processes and run professionally. Faster claims processing for the client (30-45 days). Claim processing is cashless for the client. Proceeds get deposited in the bank account of client or given by a cheque mode. Hence no leakages. Improved weather infrastructure has proven helpful. | No index pilots as of now. The flood index product was a failed attempt. | Claim settlement takes about 45-60 days for the client. Cheques are sent directly to the Sanasa societies who distribute themto the farmers; if the farmer has a bank account, the proceeds are deposited directly. Receiving data from the weather station is a bottleneck. | Claim settlement in area based yield insurance and the weather index insurance projects happen within tendays. |
| Challenges faced by the pilots and products | • Index insurance is just a year old and yet to gain ground;<br>• Subsidy element;<br>• Product is available only to marginal farmers;<br>• Technology and MIS challenge for insurance companies;<br>• Weather data availability;<br>• Arranging for reinsurance. | • Without subsidy element, index products are not sustainable;<br>• Weather infrastructure has to improve;<br>• Reinsurance support available only for large programmes;<br>• Product distribution and client education;<br>• Outreach to non-loanee farmers. | • No commercial index products;<br>• Client education;<br>• Distribution challenges. | • Data availability;<br>• Index insurance is expensive because of no subsidy;<br>• Competing products from government;<br>• Faster data availability. | • Index insurance is done on a small scale; a few pilots by a few private parties. |

# Annexure I: Case Studies

## India

### Case 1: Growth of Crop Insurance in India – Journey from Indemnity to Index Insurance

**Summary**

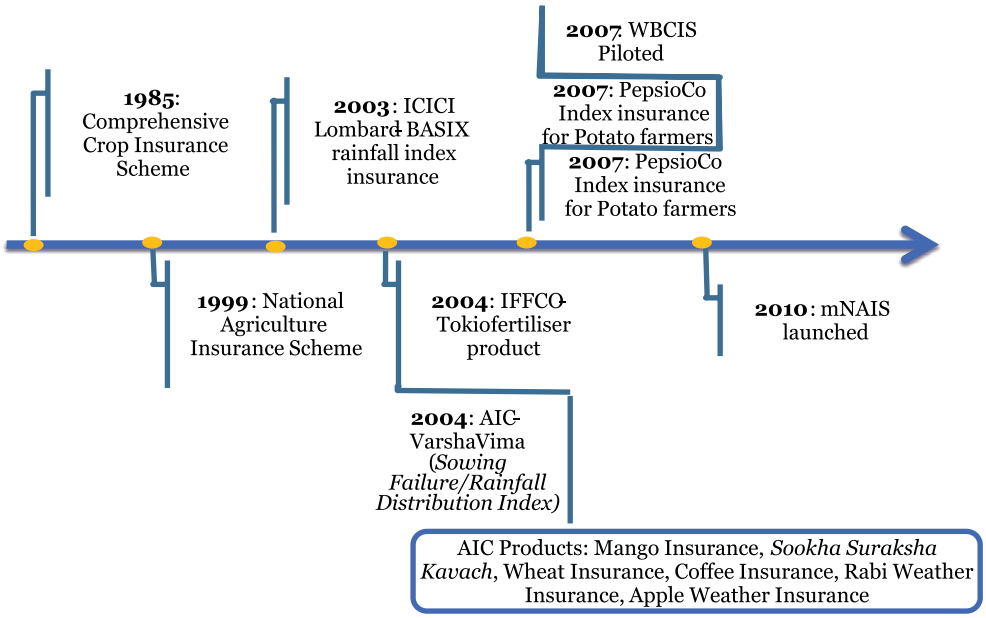
*Input: Secondary research, stakeholder interviews*

*Because of the geographical vastness, India has often been marred by disasters that have a pronounced negative impact on agriculture. Considering the fact that more than 50% of the people are employed in agriculture directly or indirectly, agriculture insurance becomes imperative. Considering the South Asian scenario, India has been one of the pioneers as far as crop insurance is concerned. The thoughts on crop insurance in India began as early as in 1965. This was formalised in 1985 with the launch of a traditional crop insurance scheme, namely the Comprehensive Crop Insurance Scheme, which was offered by the public insurer Agriculture Insurance Company of India. This scheme was bettered in 1999 with the launch of the National Agriculture Insurance scheme, which was further modified in 2010. India had its first experience of a weather index-based scheme in 2003, through an initiative taken by a private insurance player viz. ICICI Lombard. Since then both the public and the private sector have been instrumental in providing weather index insurance to the farmers. This case study looks at a chronology of events in the crop insurance journey of India.*

**Description**

India is an ideal case study as crop insurance development has passed through several experimental phases. The country has witnessed unsustainable traditional crop insurance policies and has gradually shifted its focus to more scientific and efficient index insurance products in recent years. The journey of the Indian crop insurance sector can be marked by significant developments in last two decades.

**Journey of the Indian Crop Insurance Sector**




*Source: MicroSave research*

*Comprehensive Crop Insurance Scheme (CCIS, 1985):*

The period from 1965 to 1985 can be termed as a development phase in the Indian insurance sector. CCIS can be termed as the first modern crop insurance scheme in India. CCIS was introduced with effect from 1st April 1985 by the government of India with the active participation of state governments.

The salient features of the scheme were:

- CCIS covered farmers availing crop loans from financial institutions for growing food crops and oilseeds on a compulsory basis. The coverage was restricted to 100% of crop loan subject to a maximum of INR10,000/- per farmer;
- The premium rates were 2% for cereals and millets and 1% for pulses and oil seeds. Central and the state governments subsidised 50% of the premium payable by small and marginal farmers;
- Central and state governments shared the premium and claims in 2:1 ratio;
- The scheme was optional to state governments;
- The maximum sum insured was 100% of the crop loan, which was later increased to 150%;
- CCIS was a multi-agency scheme, involving the government of India, departments of state governments, banking institutions and reinsurer GIC Re. GIC Re has underwritten the products.

This scheme was criticised for high claim ratios and claim settlement delays.

*National Agricultural Insurance Scheme by AIC (1999):*

Like CCIS, NAIS is mandatory for all farmers who borrow from financial institutions, although insurance cover in NAIS is also available to non-borrowers. NAIS is run and underwritten by a government-promoted and owned insurance company called the Agriculture Insurance Company of India (AIC). Like any traditional crop insurance, NAIS is also criticised for:[28]

- High claim processing time (sometimes nine-12 months or more);
- Very high administrative costs because of the huge data collection requirement;
- Being financially unsustainable (claim ratios higher than 100%) and burdening the fiscal exchequer
- Exclusively insuring farmer's yields against the average yield of the area. Most of the agricultural labourers, rural off-farm and non-farm workers are not covered under the scheme even though they are equally if not more affected by the failure of agricultural crops;
- Giving the distribution rights only to the public insurer, AIC of India. Lack of entry to private players hinders competitiveness of the scheme;
- Lesser outreach even though the programme is subsidised by the government.

*WII Product by ICICI Lombard-BASIX (2003):*

This was the first attempt to devise a weather index insurance (WII) product. It was a joint effort of ICICI Lombard in collaboration with BASIX, a leading livelihood promotion institution in India. It was a rainfall insurance contract underwritten by ICICI-Lombard General Insurance Company for groundnut and castor farmers of BASIX's water user associations in the Mahabubnagar district of Andhra Pradesh. This pilot, supported by technical assistance from the World Bank, spurred rainfall insurance product offerings from other insurers such as IFFCO-Tokio and the public insurer AIC of India.

*WII Product by IFFCO Tokio General Insurance Company (2004):*

IFFCO Tokio is a joint venture of the Indian Farmers Fertiliser Co-operative (IFFCO) and its associate Tokio Marine and Nichido Fire Group, the largest listed insurance group in Japan. The company incorporated the product into IFFCO's fertiliser programme and has used the programme's rural network of fertiliser co-operatives for distribution. IFFCO Tokio provides technical advice, product education, training and marketing skills to secretaries and staff of member co-operatives to enable them to sell insurance products.

*WII Product –Varsha Bima*[29] *– by Agriculture Insurance Company of India (2004):*

This was the first index insurance product by the public insurer AIC of India. *Varsha Bima* was designed in consultation with the National Insurance Academy (NIA) and conceived and marketed by AIC. It is a weather insurance product intended to provide payouts for crop losses suffered due to deficit or inadequate rainfall. *Varsha Bima* is voluntary for all classes of cultivators who stand to lose financially upon adverse incidence of rainfall.

[28] Weather-based Crop Insurance in India, Clarke et al, The World Bank Paper 5985
[29] *Varsha Bima* (in Hindi) Literally means 'rainfall insurance'.

*Weather-based Crop Insurance Scheme (WBCIS) by AIC (2007):*
The market for weather-indexed insurance in India fundamentally changed in 2007 with the launch of the WBCIS. Weather insurance has been piloted in the country since the *Kharif* 2007 season. States where it is piloted are Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab and Rajasthan. From 2007-8, the states have had the additional option of choosing WBCIS as an alternative to NAIS. Any insurance company, including private players, can sell the product depending on allotment made by the government on a district-wide basis. Unlike NAIS and CCIS, the government only subsidises a part of the premium of WBCIS, while claims are managed by the insurance company.

*WII Product by PepsiCo (2007):*
PepsiCo was the earliest promoter of the contract-farming model in India (in 1997). As part of the contract, PepsiCo distributes fertilisers, provides access to pesticides and requires contracted potato farmers to use a specific variety of high-quality potato seed, which it sells to farmers at cost. PepsiCo offers farmers technical advice on production practices through a network of agronomists, extension workers and local facilitators. Contracted farmers have the opportunity to manage the many risks associated with potato-growing through a WII product, which is sold through ICICI Lombard General Insurance Company and managed by Weather Risk Management Services (WRMS). PepsiCo has systematically educated farmers about this product, conducting numerous training sessions and meetings for the various parties involved.

*WII Product by HDFC ERGO (2010):*
HDFC ERGO started a Rainfall Index Insurance Policy for farming communities who may be adversely affected on account of a rainfall deficit. Farmers who are considered are the members (in groups) of microfinance institutions, NGOs, government-sponsored organisations and such affinity groups/institutions in rural and social sectors. This WII product covers the diminished agricultural output/ yield resulting from a shortfall in the anticipated normal rainfall within a specific geographical location and specified time period. Premiums chargeable depend on various factors such as the type of crop, location, historical rainfall data, cost of cultivation in the specified area and the acreage under cultivation.

*Modified National Agricultural Insurance Scheme (mNAIS) (2010):*
At the request of the government of India, the World Bank provided technical assistance to AIC to develop an actuarially sound rating methodology, improve the contract design of the area-yield based NAIS to reduce delays in claim settlement and to perform a risk assessment of AIC's insurance portfolio and suggest cost-effective risk financing solutions (including reinsurance).With the aim of further improving crop insurance, mNAIS is under implementation on a pilot basis in 50 districts of 16 states in the country from Rabi 2010-11.

**Outcomes and Impact**

The CCIS had a decent outreach to about 76 million farmers before it was scrapped. The NAIS is currently being offered in 24 states with a cumulative outreach to about 51 million farmers. The index insurance initiative of India, WBCIS, is one of the largest in the world and has benefitted about 37 million farmers up to Rabi 2012. The AIC still has the largest market share, both with respect to number of farmers enrolled and the premium amount collected. The private players are making significant contributions in providing WBCIS. Most of them have claim ratios below 100%, which hints at sustainability of the product. India has been among one of the very first countries in Asia to provide WII as a commercial product.

