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Scaling-Up Micro Insurance

*The Case Of Weather Insurance
For Smallholders In India*



Ornsaran Pomme Manuamorn

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1818 H Street, NW
Washington, DC 20433
Telephone 202-473-1000
Internet www.worldbank.org/rural
E-mail ard@worldbank.org

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PREFACE

The author wishes to acknowledge the generous support of the Swiss State Secretariat for Economic Affairs, SECO, which funded this research activity. This case study is based on a May 2005 visit to the BASIX Headquarters that included meetings with Vijay Mahajan, Managing Director (BASIX Group); D. Sattaiah, Associate Vice President (Operations & Human Resources); N.V. Ramana, Managing Director (Bhartiya Samruddhi Finance Ltd.); and P Sai Gunaranjan, Insurance Executive, as well as field visits to two villages in Nirmal, Andhra Pradesh, and Pharbani, Maharashtra. The section on ICICI Lombard is based on a visit to ICICI Lombard Headquarters in Mumbai on May 30, 2005 during which the author interviewed: 1) the Rural & Agriculture Business Group comprising Virat Divyakirti, Neha Agarwal, Praveen Kuma Vecha, and Ankit Singhal; and 2) Bhavesh Patel, National Manager-Reinsurance. The author is grateful to BASIX and ICICI Lombard for their collaboration and guidance. A special gratitude is owed to P. Sai Gunaranjan for dedicating his time for discussions and for arranging field visits. Any errors remain the fault of the author.

1. INTRODUCTION

BASIX is a Hyderabad-based group of companies with a mission to “promote a large number of sustainable livelihoods, including for the rural poor and women, through the promotion of financial services and technical assistance in an integrated manner.”¹ BASIX provides its rural customers with “the Livelihood Triad” which comprises: 1) Livelihood Financial Services (Credit, Insurance & Savings); 2) Agricultural and Business Development Services (Productivity Enhancement & Market Linkages); and 3) Institutional Development Services. With 1,281 staff operating in seven states across India², BASIX has a presence in over 10,026 villages and serves approximately 200,000 customers, of which 151,862 are active borrowers. On average, BASIX’s customers have farm income of Rs.12,000 - 30,000 per year, or less than US\$ 1 a day.³

BASIX defines itself as a “new generation livelihood promotion institution” and chooses to work in poor and mostly arid and backward districts. As a result, BASIX faces a twin challenge in innovating a cost effective way of extending credit to low-income farmers, while helping them better manage risks that affect rural livelihoods. The challenge is addressed by the integration of micro-insurance with micro-credit and micro-savings. In 2000-01, BASIX began its insurance initiative by partnering with multiple insurance companies to design credit-linked, and subsequently, retail insurance products. BASIX offers two categories of insurance: life and livelihood. In the area of life insurance, BASIX worked with ICICI Prudential during the starting year and now works with AVIVA Life Insurance Company. In addition to credit-bundled group life insurance (“credit plus”), BASIX received a Corporate Agency License by the Insurance Regulatory and Development Authority (IRDA) in 2003 to distribute retail life insurance products from AVIVA. As for livelihood insurance, BASIX partnered with Royal Sundaram General Insurance Company for the delivery of livestock and health insurance products, and with ICICI Lombard for weather insurance products that protect farmers’ income from the uncertainty of rainfall.

The introduction of rainfall insurance by BASIX was the first weather insurance initiative ever launched in India and in the developing world. The initiative followed a study which explored the feasibility of weather insurance for Indian farmers in the context of extending rural financial outreach by reducing the exposure to weather risk (Hess 2003). The study identified several potential project partners to test the weather insurance concept. In response to this study, BASIX in collaboration with ICICI Lombard, with technical assistance from the Commodity Risk Management Group (CRMG) of the World Bank, piloted the sale of weather insurance to 230 farmers in the Mahabubnagar District of Andhra Pradesh (A.P.) during the monsoon season of 2003. Within only three years, the small pilot has graduated into a large-scale weather insurance operation in which BASIX sold 7,685 policies to 6,703 customers in 36 locations in 6 states during the 2005 monsoon season.⁴ In addition, the 2003 pilot also had sparked much broader

¹ Refer to the BASIX website (www.basixindia.com) for more information.

² Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, Madhya Pradesh, Orissa, Jharkhand

³ A detailed study on BASIX’s innovations in risk management and cost reduction is written as a separate case study paper. See Hubka and Manuamorn 2005.

⁴ See Appendix I

interest in weather-indexed insurance in India. This risk management vehicle was explicitly mentioned in the 2004-05 Government of India budget, and the weather insurance product is currently offered by a number of companies, including the government-owned Agricultural Insurance Company (AIC) and IFFCO-TOKIO General Insurance Company, an Indian-Japanese joint venture.⁵ The rapid scaling up of the BASIX pilot and product replication by other institutions demonstrate the viability of weather insurance as well as significant demand from Indian farmers.

This study documents the scaling up of BASIX's weather insurance program for three reasons. First, it expands CRMG's case study on BASIX as an innovative institution in the areas of agricultural finance and risk management. Second, it highlights the technical and operational viability of intermediating weather index insurance to smallholder farmers, and presents BASIX as a demonstration case of how such a weather insurance program could be piloted and scaled up in a sustainable manner. Third and most importantly, the study aims to serve as a project implementation guide by identifying the conditions for the pilot's scalability, the experience which could be transferred and replicated by other development projects and institutions.

The first section of this study discusses the development of BASIX's weather insurance program from the pilot to the scaling up stage, focusing on (i) the gradual expansion of geographical coverage; and (ii) the continuous improvement of product design informed by farmer feedback; the latter substantially accounts for the growth in demand for the product. The second section presents the strategic considerations that underline BASIX's decision to scale up the pilot, while the third section identifies the necessary managerial, administrative, and technical conditions that BASIX has put in place to handle the large-scale weather insurance operation; the emphasis is placed on the "process-oriented details" that account for BASIX's operational capacity. The fourth section discusses the conditions for scalability on the part of the insurance company –ICICI Lombard. Finally, a concluding section summarizes BASIX's critical success factors, which could inform other weather insurance initiatives in developing countries, and outlines future challenges for BASIX.

2. DEVELOPMENT OF BASIX WEATHER INSURANCE PROGRAM, 2003-2005

BASIX operates with a clear focus on the agriculture sector while other microfinance institutions avoid the sector due to the perception of high risk. Weather risk is the predominant source of income instability for BASIX customers whose agricultural activities are dependent upon rainfall. Like farmers, BASIX is financially vulnerable to weather risk: weather-induced crop failure, primarily resulting from rainfall deficit, often caused by overdue crop term loans, threatening the institution's portfolio quality. BASIX gained confidence in the insurance approach through a successful experience in livestock insurance. As a

⁵ In total, approximately 19,600 Indian farmers in 20 districts nationwide were able to buy weather-indexed insurance for the 2004 monsoon season. In Khariff 2005, AIC has expanded its weather insurance scheme by introducing a program -- Varsha Bima 2005-- in about 125 India Meteorological Department (IMD) station areas spread over 10 states. Approximately 125,543 farmers have bought the Vesha Bima products, covering growing crops over 98,000 hectares and a risk of approximately Rs 560 million, and earning a premium of Rs. 32 million (See Appendix IV)

result, BASIX applied the insurance solution to the systemic weather risk that affects customers and the institution's portfolio. The main challenge was to design an innovative insurance product which protects farmers' livelihoods from the erratic nature of weather, while avoiding the inefficiencies that plague the Government's traditional yield loss insurance scheme. (Refer to Box 1 for a description of government sponsored crop insurance.)