**Lessons Learned**

India learned many significant lessons from this long journey of providing index insurance. Allowing entry to private players has brought in competition and improved the quality of delivery for the end customers. The WII products have reduced the claim settlement time to 30-45 days, down from an excruciating nine-12 months under the traditional insurance schemes. WII products have been doing well because of the use of technology and improved infrastructure. From physically visiting the farmer's field to verify the crop loss to using index schemes that correlate the yield loss to changes in the weather parameters, India has come a long way in providing disaster relief to farmers from the vagaries of drastic climate change.

## Sri Lanka

### Case 2: Experiences of Developing a WII Product

### Summary

*Input: Mr Ravinda Herath, Senior Manager, SICL*

*'SANASA' is the Sinhala acronym for the movement of Thrift and Credit Co-Operative societies in Sri Lanka. It is the only microfinance co-operative network in Sri Lanka covering all provinces with 8,424 primary societies. SANASA Insurance Company Ltd (SICL) is the insurance arm of the SANASA movement. SICL is the only company in Sri Lanka that has managed to offer a commercial WII product to its clients. SICL sought assistance from international agencies such as DID, ILO and IFC in developing WII products and started offering these products on a commercial basis in August 2012. Even though the outreach of these products has been very limited, it is a welcome step for a country that faces weather extremes. The company is still facing problems with regard to quality of data that is collected and the marketing challenges of this product. This case study tries to highlight the challenges the company has faced in developing the WII products as well as the lessons learned from it.*

### Description

Sanasa Insurance Company Limited (SICL) is the only insurance company in Sri Lanka that has run two weather-based index pilots, namely:

1. For paddy: Microinsurance Innovation Facility pilot (feasibility pilot).
2. For tea: IFC's Global Index Insurance Facility pilot.

1. Microinsurance Innovation Facility Pilot

- Implementation partner: Sanasa Insurance Company Limited;
- Funding partner: Microinsurance Innovation Facility;
- Project co-ordinator and services support provider: Développement International Desjardins (DID), Financière Agricole du Québec Développement International (FADQDI) and ILO;
- Training, manuals and consumer awareness support: BASIX, India;
- Project start: June 2008;
- Duration: three years;
- Crop: Paddy;
- Reinsurer: Swiss Re.

In June 2008, Développement International Desjardins (DID) received a grant from the Microinsurance Innovation Facility to conduct a feasibility study for the development of a successful replication strategy for indexed crop insurance in Sri

Lanka. The study was carried out with the support of SICL. The study aimed to assess farmers' insurance needs and determine how index-based crop insurance models used in India could be adapted to the Sri Lankan environment.

Actuaries from DID developed the WII product. Training manuals, proposal forms and master policy documents were prepared with the help of BASIX (Indian NGO having experience of index insurance) and modified as per the requirements of the Insurance Board of Sri Lanka. Product familiarisation and training sessions were conducted for the societies' coordinators. The index scheme was operated in two areas in the Kurunagala and Kaluthara districts on experimental basis and then was further expanded to 12 other areas.

The table below shows the pilot outreach (SICL data):

| | Yala (2010) | Maha (2010/11) | Yala (2011) | Maha (2011/12) | Yala (2012) | Maha (2012/13) |
|---|---|---|---|---|---|---|
| Number of Insurance Units Sold | 570 | 2,241 | 1,904 | 3,337 | 2,908 | 2617 |
| Premium Income (LKR ) | 171,000 | 672,300 | 528,600 | 1,001,100 | 872,400 | 1,157,400 |
| Number of Locations Covered | 2 | 9 | 10 | 12 | 10 | 12 |
| Claims Paid (LKR) | 0 | 1,058,706 | 316,425 | 231,473 | 690,000 | 2,376,383 |
| Claims R | 0% | 157% | 60% | 23% | 79% | 205% |

*Paddy is cultivated in two seasons, namely Yala and Maha. Yala commences during April/May to August/September and Maha commences during September/October of the same year to March/April in the following year.

## 2. IFC's Global Index Insurance Facility Pilot

- Implementation partner: Sanasa Insurance Company Limited;
- Funding partner: IFC's Global Index Insurance Facility (50%);
- Technical support: M/s KA Pandit consultants and actuaries;
- Project start: November 2011;
- Crops: three crops. To start with tea, later banana and paddy.

In June 2011, IFC's Global Index Insurance Facility (GIIF)[30] programme partnered

[30] IFC established its Global Index Insurance Facility in 2009 to assist the development of index-based insurance for natural disasters and weather risks in developing countries, particularly in agricultural communities where insurance is rarely available. The GIIF Global Trust Fund is also supported by Japan's Ministry of Finance, with an initial grant of $2 million, and by the Dutch Ministry of Foreign Affairs, which provided $500,000 to establish the facility.

with SANASA Insurance to develop a simple, flexible, affordable Weather-Index-based Crop Insurance option that caters to diverse client needs and affordability levels for food crops in Sri Lanka. The project received capacity building funding from the IFC's GIIF programme and additional guidance from the local IFC's Access-to-Finance team. The project started in November 2011, with the initial focus on insurance for tea growers. It aims to introduce WII for three crops in Sri Lanka. SICL took inputs from the farmers about the crop cycle, water requirements, and yield per hectare, risks associated with the crop, cost of production and the selling price. It also adjudged the farmers' interest in crop insurance. SICL held meetings with agronomists at the Tea Research Institute about crop cycle, weather risks, other associated risks, weather conditions in tea growing area, soil texture and the density of farmers. Agricultural maps from the survey department of Sri Lanka were collected and tea-growing areas plotted. Weather stations in these mapped regions were identified with the help of the meteorological department of Sri Lanka.

The data requirements for WII product are rainfall and crop yield. Thirty-year rainfall data sets were collected from the meteorological department but collecting yield data was a challenge. The Sri Lanka Tea Board, the Department of Statistics, the Tea Research Institute and Tea Small Holding were contacted but no one was able to provide yield data in the required format. The Tea Board suggested that farmers maintain weekly records of the quantity of tealeaf they sold to the tea factories but this approach also did not yield results, since farmers generally only kept one year's records of their production. However, an approach to the tea factories was more fruitful, with yield data collected from factories in different regions. Data from a factory in Ratnapura was of high quality and was used to construct rainfall yield curve.

Premium calculation was done using the method of burn analysis (i.e. the idea of evaluating how a contract would have performed in previous years). The trigger rainfall level, stop loss and the sum insured are the three parameters that define weather index insurance. The first two parameters were derived from the rainfall yield curve. Rainfall of 100 mm in one month was set as the trigger level and 20 mm as the stop loss.

The cost of production was derived from the farmers' survey response. After deciding the parameters, the last 30-year average of the payoff was calculated. The weighted mean for all weather stations was taken to generate a premium for the entire target region of 8.5% of the sum insured. This is a non-subsidised product. Following product development work, a pilot programme was introduced by Sanasa in the Ratnapura area for a three month trial period in April 2012, when around 400 policies were sold. Sanasa worked on their marketing strategy by organising awareness sessions on weather insurance and by distributing leaflets. GIC Re was the reinsurer. The overall experience from the pilot programme was positive and the WII product for tea was launched in August 2012 across the entire region. The product is now offered in 16 weather locations and 3,108 policies had been sold. So far, SICL has collected premium of LKR1.3 million (USD9,964.74). Claim payout has been LKR0.277 million (USD2, 123.26). Thepayout structure and the insurer's promptness in dealing with the claims are reflected in the increasing number of policies sold. Sanasa has now selected banana as the next product. The parameters chosen for these crops are rainfall and wind speed.

**Outcomes and Impact**

SICL became the first insurance company in Sri Lanka to offer index insurance products to the farmers. The outcome of the product has been quite good. The product has been offered in 12 districts of the country and the company plans to offer this product for other crops as well, such as banana. Currently it is being offered only for tea.

Data shows that claims ratio has been erratic for the first product. The company also faced challenges with respect to availability of good data and fast availability of data. The weather station infrastructure needs some development in Sri Lanka. The case study also highlights the role of good data availability from agencies during the initial phase of product development. Better data will ensure that products are more in line with market needs. It was also observed that one of the reasons for lower outreach of the product was that the premium was not subsidised and the farmers felt it was on the high side.

**Lessons Learned**

- WII is a resource-intensive product. Activities such as initial R & D, training of agents, capacity building of stakeholders and creating farmer awareness require time and money.
- Data availability is crucial for the development of a WII product.
- Good weather infrastructure is a pre-requisite for efficient settling of claims. The data has to be transferred from weather stations to insurance company with least possible TAT.
- Premium should be within a farmer's payment capacity or a subsidy might be required, as seen in India.
- Fast claim settlement process is important for confidence-building measure with farmers.
- Active government support in educating farmers will be appreciated. It will be difficult for the insurance company alone to handle the marketing effort.
- SICL also learnt that the WII product should not bundled with existing credit services because of cost considerations. The opinion leaders of the villages felt that combining the insurance product with the loan will be a burden on the farmers (initially the product was only offered to farmers who took loans).
- The first round of sales of WII highlighted the need to equip sales agents and marketing executives with knowledge of agricultural practices in order to convince clients.
- Product configuration needs to be finalised well in advance of the commencement date of crop cultivation to allow time for the education drive to be conducted and the concept of index insurance to be 'sold'. This is because farmers take time to accept this new concept.
- Frequent product modifications can be time intensive and counter-productive. The views of various stakeholders need be taken during modifying the product, but once the product is finalised, it should not be changed often.

## Indonesia

### Case 3: Distribution Channels for Disaster Microinsurance Products

**Summary**

*Input: Mr Yakub Nugraha, Senior Assistant Vice President, Microinsurance, PT Asuransi Central Asia (ACA)*

*PT Asuransi Central Asia (ACA) is one of the pioneer insurance companies in Indonesia, especially in the space of disaster microinsurance. It has been developing innovative microinsurance products targeting vulnerable and low-income sections of the society. Selling microinsurance products has been challenging for almost all the insurance companies because of a variety of reasons. Hence microinsurance has often been perceived as a push product than a pull product. In such a scenario, ACA has adopted innovative ways of distributing insurance policies to the low-income market. Some of the distribution channels that ACA uses are microfinance institutions, partnerships with local retail chains, higher premium to agents and so on. This case study tries to look into the innovative product distribution strategies of ACA in Indonesia.*

**Description**

PT Asuransi Central Asia (ACA) was established in August 29, 1956 under the name of Maskapai Asuransi Oriental. It changed its name to PT Central Asia Insurance (ACA) on August 5, 1958. ACA has assets amounting to IDR4.317 billion (USD0.43mn), with 60 branches and representative offices located throughout Indonesia, one sharia unit in Jakarta and approximately 1,150 employees. As of December 2011, the capital net worth of the company reached IDR2.789 billion (USD0.281mn) and 266.3% Risk Based Capital (RBC), which exceeds the minimum statutory requirement of 120%.

ACA has following three disaster insurance products under its microinsurance portfolio:

- Dengue fever
- Dana Rumah
- Dana Gempa

Some of the distribution channels that ACA uses for selling microinsurance products are:

*Collaboration with microfinance institutions*

ACA is looking forward to collaborating with microfinance institutions (MFIs) for the promotion of its microinsurance products as these institutions focus on the same target segment in which ACA wishes to work. The challenge in collaborating with these MFIs is the licence requirement that allows the staff members of the MFI to act as agents for the insurance company.

"A microfinance institution cannot become the agent, but its individual field staff members can play the role of agents. Each staff member of the MFI responsible for the promotion of microinsurance products would have to apply individually for the agent certificate. The cost per agent certificate is approximately IDR550, 000 (USD55.5) and it is valid for two years (this certificate could be renewed later by paying a small fee). The insurance association of Indonesia provides this certificate," say Mr Yakub.

ACA has lobbied for a cheaper version of the agency certificate for microinsurance products. ACA suggested the idea to the insurance association, which involves training of prospective agents by the insurance company it self, but the training process could be supervised and monitored by the insurance association body.

ACA has trained approximately 100 staff of BTPN, a commercial bank active in microfinance, to promote its dengue fever insurance product. ACA provided training to these staff members using the same methodology as adopted by the insurance association. Officials from the insurance association supervised this training and later on issued agent certificates to the staff members of BTPN trained by ACA. The cost per agent certificate reduced to almost one-tenth (approximately IDR50, 000-60,000) of the original cost in this mode of training. Mr Yakub believes that generally the cost of the agent certificate is borne by the insurance company itself because the company looks at it from the perspective of developing a viable distribution channel.

Mr Yakub believes that the MFI staff could only be used for promotion and sale of the product. Once the customer enrols for the product, it is the insurance company that should be responsible for after-sales support, including grievances handling and claims settlement.

*Partnership with Indomaret, one of the largest local retail chains in Indonesia*
Indomaret is a chain of local convenience stores in Indonesia. ACA started selling its dengue insurance product through the selected outlets of Indomaret on a pilot basis. The initiative did not last long as Indomaret staff found it difficult to market the product to the customers because of high footfall and long queues at the cash counter. These two reasons prevented the staff from devoting sufficient time for communication of product information to the customer.

Indomaret has recently contacted ACA again about the sale of microinsurance products through its outlets. They were impressed with the idea of selling microinsurance products through mobile phones or electronic point of sale machines installed at a retail convenience store in Japan. They would like to trial similar initiatives in Indonesia.

ACA and Indomaret will start this initiative in next three to four months as they are in the process of developing a technology platform for the sale of microinsurance products. However, there are regulatory concerns regarding the agent certificate requirement in case the electronic mode of payment is used for selling/buying

insurance. ACA may need to discuss this with the regulator to ensure compliance of the requirements.

MrYakub believes that the market opportunity for microinsurance products is quite high, given the number of poor people who require insurance products for risk management. Agents promoting microinsurance products can play a significant role in the overall development of the sector and could earn good money as commission. ACA provides 30% of the premiums collected as commission to agents.

**Outcomes and Impact**
ACA has been able to get more outreach by using the services of microfinance institutions and retail chains. This is a good substitute to the traditional brick-and-mortar way of selling insurance. The same model can also be used for distributing WII products as well.

ACA has been able to tap the rural outreach of MFIs in this model.

**Lessons Learned**
Traditional methods of selling insurance might not be very effective when it comes to attaining outreach. Microinsurance agents (as allowed by the insurance regulator in India) will help to attain the last mile outreach. This step of ACA of using microfinance institutions and retail chains is a very innovative idea to sell insurance.

ACA has also to ensure that the commissions provided to agents are attractive enough for selling insurance policies.

## Pakistan

### Case 4: Experiences of an Insurer

### Summary

*Input: Mr Nasr-us-Samad, CEO, Alfalah Insurance Company Limited*

*Alfalah Insurance Company offers weather index insurance in the Pakistan Poverty Alleviation Fund and IFAD index pilot in Pakistan. Globally, WII is a new concept and Alfalah decided to enter it on this venture to promote insurance at the micro level. The company believes that there is bright future for such schemes in the country. Alfalah has been using the assistance of aggregators – namely SVDP and NRSP – in this WII pilot. These entities have been helping Alfalah Insurance Company in distribution of policies and claim settlement. The company faces problems around weather infrastructure, which it feels has to improve. Also the company did not receive any claims until April 2013 because of favourable weather conditions.*
*This case study looks into the experiences of the Alfalah Insurance Company.*

### Description

Alfalah Insurance Company offers index insurance in the PPAF index pilot currently on-going in Pakistan. The pilot is taking place in the Chakwal and Khushab districts of the Punjab province. Alfalah conducted field visits for a community perception survey in Talagang (Chakwal district) and the Soon Valley (Khushab district) to develop this product. The basic objective of the community perception survey was to understand the insurance needs of farmers, their experiences regarding losses and their willingness to purchase WII. Following the perception survey, the company reviewed 29 years of weather data in Talagang and the Soon Valley for Rabi season, water requirement or average accumulated rainfall for the wheat crop and effects of deficiency of rainfall during sowing, growing and maturity period of the crop.

*Product Features*

- Covers rainfall deficiency;
- Premium is based on area of land and crop to be insured. Maximum premium for Weather Index Crop Insurance is PKR 610/- (USD7.162) per acre. However, it can differ from area to area considering the crop;
- This pilot product is voluntary for the farmer and there is no mandatory requirement to buy the product with crop loan.

*Role of Aggregators*

- Right now Alfalah is working with two NGOs (NRSP and SVDP), one consultant and another insurance company to promote and sell this product.
- The main problem was to sell this new product to farmers of very poor and backward areas. It is not cost effective to establish branch networks in such large and remote areas, hence the need for distribution channels with out reach in the target areas. The NGOs helped in building distribution.

- In the event of claim, Alfalah Insurance makes claims payments to these NGOs, who will be responsible for passing on claims payment to the farmers and for taking an acknowledgment of receipt and an acceptance of claims from farmers.
- The main advantage of using NGOs is their extensive rural presence, which facilitates the product penetration. Their other responsibilities are distribution of insurance proposal forms, collecting them filled and signed by farmers, collecting the insurance premium and promptly transferring the amount to the insurance company, maintenance and security of the weather stations and responsibility of retrieving the data from the weather stations on a fortnightly basis. They also must sending the data to PPAF, Alfalah Insurance and consultants, pass on claims payments to farmers and take acknowledgment and discharge of claims payments from them tosend to Alfalah Insurance. Insurers issue the certificate of insurance and send it back to the NGOs for onwards distribution to the relevant farmers.
- Alfalah Insurance pays the commission of 8% of the gross premium to NGOs on account of service charges.

*Claim Settlement*

- Mr Samad feels that there is a very low probability of leakage in the claim settlement. WII sidesteps moral hazard and adverse selection problems as payouts are solely based on weather data from local weather stations and cannot be manipulated by the farmer.
- The consultants will be responsible for scrutinising the data and ascertaining whether the index has been triggered or not. Alfalah Insurance will act on the consultant's report in accordance with the policy terms, conditions and index triggers.
- Within 30 days of notification by consultants, Alfalah Insurance will dispatch payment to the partner organizations/NGOs.

*Product Marketing*

- Alfalah Insurance takes responsibility to train the staff of NGOs in product handling and marketing. NGOs and Alfalah Insurance will be collectively responsible for promoting the product and educating community members regarding the product.
- The company witnessed difficulties in introducing this product to community farmers. Lack of awareness of insurance is the main problem. Educating a large number of uneducated farmers is found to be a long and tough exercise.

**Outcomes and Impact**

The experience so far has been good for Alfalah. Weather Index Crop Insurance started in the *Rabi* season of 2012-13 for wheat crop.

- A total of 383 farmers purchased this product (covering 1,185 acres of wheat crop);
- Sum insured: Rs2,423,606 (in 2012-13);
- Premium collected: Rs675,608 (inclusive of all taxes and levies);
- No index triggered, so no claims liability occurred. Hence the company has not been able to gain experience of claim settlement.

**Lessons Learned**

The product is the first of its kind in Pakistan. The insurance company feels that the product has a good future in Pakistan given its features compared to traditional insurance. Some of the challenges facing the pilot are:

- Regarding the affordability of the product. The premium had to be subsidised to make it affordable to the farmers.
- Development of diligent distribution channels through a variety of NGOs and partner organisations. This will help in rural outreach.
- Considering the fact that general acceptability of insurance is low in Pakistan and even less in the rural communities, consistent efforts will be required in marketing the product.
- The pilot got very little reinsurance support in the initial stages.

To make the programme sustainable and effective some of the pre-requisites are:

- Development of an appropriate weather stations network in timely manner, which can be maintained to give correct weather data.
- The government policy will finally make or break this initiative. Government needs to provide subsidy for premium, considering the immense socio-economic benefit if the farmers get their claims following various perils from the insurance companies.

## India

### Case 5: Challenges in Weather Index Insurance Products – ICICI Lombard

### Summary

*Input: Mr Swap nil Soni, Product Manager, ICICI Lombard*

*ICICI Lombard, an Indian private insurer, launched its WII product back in 2003. Since then the company has steadily built a portfolio of clients under the WBCIS scheme and also a retail portfolio. The company realises that the WBCIS scheme of the government is driving weather index insurance in the country in a big way. This is corroborated by the fact that the majority of WII clients are from WBCIS. The retail portfolio is small and niche. Even though WII products have been in place for a decade in India, the company faces challenges such as weather infrastructure and distribution channels. As WBCIS is a heavily subsidised programme, it is difficult to envisage a scenario in which government subsidy ceases to exist.*
*This case study looks into the challenges faced by this large private-sector insurance company.*

### Description

ICICI Lombard was the first insurance company to launch a commercial index insurance product back in 2003 in partnership with BASIX, a microfinance organisation. This product was a rainfall index product that was distributed to farmers in the state of Andhra Pradesh[31]. There was initial technical support from the World Bank when this index product was being developed, but now ICICI Lombard has the requisite technical expertise to develop index products. ICICI Lombard had also partnered with PepsiCo to offer index product to its contract-farming farmers. Currently ICICI Lombard is the second-largest provider of the government's WBCIS product after AIC. It is offering the index product on about 40 crops in India.

The challenges faced by ICICI Lombard as far as WII products are concerned are:

*Subsidy element leaves little option of playing with premium amounts*

The insurance companies generally do not play with the premium of the product. The premium paid by the farmer is capped by the state governmentin-line with the premium of NAIS. The excess amount (difference between actuarially arrived premium and what the farmer pays) is shared between the state and central governments in the ratio of 50:50. Hence on an average the government pays 50-82% of the actuarial premium of the product and the product is heavily subsidised. "Without government subsidy, the WBCIS products become very expensive for the farmer," says Mr Soni. The premium ranges from 8-12% of the sum insured.[32]

[31] ICICI Lombard discontinued relationship with BASIX in 2011
[32] Average premium in NAIS is about 2-2.5% of the sum insured. Premium in mNAIS can range from 2% to 25% based on the risk levels of the crop

The central government is very proactive in paying the subsidy component to the insurer. Once the farmers are enrolled, the company sends the list to the government. The central government pays its subsidy component immediately. In some cases, the central government pays the subsidy component in advance, based on the projections of numbers of farmers who will be enrolled for the scheme, but there is some delay from the state government in paying subsidies.

*Poor outreach to non-loanee farmers.*
Index products are offered to: loanee farmers and non-loanee farmers

- Loanee farmers: These are the farmers who have taken a crop loan from a bank; insurance is compulsory for them. They can either choose NAIS, mNAIS or WBCIS, depending on the availability of the scheme. The premium amount is deducted by the bank from the bank account of the farmer and directly transferred to the insurance company. This is a one-time activity and is done upfront when the loan is taken. The remaining amount is paid to the insurance company by the government (state government and central government).
- Non-loanee farmers: These are the farmers who have not taken the crop loan from any bank. Insurance is not mandatory for these farmers. In case they want to purchase the index insurance policy, they have to go to the mandated bank in the village that accepts WBCIS payments and deposit their premium amount. Alternatively, they can pay the premium amount to the designated agents and brokers appointed by ICICI Lombard.

Both loanee and non-loanee farmers get the subsidy from the government. The data below shows that ICICI Lombard had an outreach of 2.25million farmers by 2011 and the gross premium collected was INR3.49 billion. The growth has been significant over the last three to four years since the WBCIS scheme has been launched. But the contribution from the non-loanee farmers is close to negligible. Currently about 95% of the business comes from loanee and non-loanee farmers only (the subsidy part). Other than this ICICI also provides index products to some retail clients as well. However the share of this retail business is miniscule.