Box 1: Features and drawbacks of the Government-sponsored crop insurance scheme

1. The product attempts to cover a whole range of risks related to crops, making it prone to the widespread problem of moral hazard (the extent of damage to be indemnified can be experienced by farmers' own behavior).
2. The product is tied to the crop loans given by rural public sector banking system.
3. Extent of sum insured linked to the loan size. As the insurance is not communicated properly, many borrowing farmers are unaware that they are insured.
4. Claims are assessed by crop cutting (loss adjustment) experiments. The experiment results are not available for public verification and therefore the objectivity of the experiments is in doubt.
5. The crop cutting experiments entail a huge expenditure, making the administration of the product very costly.
6. The claim settlement process takes a very long time- from six months to two years in some cases, leading to very poor satisfaction among customers and reduced developmental impact of the insurance program.
7. The financial performance has been unviable, with the claims to premium ratio as of the khariff season (June-September) of 2002 at about 4.17.
8. The premium rate is uniform for a crop across the whole country while the risk certainly is not uniform nationwide.
9. The program's benefit is not distributed equitably. 58 percent percent of the claim benefit has gone to a state (Gujarat) whose contribution to premium has been 16 percent.
10. The premium is subsidized. Actuarial rates are not charged.
11. The National Agricultural Insurance Company (AIC), the implementing agency, has very little financial stake in the scheme. It is reimbursed by the government for its administrative expenses and claim amount above the premium collected is paid out by the government. The lack of financial stake further reduces the efficiency in the administration of the scheme.

Following an unsatisfactory trial with a multi-layered yield loss insurance structure⁶, BASIX found rainfall-indexed insurance to be a good alternative to insurance products which target yield losses. (See

⁶ During 1998, which coincided with the gradual opening up of the insurance sector, BASIX developed the concept of an insurance-like product which had the following features: 1) three-layered coverage at the village, district and state levels; 2) three-layered division of premiums: 50 percent kept by the village fund, 25 percent by the insurance company; and 25 percent by BASIX which functions as a reinsurer; 3) three-layered claim process in which the first claims are against the village fund, while exceeding claims are paid by the district then BASIX, respectively. BASIX tested the concept in 3 villages with the target of insuring 10,000 farmers over the few coming years. However, the product didn't offer a good risk management tool given its unsuitability to the crop cycle (2 good years and 2 average years followed by one bad year) and the costly premium of 20 percent.

Box 2 for an explanation of index-based weather insurance.) Since BASIX operates in mostly non-irrigated areas where agriculture depends on the performance of monsoon, realized rainfall during the monsoon season forms a good proxy of farm income, and therefore, provides a simple and objective indicator to base insurance payouts for weather-induced losses. (See Table 1 for the advantages and challenges of index insurance.)

Box 2: Index-based Weather Insurance

Index-based weather insurance products are contingent claims contracts for which payouts are determined by an objective weather parameter (i.e. rainfall, temperature or soil moisture etc.) that is highly correlated with farm-level yields or revenue outcomes. Rainfall-indexed insurance is well-suited to agricultural production in regions where there are widespread crop losses due to drought or excess rainfall. In such regions, rainfall can be used as a good proxy for the actual losses incurred by farmers. In other areas, farm incomes could also be indexed on temperature indicators for production sensitive to heat or frost, such as horticulture.

The underlying index used for an index insurance product must be correlated with yield or revenue outcomes for farms across a large geographic area. In addition, the index must satisfy a number of additional properties that affect the degree of confidence or trust that market participants have that the index is believable, reliable, and void of human manipulation, meaning that measurement risk for the index is low. The properties for a suitable index are that the random variable being measured is 1) observable and easily measured; 2) objective, 3) transparent; 4) independently verifiable; 5) able to be reported in a timely manner; and 6) stable and sustainable over time. Publicly available measures of weather variables generally satisfy these properties.

Index-based insurance is less susceptible to some of the problems intrinsic in traditional multi-peril crop insurance. Since payouts for indexed contracts are automatically triggered once the weather parameter reaches a pre-specified level, the insured farmers receive timely payouts. The automatic trigger also minimizes administrative costs for the insurer by eliminating the need for tedious field-level damage assessment. Since administrative costs are lower, products are more affordable to farmers due to relatively low premiums.⁷ The objective and exogenous nature of the weather index prevents both “adverse selection” (farmers know more about their risks than the insurer, leading the low-risk farmers to opt out and leaving the insurer with only bad risks) and “moral hazards” (farmers’ behaviors can influence the extent of damage which qualifies for insurance payouts). Indexed products also facilitate risk transfer to the international markets, as international reinsurers are likely to provide better terms when the insurance is based on measurable weather events and not farm-level losses.