*Less input from farmers in product design*
In the districts where the products are offered, the farmers do not have much say in designing the products, which are mainly designed by farmer representatives in the agricultural offices and government agriculture universities. “We try to ensure the products that are designed come closest to the farmers’ expectations, but we cannot guarantee this every time,” says ICICI Lombard.

*Weather stations and infrastructure*
Availability of the data was a challenge during the initial stages of product development as ICICI Lombard had to depend on Indian Meteorological Department (IMD) data. They faced issues such as poor data quality, delay in providing data and slow communication from IMD. But since IMD was the only available data source at the time, they had no other option.

In later years ICICI tied up with private weather data providers such as Skymet Weather Services, National Collateral Management Services Limited (NCMSL),

Weather Risk Management Services (WRMS), and Komoline. ICICI pays them monthly for data provided, such as temperature, rainfall, wind speed, humidity etc. This data is provided on a real-time basis except for in places with connectivity issues. Sometimes data is also shared between the two insurers. With the increase in the number of weather stations, ICICI Lombard is of the opinion that they will be able to handle basis risk efficiently. The idea is to have weather stations in close vicinity to the farmers' fields so that data is representative of the actual condition; a radius of ten km would be ideal. But even though these efforts are on-going, there are sometimes delays in claims.

*Distribution*

The distribution of the index product is a challenge. ICICI Lombard has appointed agents (individuals) and brokers (institutions such as MARSH India) to distribute their products. They are authorised by the IRDA to sell insurance policies. These agents and brokers educate the farmers on weather index insurance and its benefits and ICICI takes care to ensure that they belong to the local area. In this way the agents have a good connection to the farmers and can market the product effectively. ICICI also uses other channels of marketing, such as village meetings and kisanmelas (farmers' fairs) but still feels that educating the farmers is a challenge.

Another challenge faced is that private insurers have to bid every year for the districts to sell index policies and it often happens that they lose the district where they had worked in the previous year. This means that they have to start the effort of marketing and education all over again, with the limited time available for marketing compounding the problem. In the worst scenarios, they get about a week to market their index product, which has to be sold before the beginning of the crop season. The delays in notifications from the state government are one of the reasons for the lack of marketing time.

ICICI has done well in WBCIS in the states of Rajasthan, Biharand Karnataka. They have the largest market share in Rajasthan and Bihar. As far as reinsurance is concerned, GIC Re is the mandatory partner. Apart from this other foreign reinsurers are also chosen.

**Data of Outreach of Index Products Over the Years – ICICI Lombard**

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|
| Number of farmers insured | 1,000 | 8,000 | 87,000 | 108,000 | 43,278 | 42,000 | 350,000 | 2,250,000 |
| Gross premium (INR) | 20,730 | 4,883,034 | 16,670,845 | 26,955,356 | 67,388,441 | 144,000,000 | 90,20,00,000 | 3,49,60,00,000 |
| Sum insured (INR) | 310,995 | 73,246,019 | 250,062,985 | 404,330,696 | 1,010,826,766 | 1,514,000,000 | 10,068,000,000 | 398,000,00,000 |
| Area insured (hectares) | 1,700 | 7,850 | 26,800 | 45,000 | 1,08,500 | N/A | N/A | N/A |
| Claims (INR) | 31,094 | 3,327,910 | 3,058,374 | 17,686,849 | 64,278,192 | 90,000,000 | 540,000,000 | 1,553,000,000 |
| Incurred claim (%) | 0.000006 | 0.15 | 0.47 | 4.43 | 40.3 | N/A | N/A | N/A |
| Loss ratio (claims/gross premium earned) | 150% | 68% | 18% | 66% | 95% | 62.50% | 59.87% | 44.42% |
| Agency costs | 15% | 15% | 15% | 15% | 15% | N/A | N/A | N/A |
| Reinsurance premiums paid (INR) | 20,780 | 4,842,940 | 16,547,530 | 26,750,538 | 66,876,369 | N/A | N/A | N/A |
| Total proportional reinsurance/ sum insured | 99% | 99% | 99% | 99% | 99% | N/A | N/A | N/A |

**Outcomes and Impact**

ICICI Lombard is the second-largest company after the public insurer AIC of India in its outreach of WBCIS. The company was also one of the pioneers to offer index insurance way back in 2003. ICICI Lombard has been working its way out of the challenges that have been documented above. Since 2007, ICICI Lombard has been mainly concentrating on providing WII under the WBCIS programme only. The company is going very strong on farmer-enrolled, which had touched about 2.2 million by 2011 and loss ratio is controlled to less than 100%, which means that the programme is financially sustainable. Initiatives such as tying up with local agents for product distribution and contracts with private weather insurance companies are some of the positive steps taken by the company

**Lessons Learned**

Private companies such as ICICI Lombard prefer to experiment with product features such as premiums and sum insured. They also want to try their hands at new technologies such as NDVI, but considering the limited scope they have in WBCIS, innovation is less than it could be. Infrastructure is a key for speedy settlement of claims. The step taken by private players in tying up with private weather companies is a very positive move forwards.

One more pain point of WII has been that non-loanee farmers are left out of the scheme, with a large majority of clientele consisting of farmers who have taken a loan. In addition the portfolio of retail clients has been limited.

## India

### Case 6: BASIX-ICICI Lombard Rainfall Index Product – Good Beginning, Sad Ending

**Summary**

*Inputs: Employees of ICICI Lombard and BASIX*

*ICICI Lombard launched its WII product back in 2003. This was done in collaboration with the livelihoods institution BASIX. The product was designed by ICICI Lombard while the distribution and marketing efforts were completed by the microfinance branches of BASIX. The product was essentially a rainfall index product and it performed well for the initial few years. However factors such as excessive claim, more thrust by ICICI Lombard on the government programme of WBCIS and a poor microfinance scenario in the country led to the discontinuation of the product. The product only covered rainfall deficit as a peril when in reality, crop growth depends on many other parameters such as humidity, temperature, wind speed and so on.*

*The case study attempts to bring out the salient features of this product and the reasons for its failure.*

**Description**

BASIX is a livelihood promotion institution established in 1996, working with over 3.5 million customers, of which over 90% were rural poor households and about 10% urban slum dwellers. BASIX works in 17 states in India: Andhra Pradesh, Karnataka, Orissa, Jharkhand, Maharashtra, Madhya Pradesh, Tamil Nadu, Rajasthan, Bihar, Chhattisgarh, West Bengal, Delhi, Uttara khand, Sikkim, Meghalaya, Assam and Gujarat, 223 districts and over 39,251 villages. It has a staff of over 10,000, of which 80% are based in small towns and villages.

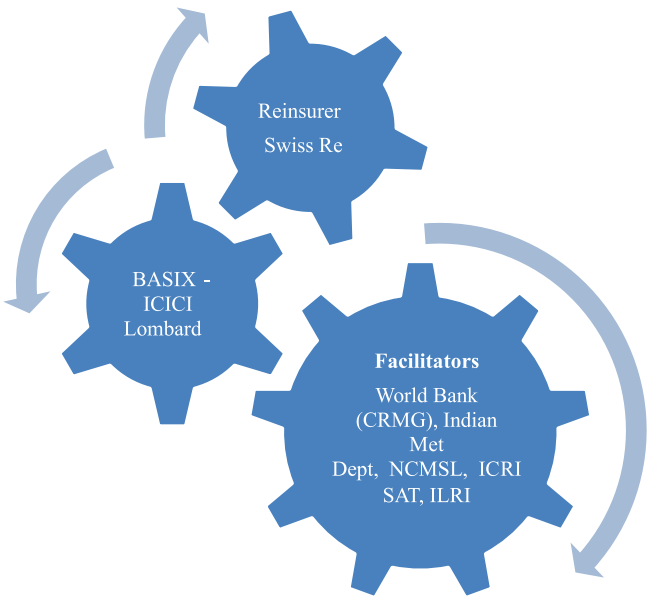
From the initial years of inception, BASIX recognised the risks faced by its customers and also the limitations of traditional crop insurance in managing these risks. In an attempt to find a solution to this problem, early research at BASIX led to the testing of a small in-house crop insurance product called Raytu Vyasaya Akshaya Nidhi (RVAN) in the year 2000. The product made an attempt to overcome the high administrative costs and the low satisfaction of the customers on the claims process seen in the traditional crop insurance, by involving the farming community in both the administration of the product and assessment of the claims. Around 70 farmers from Mungi Village in the Medak District of Andhra Pradesh participated in this pilot, which offered a very limited level (Rs800) of risk cover for the sorghum crop. The model was based on a multi-level mutual insurance where the risk premium was pooled at different levels.

A part of the premium was maintained in a village level account and the rest was marked to be maintained in a multi-village level account. A committee formed from

the participating members in a village would decide on the eligibility of claims from its members and if the payouts exceeded the village level pool, then they would draw down from the multi-village level account. As the total amount of risk underwritten was very small, BASIX guaranteed to payout any claim in excess of the accumulated amount in the multi-village level account. During this pilot, five farmers received a claim payout and the total payout was well within the village level risk pool. BASIX had to pause for a while after this pilot, as it encountered the following issues:

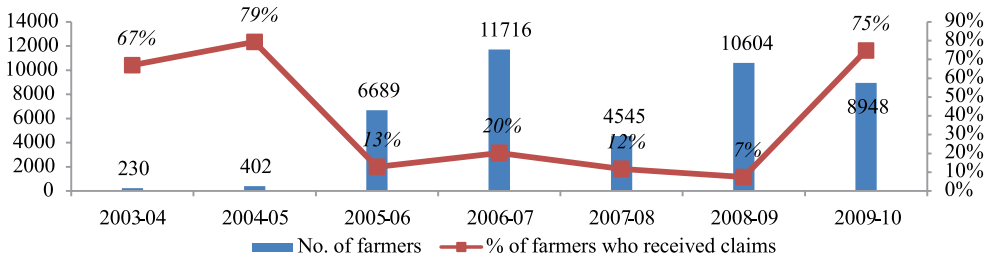
- The cost of administering the model was seen to be quite high, especially in terms of the investments required for the necessary capacity building to participating members to enable them to self-administer this product.
- Due to the unavailability of actuarial data, the premiums were priced conservatively high, making the product unattractive to many farmers.

BASIX then began sharing this model and its experiences with institutions like the Commodity Risk Management Group of the World Bank and insurance companies, to improve upon the model and develop sustainable agricultural risk solutions for farmers. The thought process ultimately morphed into the index-based weather insurance product that BASIX piloted in 2003 in Mahabubnagar District, Andhra Pradesh, in partnership with ICICI Lombard General Insurance Company.




Starting with 230 farmers in 2003, BASIX provided weather insurance cover to over 39,864 farmers in 2010.

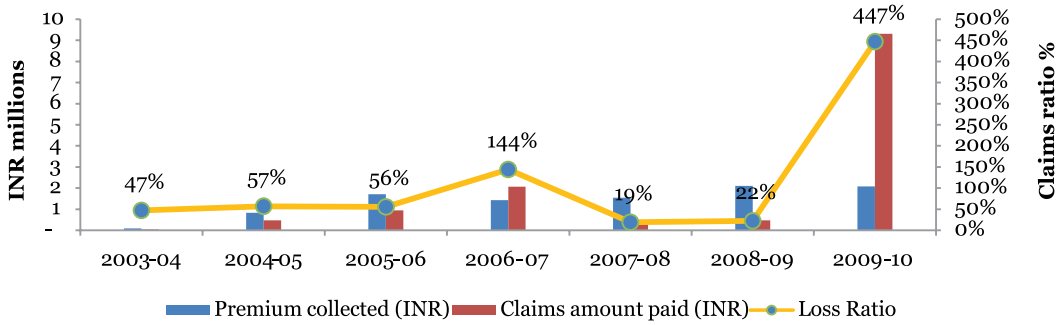
**BASIX – ICICI Lombard: Farmers and Claims Receipts**




*Source: BASIX data,[33] MicroSave analysis*

BASIX followed a participative approach in product design that contributed to several improvements in the product over the years. They made it simple and understandable to a large number of illiterate farmers, and the product also saw several innovations asalternate distribution channels like agri-input suppliers and microfinance institutions were explored in order to reach out to farmers who were out of the banking system. In its limited experience over the past seven years, the product proved to be financially viable, with claims paid out being less than the premium collected.

**BASIX – ICICI Lombard Product: Loss Ratio**




*Source: BASIX data,[34] MicroSave analysis*

However, the product was discontinued after 2011. As per discussions that the *MicroSave* team had with various parties, it can be seen that the reasons for discontinuing the product were many:

- The insurer ICICI Lombard started to concentrate more on the government programme of WBCIS, and the smaller BASIX programme took a backseat.
- 2009-10 was a bad year for Indian microfinance because of a host of reasons[35] and since BASIX is predominantly a microfinance institution, this had a toll on the index product.

[33] http://www.slideshare.net/ILRI/index-based-insurance-basix-experience
[34] http://www.slideshare.net/ILRI/index-based-insurance-basix-experience
[35] http://www.*MicroSave*.net/resource/the_andhra_pradesh_crisis_three_dress_rehearsals_and_then_the_full_drama#.Ucv-V8ztHKgQ

- The claims ratio, which was well within 100% until 2009, suddenly shot up to 447% because of poor monsoons. This was detrimental to the index product as it washed away the entire premium collected until then. Overall from 2003-2010, the claims ratio of the scheme was 139% (claims paid to the order of Rs13.6 million versus the premium collected at Rs9.76 million).
- The product only had rainfall as the index for the crops, whereas crop yield depends on other parameters as well such as humidity, temperature, wind and so on. Hence the product offered to the farmers was not inclusive enough. Dissatisfaction among the farmers with respect to the features of the index could be one of the reasons that the product failed.

**Outcomes and Impact**

The ICICI Lombard-BASIX programme offered one of the earliest WII products in India. The experience gained from this programme has been used as an outcome for pilots and the products that followed. ICICI Lombard tried to use the rural outreach of BASIX microfinance organisation, which helped them in marketing the product in the rural interiors. For a majority number of years, the programme had claim ratios within limit. It was only in the last year that claim ratios shot up and wiped out the premiums. This proved detrimental for the programme. The poor microfinance conditions prevalent in the country added to this product failing.

**Lessons Learned**

This pilot gives an idea of how a non-subsidised private initiative can go down no matter how well it is planned. It reinstates the importance of subsidy in a developing country like India. It also hints at the fact that past success is not an indicator of future success.

## India

### Case 7: Weather-based Crop Insurance Scheme (WBCIS) – Largest Index Insurance Scheme in the World

### Summary

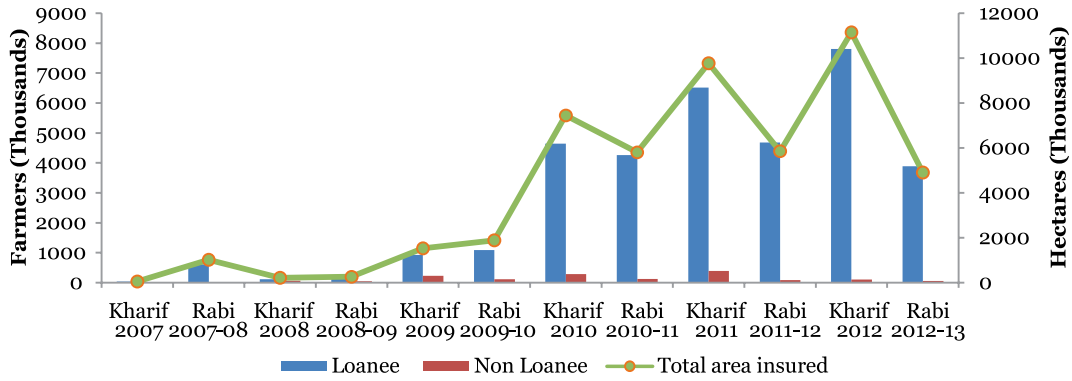
*Input: Employees of Agriculture Insurance Company of India*

*The WBCIS scheme in India is the largest index insurance scheme in the world. In Rabi 2012-13, the scheme insured about 3.88 million loanee farmers and 55,000 non-loanee farmers and 4.9 million hectares was insured. This mammoth scheme is predominantly offered by AIC of India. Along with AIC, nine other private insurers also offer WBCIS across India. AIC has a market share of 60% in terms of sum insured and 45% in terms of the number of farmers insured in WBCIS (as of Kharif 2012 data). WBCIS is one of the few weather index schemes in the world to have scaled up. By 2012-13, AIC offered WBCIS cover for over 30 crops in 12 of India's 28 states and seven union territories for the Rabi (winter) season and in 14 for the Kharif (summer) season. This case study discusses some of the environmental factors behind the scheme's success.*

### Description

This flagship scheme by the government of India operates in almost all the states of India. The aim of the scheme is to mitigate the hardships of insured farmers against financial loss on account of anticipated losses in crop resulting from adverse conditions of weather parameters such as deficit or excess rainfall, high or low temperature and humidity. The graph below shows the outreach of WBCIS to date:

**WBCIS – Farmers Insured and Total Area Insured**




*Source: AIC data, MicroSave analysis*

Three factors in particular enabled WBCIS to have a high outreach: compulsory crop insurance for farmers, affordability with the help of government subsidies and the existence of an agriculture specific insurer, AIC.
These are elaborated on below:

*Conducive environment for growth: public support, dedicated insurer and ready demand*

In India there is a ready market for agriculture insurance because farmers who take loans from financial institutions are required to take out insurance. Hence WBCIS was launchedinto a strong demand environment.

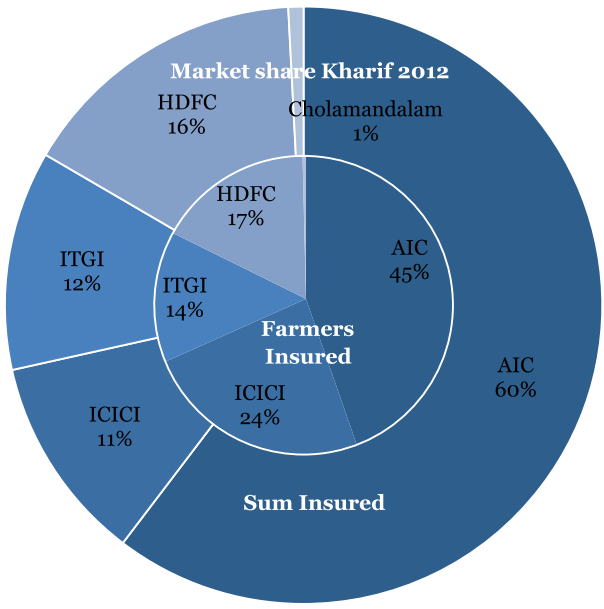
In addition, outreach to loanee farmers provided a ready-made distribution channel: loan providers (banks) would enrol clients, and these clients had deposit accounts into which insurance payout could be directly deposited. In addition to its coverage of loanee farmers, AIC expanded its focus on to non-loanee clients. In 2012-13, non-loanee farmers accounted for about 2% of clients, although this percentage fluctuates greatly from season to season as the number of loanee and non-loanee insured farmers each vary. In certain seasons, the percentage of non-loanee farmers insured by AIC's WBCIS peaked at 29% in *Kharif* 2008.

*Government subsidy*

A second core feature of WBCIS is affordability with support from government premium subsidies. Under WBCIS, the total commercial premium payable for a policy is capped to about 10% of the sum insured, but farmers only pay a fraction of the commercial premium. The premium payable varies depending on the type of cultivation and the amount of the total commercial premium, and it is capped at 6% (maximum) of the sum insured. The state and central government share the remaining portion of the commercial premium in the ratio of 50:50.

*Focus from AIC*

India's specialised insurer, the Agricultural Insurance Company of India, provides an institutional focus for the product. After the government of India's earlier CCIS and NAIS schemes, AIC was created to help scale up weather index insurance.[36] During discussions with AIC, it was noted that in other insurance companies, agriculture insurance (or weather insurance) was just one of many product lines under their general insurance business.[37] AIC has been the leader in WBCIS implementation, accounting for




[36] AIC of India began operations in 2003
[37] Although weather insurance was the third largest revenue source for ICICI Lombard in 2011-12. Other private insurers that implement WBCIS had less than 5% of their business in weather insurance.

60% of the total sum insured in *Kharif* season 2012. In the case of WBCIS, several factors made it feasible to expand a product that targeted a captive market towards voluntary enrolment as well. Because of the subsidy element, in 2012-13farmers paid only 25-30% of the premium for WBCIS cover. In addition, regulations such as the Microinsurance Regulations (2005) allowed for a wider range of organisations to distribute WBCIS, providing another channel for farmers to access WBCIS who were not affiliated with certain financial institutions. By April 2013, AIC had 120 microinsurance agents, including non-governmental organisations (NGOs), self-help groups (SHGs) and microfinance institutions (MFIs), in eight states, with[38] banks forming the main channel partners of AIC.

*A flexible yet consistent approach to policy development*

Implementing weather index crop insurance on a large scale is a challenge. Weather index products must be adapted for each crop and geography to capture the sensitivity of a crop to weather in a given location at different times in that crop's lifecycle. Determining which weather parameters should be insured, what should be the trigger and what would be the loss is a knowledge-intensive process that must be repeated many times over as new geographies are added. With coverage in 14 states, a flexible but consistent approach is needed to channel knowledge effectively into a useful product. WBCIS is heavily concentrated in Rajasthan and Andhra Pradesh for *Kharif* and Rajasthan and Bihar for Rabi.

*Co-operation between stakeholders*

The crops planted and the weather patterns differ from locality to locality. To arrive at appropriate product features, an extensive stakeholder engagement occurs at the sub national level every time a product is to be implemented in a new district. The state government, the insurer and scientists are involved in the consultation regarding the average time that sowing occurs, the length of cultivation and other factors. The period of cultivation is usually divided into three to four phases. Several parameters (not just rainfall) are typically bundled in a given weather insurance product. As such, the group discusses how a crop's vulnerability to different weather parameters can be included in the index. The decision on premium also involves intensive local-level consultation. Policy premium rates are based on the notion of expected loss. Crop losses and the likelihood of a loss occurring are estimated with the help of historic weather data that extends back 25-100 years. To quantify losses and translate them into a payout amount, AIC uses the cost of the inputs used to raise the crop.

*Weather infrastructure*

As WBCIS expands, India is experiencing demand-driven

**Pilot to Reduce Basis Risk**

Currently, AIC India is running a pilot on improved data granularity in seven districts. The pilot involves intensive monitoring to provide data for an area of five-10 km, which is much more localised than the automated weather stations' typical 25 km. In vulnerable districts (e.g. drought prone areas), much more responsive data is needed since the actual experience of farmers could differ widely from the station. As another example, wind speed can be critical to banana crops, and wind can differ in very small localities. As a result, improving the locality of data can improve the correlation between the losses a farmer experiences and the payout from WBCIS.

growth in weather data collection infrastructure. To bridge gaps in the existing IMD network, AIC calls upon third-party providers to leverage their infrastructure to collect more localised data once WBCIS has developed in an area. For example, organisations such as National Collateral Management Services Ltd reported over 1,800 automatic stations across 15 states in 2012[39]. As the number of weather stations expands to meet the needs of WBCIS, it is expected to cover all of India in four to five years. As the network expands and captures more local data, the basis risk associated with WBCIS insurance will diminish. Basis risk is a crucial problem for insurers and farmers alike. It has been a major complaint of farmers using WBCIS, and farmers in vulnerable areas can suffer greatly from it.

**Outcomes and Impact**

Riding on the success of the above-described factors it has been seen that the WBCIS has emerged as the largest weather index programme in the world. As of *Rabi* 2012-23, 3.94 million farmers were insured under this scheme, but considering the mammoth size of Indian agriculture, the WBCIS still leaves a large chunk of farmers out of the insurance net. The scheme has reached only those farmers who have taken a loan from some financial institution. A large chunk of non-loanee farmers are still excluded.

**Lessons Learned**

Overall, the product approach taken in WBCIS is highly practical. It seeks to create a broad index using the best available data. Once that product is established, the stakeholders work to improve the accuracy of the product so that the index-based payout is better correlated with the actual loss experienced by a given farmer. When extending WBCIS to a new area using the above approach, affordability and usefulness are sometimes at odds. For instance, in certain areas the actuarial premium would need to be high in order for the product to be viable for insurers and for farmers to be fully compensated for losses. In order to offer insurance coverage without breaching the 10% premium cap, one approach is to limit the sum insured. This may provide less value to farmers but serves as a pragmatic attempt to provide access to all. So far WBCIS has managed the nuances well and the government subsidy has played an important role in the sustainability of the programme.

[39] Nambiar, N, 'Private weather stations gaining ground, Met department not worried' The Indian Express, June 26, 2012

## India

### Case 8: HDFC ERGO – A Rising Star in Index Insurance

**Summary**

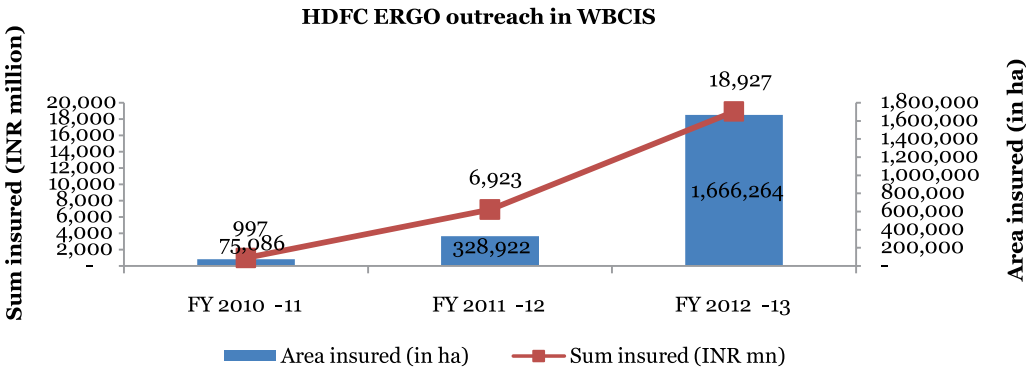
*Input: Mr Azad Mishra, Senior Product Manager, HDFC ERGO*

*HDFC ERGO started index insurance in a small way in 2005 and at present holds about 16% of the market share (sum insured) and 17% (farmers insured). It started with a comprehensive Rainfall Index Insurance Policy, which is a mechanism for providing effective risk management aid at an affordable cost to individuals and institutions likely to be impacted by adverse rainfall incidence. This policy was available to farming communities having farm incomes from cultivable area and who may be adversely affected by rainfall deficit. Unlike many other pilots and projects, HDFC ERGO did not get any external support or technical assistance for this initiative. Since it entry into WBCIS, HDFC is inching towards increasing its market share in the INR24 billion weather index insurance market of India. This case study highlights the achievements of HDFC ERGO.*

**Description**

HDFC ERGO General Insurance Company Limited is a 74:26 joint venture between HDFC Limited, India's premier housing finance institution, and ERGO International AG, the primary insurance entity of Munich Re Group. It is the fourth largest private-sector general insurance company in India. HDFC ERGO has been expanding its presence across the country and is today present across 71 cities, with 81 branch offices and an employee base of more than 1,400 professionals. In 2005-06, HDFC ERGO launched the Rainfall Index Insurance Policy in collaboration with MAHYCO (Maharashtra Hybrid Seeds Company Limited) for farmers cultivating cotton in the Akola, Parbhani and Buldhana districts of Maharashtra. This product was not a highly successful one and it was scrapped within a year as the claims ratio was too high.

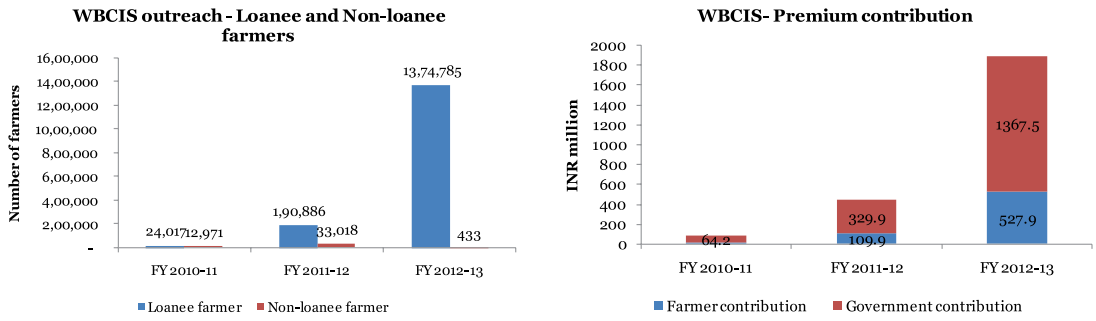
HDFC ERGO again entered index insurance with the WBCIS in 2010. It covers about 27-28 crops as of now and has operations in 14 states: Himachal Pradesh, Rajasthan, Haryana, Uttar Pradesh, Maharashtra, Madhya Pradesh, Bihar, West Bengal, Orissa, Assam, Karnataka, Tamil Nadu, Chhattisgarh and Jharkhand. The states that are performing well are Rajasthan, Karnataka and Bihar.




*Source: HDFC ERGO data, MicroSave analysis. Note: Data for FY 2012-13 is for Kharif 2012 only*

Some of the weather stations that HDFC ERGO has tied up with are Skymet Weather Services[40], National Collateral Management Services Limited (NCMSL)[41], Weather Risk Management Services (WRMS)[42] and Express Weather,[43] who charge for the usage of their data. HDFC ERGO pays a fixed one-time charge and thereafter a monthly charge for data usage. There have been constant efforts to increase the weather station infrastructure as it is the only way to fight basis risk. A major chunk of the business for HDFC ERGO comes from WBCIS and mNAIS, under which index products are offered to loanee farmers and non-loanee farmers. The government subsidises the premium for both categories of farmers. The central government releases the subsidy element to HDFC ERGO after it receives the database of farmers enrolled. There is generally delay from the state governments and the experience varies in different states. The total subsidy component for different crops comes in the range of about 50-82% of the total premium.

If the sum insured is Rs1 lakh and the total actuarial premium of the WBCIS product is 10%, say Rs10, 000, then the farmer pays 2.5% in line with NAIS, i.e. Rs2, 500. The remaining Rs7, 500 is shared between the governments.

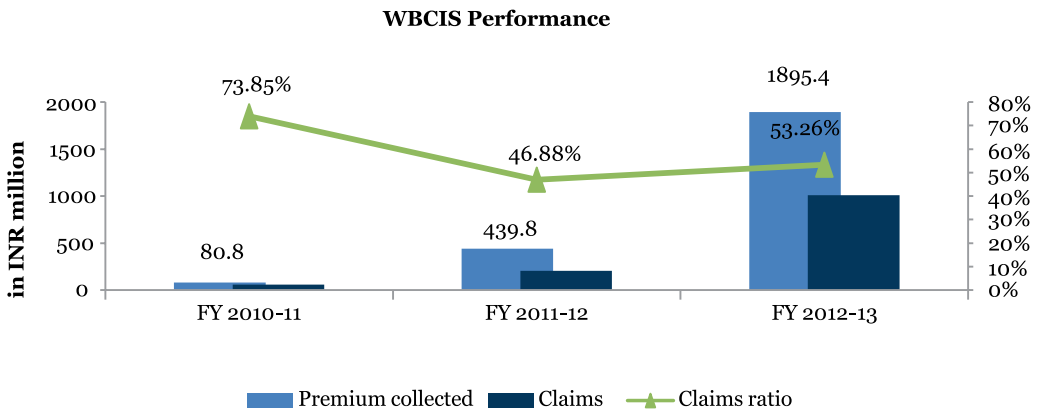



*Source: HDFC ERGO data, MicroSave analysis. Note: Data for FY 2012-13 is for Kharif 2012 only*

[40] www.skymet.net
[41] www.ncmsl.com
[42] http://wx-risk-global.com/
[43] www.expressweather.in

One of the drawbacks of index products is the high premium(10-15% of the sum insured). This is because the probability for adverse happening is high, unlike in health or life insurance where the premium is only about 1% of the sum insured. In case of agriculture, there is a fear of rainfall irregularity every two or three years, so the risk element is high and translates into high premium. "Without the subsidy component, it will be impossible for the product to sustain," says Mr Mishra.

In NAIS, the premium element was fixed for all the crops, and the government provided subsidy in premium as well as sharing excess claim liability with the Agriculture Insurance Company of India (which was the only implementation partner). Hence, NAIS was not sustainable. Under the mNAIS and the WBCIS, the claim procedures have to be taken care of by the insurance company. This puts pressure on the insurance company to manage its portfolio in a better way. The graph below shows the claims ratio for HDFC ERGO over the last couple of years. The company has been able to maintain its claims ratio well below the 100% mark.




*Source: HDFC ERGO data, MicroSave analysis. Note: Data for FY 2012-13 is for Kharif 2012 only*

*Claim settlement:* HDFC ERGO pays the claims cheque to the designated bank for the particular area. The bank further deposits the amount in the bank account of the beneficiaries. For the non-loanee farmers, individual cheques are sent. Claims are settled between 30-45 days, which is very good when compared to NAIS.

*Distribution channel:* HDFC ERGO distributes their index products using the following channels:

- For loanee farmers, distribution happens through the banks;
- Direct marketing, camping and expos in villages;
- Press release, kisanmelas (farmers' fairs);
- Agents are selected in the local areas to market the product. These agents have to undergo a training of 50 hours, generally carried out by the insurer. The agentthen takes an exam conducted by IRDA to become an authorised insurance selling agent;
- They also appoint large brokers who sell insurance on behalf of HDFC ERGO.

*Retail clients:* HDFC ERGO has also been providing index products for PepsiCo farmers. PepsiCo launched index insurance for farmers in association with ICICI Lombard in 2004. But retail clients like PepsiCo form only a very small percentage of their total portfolio. It offers index insurance in the states of Punjab and Haryana only (sum insured of INR11.28 million and 188 acres of area insured).

**Outcomes and Impact**

HDFC ERGO has been one of the fastest-growing private sector companies in India offering weather-based index products under WBCIS. The company feels that there is a future for this product, given the huge market and potential. In spite of failing in its first attempt to introduce index products in 2005, the company re-entered index insurance with the development of WBCIS in 2010 and has also been experimenting with new technologies such as Normalised Difference Vegetation Index (NDVI). This is one of the initiatives taken by HDFC ERGO to reduce basis risk and to expedite claim settlements. Currently data from crop-cutting experiments are used under the mNAIS project; but they are costly and time consuming. If successful, NDVI will also be used in the index products.

**Lessons Learned**

HDFC ERGO has been a fast-growing private insurance company. It has been proactively trying out new technologies, which help in reducing basis risk. Some of the lessons learned include:

- Distribution and marketing of the products is a challenge, given the low level of understanding of these products among the farmers.
- Government officials do not have much awareness of insurance products. In most cases the officials try to make the products favourable to farmers by reducing triggers. They should understand the implications of it on the sustainability of the insurance company.
- The notification process followed by states every year does not allow the insurance company to develop any particular area. They cannot make any investments in terms of time and money in that area as it might be allotted to another insurance company the following year.
- The notifications from government are usually very late. This leaves very little time with the insurance company for marketing and publicity exercises.

## Pakistan

### Case 9: Regulator's Perspective

### Summary

*Input: Mr Farazuddin Amjad, Joint Director, SECP*

*We interacted with Mr Farazuddin Amjad, Joint Director, Securities and Exchange Commission of Pakistan (SECP), which is the Insurance Regulator of Pakistan. There have been no steps as such from the government of Pakistan in promoting index insurance. One of the possible reasons for this could be that crop insurance in Pakistan has a small vintage and the government is still experimenting with traditional crop insurance schemes, so the index insurance initiative has been taken by the private sector. The government is working on popularising microinsurance through SECP regulations. This case study provides excerpts from the interview with the regulator.*

### Description

1. Who is driving index insurance forward?
   Presently there is no formal index insurance scheme operational in Pakistan. A few pilots have been started by local NGOs with support from donor organisations, but that too is in small pockets. No major companies are participating in these pilots. The Crop Loan Insurance Scheme (CLIS) launched in 2008 can be considered as a prototype of yield index-based product since its operation entails payment of claims when calamity (flood, drought, crop disease) is declared by the local competent authority on the basis of specified difference in current and reference yield.

2. How proactive is the government?
   Government plays a key role in the insurance market in a number of ways including: ownership of leading life as well as non-life insurers along with the only reinsurer in Pakistan; and involvement in national insurance programs (e.g. crop insurance).Government has a key role in the future development of the insurance market in Pakistan.

3. What steps have been taken by you to push index-based projects in the country?
   No major specific steps have been taken so far. However, SECP continues to work in the area of development of microinsurance. It completed and published a diagnostic report on the state of microinsurance in Pakistan in October 2012 with support from FIRST Initiative and the World Bank. It also provided certain advisory support to the PPAF for their index-based pilot projects.

4. Why did you feel the need for separate microinsurance regulations?
   The regulatory and supervisory system for insurance in Pakistan does not explicitly recognise microinsurance, and so does not address any of the special requirements needed to support its effective development. However, after

industry consultations the SECP has developed a regulatory framework for microinsurance and issuance of these regulations is in the pipeline. The purpose of separate microinsurance regulations can be summarised as follows:

- Promoting organisational development through effective governance and professional management at all levels;
- Improving industry discipline by using client-protection policies and bringing non-regulated players under a minimum regulatory framework;
- Clarity of vision in terms of policy incentives for the insurance industry practitionersand also help to demarcate the space for engagement from outside the industry.

5. Which key areas have been addressed in the microinsurance regulations?
   Presented below are the key areas that have been directly addressed in the microinsurance regulations.
   - Contract and disclosure requirements;
   - Product features and submission;
   - Intermediation, i.e. requirements related to microinsurance agents;
   - Authorised risk takers or microinsurance providers;
   - Claims handling and process;
   - Complaints and grievance handling;
   - Code of conduct and consumer protection;
   - Prudential regulation;
   - Regulatory reporting and information sharing;
   - Offences and penalties.

6. Is conventional insurance fulfilling the needs of the farming communities?
   The insurance needs of farmer communities are being met by insurance of production loans that they borrow from banks. The Crop Loan Insurance Scheme launched as mandatory for five major crops covers the production loan needs of farmers. Since this is insurance of loan, the claim is paid to the bank rather than the farmer.

7. What is the future of index insurance in the country?
   The assessment of the existing pilots as well as doing more pilots will reveal the actual scenario. Government role will be important

8. Do you think that the product should be made mandatory by the government in order to achieve scalability?
   Mandatory products entail certain moral hazards on the part of insurers, which need to be considered before reaching this conclusion. Insurers could be more concerned with receipt of fixed premiums than the achievement of purpose of scheme and its conduct. Insurance of the crop may be offered as an optional product as its demand cannot be underestimated since the major proportion of the country's workforce is associated with agriculture. However, awareness needs to be built among the masses in rural areas about the need and benefits of insurance.

9. How would you compare conventional agriculture insurance to index-based insurance?
   Conventional agricultural insurance is indemnity based, i.e. actual losses are claimed, whereas index-based insurance implies payment of claims according to pre-determined proportions on the basis of specific parametric figures. The latter is recommended for agricultural insurance because of administration-cost advantage and certainty of payment of claims as it is based on specific indices instead of an individual's or an entity's interpretation of loss. Both have their own merits and demerits.

**Outcomes and Impact**

The Securities and Exchange Commission of Pakistan has been regulating the insurance industry, since January 2001, when it took over from the Controller of Insurance operating under the Ministry of Commerce in the government of Pakistan. The SECP regulates and monitors the insurance sector in the country through powers vested in the Insurance Ordinance, 2000, and the Companies Ordinance, 1984. The government is Pakistan has not yet taken up the index insurance initiative. Currently the major initiative as far as the crop insurance is concerned is the National Crop Insurance Scheme, which was launched in 2011. Index products in Pakistan are being developed on a small scale by the private organisations PPAF and IFAD.

**Lessons Learned**

The insurance industry in Pakistan is relatively small compared to its peers in the region. The insurance penetration (0.87% as of 2011) and density (USD7.62 as of 2011) remained very modest as compared to other jurisdictions, while the insurance sector remained underdeveloped relative to its potential. The private sector pilots will hence be very good source of information on the government's entry into index insurance in a big way, similar to its neighbour India.

## Pakistan

### Case 10: Aggregator's Perspective

### Summary

*Input: Mr Jawad, National Rural Support Programme (NRSP)*

*Established in 1991, the National Rural Support Programme (NRSP) is the largest Rural Support Programme in Pakistan in terms of outreach, staff and development activities. It is a not for profit organization registered under Section 42 of Companies Ordinance 1984.*
*NRSP's mandate is to alleviate poverty by harnessing people's potential and undertake development activities in Pakistan. It has a presence in 56 districts in all four provinces through regional offices and field offices. NRSP is currently working with more than half a million poor households organised into a network of more than 115,076 community organizations. With sustained incremental growth, it is emerging as Pakistan's leading engine for poverty reduction and rural development. For its extensive outreach, NRSP has been chosen as one of the aggregators for the index insurance pilot in Pakistan. This case highlights the ways used by NRSP in distributing index polices to the farmers. It also highlights the challenges faced in the fieldwork and how it has been able to overcome them.*

### Description

NRSP has been acting as an aggregator alongside the Soon Valley Development Project (SVDP). As an aggregator, it acts as the extended arm of the insurance company and helps the insurer in marketing the product, educating farmers, collecting the premium and settling of claims. In short, NRSP acts as a front end of the insurance company. The experiences of NRSP in different areas as retold by NRSP are highlighted below.

1. *Selling index insurance*
   Selling index insurance is an additional job for our staff. We have not recruited anyone specifically for this activity. Index insurance is currently being offered only as a pilot and our entire team is involved in the successful implementation of the product. Hence it is an additional responsibility on existing staff.

2. *Product promotion*
   We do it jointly with the insurers (Alfalah Insurance Company and United Insurance) as we are not an insurance company. Our role is product marketing, coordination with insured and insurer, and facilitation of compensation for farmers. There is a product demand but this needs a strong motivation and awareness to create demand for these products.

3. *Product distribution*
   We have a network of community organisations at grass-root level; we implement all projects through these groups. Creating awareness of the programme is a time-consuming activity. We prefer to sell individual policies

through group mechanisms such as community organisations. We are compensated by the insurance company for acting as their distribution channel.

4. *Training and awareness sessions for the communities*
We arrange different community awareness sessions, community workshops and group meetings to explain the product technicalities and its significance. It is not easy to convince communities to buy the product if a peril is covered with a very low level of possible occurrence (heavy rainfall during the selling of weather index insurance minimised the risk of expected drought and farmers lost interest in the product). Our staffs receive orientation sessions from the insurance companies.

5. *Outreach*
The peak period for WII is before sowing of crop. To date, we have sold policies to 407 farmers for 1,176 acres for wheat crop. To increase the outreach of the product, the insurance company should design easy, affordable and need-based products. We do not get any subsidy from the government.

6. *Challenges faced in the field*
   - Difficult for the farmers/communities to understand the product;
   - Selling of product with single peril coverage (deficit in rainfall);
   - Heavy rainfall from the start of product marketing caused difficulties in the acceptability/purchase of WII at the community end;
   - High premium cost even though subsidised by PPAF;
   - Short time to achieve the targets;
   - If the insurance company does not pay the claims, our credibility is at stake with the communities in which we work;
   - Low literacy level of farmers causes a challenge because index-based insurance product has technicalities that are hard for illiterate communities to understand.

7. *Future challenges*

At the policy level:
   - Need a proper regulatory frame work;
   - Active support from political parties and bureaucracy is required.

At the product level:
   - Reduce product complexity and make the premium affordable;
   - High operation cost for product marketing.

At the community level:
   - Understanding of product technicalities;
   - Affordability of the product to the poor;
   - Lack of interest because of single risk coverage.

**Outcomes and Impact**

The index insurance pilot in Pakistan intended to offer the product to farmers in rural areas. Considering the fact that no insurance company would have the physical presence in such remote areas, the decision was taken to go ahead with an aggregator, NRSP in this case. The outcome has been good so far. The policies have been offered to farmers in rural areas with the help of NRSP.

However, as the pilot is new, NRSP it is still facing problems with the distribution and marketing of the product. Active support from the government will be required to popularise the scheme on a large scale.

**Lessons Learned**

The insurance companies are constrained by lack of resources when it comes to offering services in the rural areas. This is one of the primary reasons why insurance outreach has been lower in the non-urban areas. In such a scenario, appointing aggregators who have a vast rural outreach simplifies things considerably for the insurance companies. Insurers can use the already existing service network of the aggregator, the know-how of the region and their experience to offer index insurance policies. The pilot in Pakistan has done exactly this

## The Philippines

### Case 11: Disaster Index Insurance Products Offered by MicroEnsure

### Summary

*Input: Secondary research*

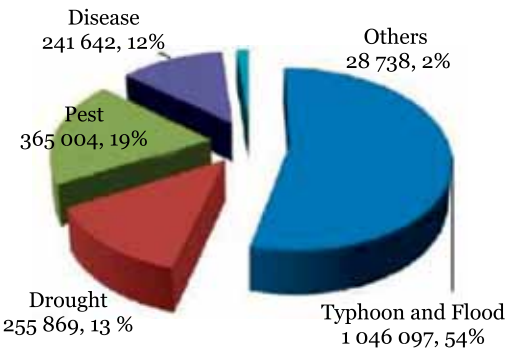
*Founded in 2002 by Opportunity International and supported by a multi-million dollar grant from the Bill & Melinda Gates Foundation in 2007, MicroEnsure is the world's first and largest organisation whose exclusive focus is to address the mass market's need to mitigate risk. MicroEnsure serves over four million people around the world with insurance, 80% of who have never before been insured. Two million clients of MicroEnsure are in Africa. The Philippines is known as home to many deadly typhoons and storms. To save farmers from such catastrophes, MicroEnsure has offered a typhoon index insurance product to rice farmers through TSKI as the aggregator. MicroEnsure also has other products such as calamity index insurance and bundled insurance that help in dealing with disaster.*

### Description

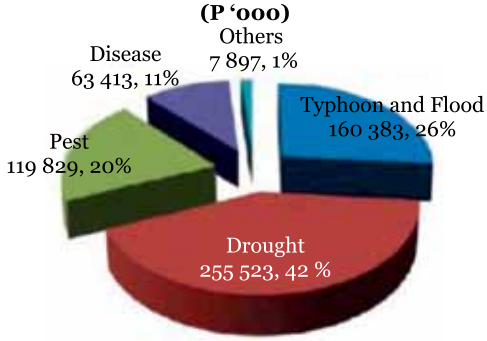
MicroEnsure first began operating in the Philippines in February 2007 as a subsidiary, namely MicroEnsure Philippines, and is currently involved in the design and marketing of low-cost microinsurance products in conjunction with microfinance institutions, rural banks and SACCOs, as well as working closely with insurance companies. With over 50 staff in offices across the Philippines in Iloilo, Cebu and Manila, MicroEnsure Philippines is one of the largest subsidiaries of MicroEnsure. Initially offering life insurance cover to two Microfinance Institutions (MFIs), MicroEnsure Philippines now partners with over 20 MFIs, providing cover to over 900,000 individuals through a range of insurance products.

### Typhoon index insurance product:[44]

**RICE: Cause of Loss 1981-2006 (P '000)**




**CORN (Maize): Cause of Loss 1982-2006 (P '000)**




**Source:** PCIC, 2006

*Source: Agriculture Insurance in Asia and the Pacific Region: FAO, 2011-12*

[44] Agriculture Insurance in Asia and the Pacific Region: FAO, 2011-12

Since 2009, the Malayan Insurance Company has underwritten two index pilot products for farmers, for typhoon and drought, both developed by MicroEnsure.

The typhoon weather index is a remote sensing or satellite-based insurance product designed by MicroEnsure using typhoon data supplied by the Japanese Meteorological Authority (JMA). MicroEnsure employed the services of an international actuary to conduct a typhoon risk modelling and mapping exercise for all of the Philippines and to define homogeneous risk-rating zones (28 km grid squares) for the entire country. Typhoon premium rates have been calculated for each grid according to the frequency and severity of the tropical cyclone/typhoon hazard. The product is operated by the JMA satellite tracking system for typhoons and an indemnity payment is triggered if the typhoon tracks within a defined distance (maximum of 140 km) from the insured farm locations and according to the maximum sustained wind speed at the closest point of track. At strong tropical storm wind speeds, the policy pays out 15% of the maximum sum insured and at 'hurricane 4' wind speeds, the payout is 100% of the sum insured. The location of each insured farm is plotted using GPS and actual payouts are automatically calculated according to how close the farm is to the centre of the typhoon's path and the calculated wind speed at the location.[45]

In 2009 the micro-level typhoon index insurance cover was launched for rice farmers in Panay Island, Region VI of the Philippines. The typhoon index was approved in 2009 by the Insurance Commission. The typhoon index is underwritten by the Malayan Insurance Company, with reinsurance protection from Partner Re (formerly Paris Re prior to 2010). Taytay Sa Kauswagan Inc (TSKI), the largest microfinance lending institution in the Philippines, is providing seasonal credit to the rice producers under this pilot micro-level individual farmer crop-typhoon index scheme. However there were no claims generated for both the index products in 2009.[46]

*Calamity index insurance product:*[47]
With around 20 tropical storms or typhoons a year, of which around four to eight become major events, there is a constant threat of natural calamities in the Philippines. Typhoon Sendong (also known internationally as Typhoon Washi) was the world's deadliest storm in 2011 and the third deadliest ever recorded in the Philippines. More than 1,000 people died and the subsequent flash floods affected many areas in the Southern Philippines, with 23,000 families left homeless. Many of them were left seeking shelter in evacuation centres, where food and water were in short supply. MicroEnsure Philippines has paid a total of 18 million pesos in calamity insurance claims (approximately $400,000) to help almost 1,800 families who suffered losses as a result of Typhoon Sendong. This has allowed these families to rebuild and move forward after the devastation. The payments were made through the MicroEnsure Philippines calamity index insurance product, which covers clients' residential property against eight perils: typhoon, flood, earthquake, volcanic eruption, landslide, tsunami, fire and lightning. MicroEnsure offers this cover for just 150 pesos a year (approximately $3.50).These products are specifically

[45] MicroEnsure is the world-first typhoon weather index insurance for smallholder Philippines rice farmers.
[46] Latest data not available.
[47] http://www.microensure.com/images/library/files/Newsletters/microinsurance_matters_issue_13.pdf

designed to provide protection to clients of MFIs, rural banks, co-operatives and even MBAs against fire and natural calamities. The product was

launched in May 2011 and has already proved an important competitive advantage for MicroEnsure's partners in the Philippines.

*Bundled Weather Index Product*[48]
MicroEnsure has provided of a range of insurance products to over four million people in Africa and Asia. Historically weather index insurance has been bundled with credit, provided by microfinance organisations and banks. This improves access to credit for smallholder farmers, allowing them to increase the size of their harvest, and provides increased financial security. Recent developments in MicroEnsure's Agricultural Division have allowed the company to expand its model to include linking weather index insurance to sales channels that include contract farming organisations, input suppliers and direct salesas well as financial institutions.

In the Philippines, MicroEnsure has launched a combined personal accident and weather index insurance product linked to the purchase of fertiliser bags. For each bag purchased at an input dealer, the farmer is registered for a weather index insurance plan that provides a discount on future purchases in the event of adverse weather. In addition, the farmer benefits from a personal accident plan that provides a payment to a beneficiary in the event that they die as a result of an accident during the plan. Launched in April 2013, the product is now available to thousands of farmers in the Philippines.

[48] http://www.microensure.com/news.asp?id=260&start=0

**Outcomes and Impact**

MicroEnsure has been one of the pioneers in the field of disaster insurance in the Philippines. It has introduced new forms of protection for the poor, including crop, micro-health, political violence and mobile insurance. MicroEnsure has taken the lead over the government, which is also experimenting with index insurance products in a few areas.

The products at MicroEnsure are designed after intense dialogues with the poor, understanding their risks and capacities. The result is a new suite of tools to help the mass market protect themselves with product features they want at prices they can afford, and none of the typical insurance complexities. Because of this MicroEnsure is one of the fastest growing mass-market insurance service providers in the Philippines.

**Lessons Learned**

Calamity and disaster insurance is one of the most important requirements for the poor in the Philippines. Typhoon, flood and drought have been the cause of most crop losses over the years. Private agencies such as MicroEnsure have understood this dire need of the poor and introduced commercial products for such disasters. Even though the products have not reached the majority of the population as of now, MicroEnsure has taken a welcome step in dealing with disasters. The Philippines Crop Insurance Corporation, which is the public insurer, is also testing a few index products in the country. The lessons learned by MicroEnsure can complement these government efforts.

# Annexure II: Acknowledgements

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   - Prof Jerry RSkees (University of Kentucky) and Mr Jason Hartell (GlobalAgRiskInc)
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3. **Sri Lanka**
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4. **Pakistan**
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   - Insurance Company: Alfalah Insurance Company: Mr Nasr-us-Samad, Chief Executive Officer
   - Insurance aggregator: National Rural Support Programme, Pakistan; Mr Jawad
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5. **The Philippines**
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# Our Service Offerings

## Organisational Strengthening and Risk Management

- Policy Development and Documentation
- Product and Process Re-engineering
- Improving Portfolio Quality
- MIS
- Internal Audit and Control Systems
- Risk Management Framework
- HRM

## Strategy Development and Governance

- Strengthening Board Governance
- Institutional Change
- Strategic Business Planning
- Financial Planning
- Strategic Marketing
- Corporate Brand and Identity

## Product and Channel Innovations

- Market Research (Qualitative and Quantitative)
- Costing and Pricing
- Pilot-Testing
- Roll-Out
- Product Marketing
- Digital Financial Services Solutions
- Agent Network Development, Monitoring and Management

## Investment and Donor Services

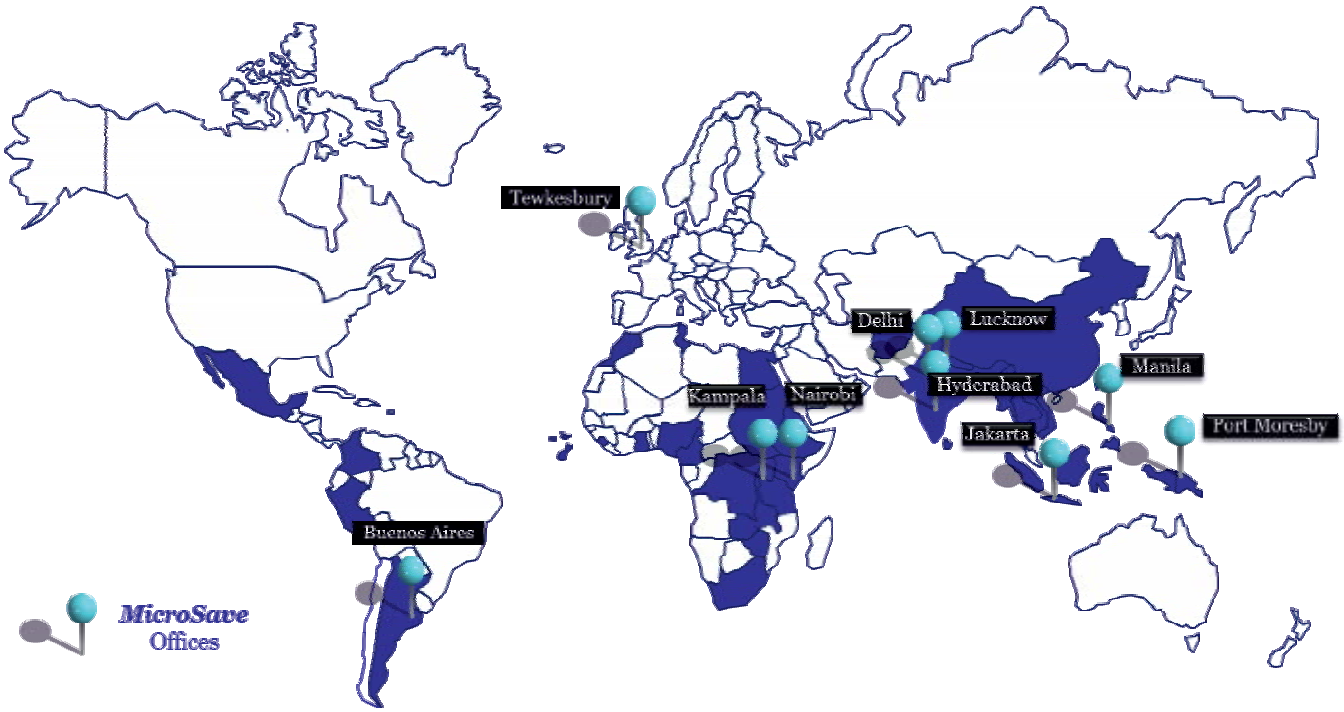
- Institutional Assessments
- Due Diligence
- Equity Valuation and Capital Structuring
- Loan Portfolio Assessments
- Evaluation/Impact Assessments

## Research and Dissemination

- Microfinance Policy Research
- Product & Service Delivery Research
- Feasibility Studies
- Industry Mapping
- Publications (IFNs, BNs, OPE Series, Research Papers, etc)
- Podcasts

## Trainings and Workshops

- Retail Trainings
- Customised Training for Institutions
- AMI
- CEOs Workshop
- Webinars and Virtual Conferences
- E-/Distance Learning
- Exposure Visits

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