Table 1: Advantages and Challenges of Index-Based Insurance

<i>Advantages</i>	<i>Challenges</i>
<p><i>Less moral hazard</i> The indemnity does not depend on the individual producer’s realized yield.</p> <p><i>Less adverse selection</i> The indemnity is based on widely available information, so there are few informational asymmetries to be exploited.</p>	<p><i>Basis risk</i> Without sufficient correlation between the index and actual losses, index insurance is not an effective risk management tool. This is mitigated by self-insurance of smaller basis risk by the farmer; supplemental products underwritten by private insurers; blending index insurance and rural finance; and offering coverage only for extreme events.</p>

⁷ Approximately 10 percent.

<i>Advantages</i>	<i>Challenges</i>
<p><i>Lower administrative costs</i> Does not require underwriting and inspections of individual farms.</p> <p><i>Standardized and transparent structure</i> Uniform structure of contracts.</p> <p><i>Availability and negotiability</i> Standardized and transparent, could be traded in secondary markets.</p> <p><i>Reinsurance function</i> Index insurance can be used to more easily transfer the risk of widespread correlated agricultural production losses.</p> <p><i>Versatility</i> Can be easily bundled with other financial services, facilitating basis risk management.</p>	<p><i>Precise actuarial modeling</i> Insurers must understand the statistical properties of the underlying index.</p> <p><i>Education</i> Required by users to assess whether index insurance will provide effective risk management.</p> <p><i>Market size</i> The market is still in its infancy in developing countries and has some start-up costs.</p> <p><i>Weather cycles</i> Actuarial soundness of the premium could be undermined by weather cycles that change the probability of the insured events (i.e. El Niño events).</p> <p><i>Microclimates</i> Make rainfall or area-yield index based contracts difficult for more frequent and localized events.</p> <p><i>Forecasts</i> Asymmetric information about the likelihood of an event in the near future will create the potential for intertemporal adverse selection.</p>

Source: World Bank (2005)

As with other innovations that BASIX has introduced, BASIX decided to pilot the new weather insurance product concept with an approach that emphasizes small scale but intensive feedback. The product design resulted from technical discussions with CRMG and ICICI Lombard, guided by BASIX's own principle of "nothing goes without value added in the following year."⁸ The pilot pursues a business model in which the insurance company, along with a reinsurance arrangement, takes on the risk in entirety; while BASIX and the insurance company jointly incur administrative expenses. Table 2 gives an overview of the design evolution of the BASIX-ICICI Lombard Weather Insurance Product from 2003-2005.

The 2003 pilot

During the 2003 pilot, the insurance contracts were designed to protect farmers from drought during the groundnut and castor growing season. ICICI Lombard underwrote the products, which Krishna Bhima Samruddhi Local Area Bank (KBS LAB)⁹ extension officers marketed and sold to the four villages in the Andhra Pradesh (A.P.) district of Mahabubnagar through workshops and meetings with the BASIX borrowers. In total, 230 farmers bought the insurance for the khariff monsoon season (June-September) of 2003: 154 groundnut farmers and 76 castor farmers; most are smallholder farmers with less than 2.5 acres

⁸ D Sattaiah, Interview with the author, BASIX Headquarters, Hyderabad, May 24, 2005.

⁹ A BASIX subsidiary that is a Reserve Bank of India licensed bank, providing microcredit and savings services in three districts.

of landholding. ICICI Lombard reinsured the risk with one of the major reinsurance companies, representing the first time that weather risk transferred from a developing country to international markets.

The 2004 pilot

With a good customer response in 2003, a second pilot program was launched in the Khariff 2004 and introduced significant changes to the 2003 design following farmers' feedback from the first pilot program. CRMG continued to provide technical assistance during this second year. The 2004 program was significantly modified in terms of geography, product design, and scope. Geographically, the pilot was expanded to four new weather stations in two additional A.P. districts: Khammam and Anantapur. To minimize basis risk (mismatch between insurance payouts and crop losses), the product contained a three-phase payout structure which reflects the weighted importance of rainfall to crops during different phenological stages (sowing, growth, harvest). The phase-based payout allows farmers to re-invest in working capital for a fresh crop in case the first crop fails in the sowing stage itself.

In terms of scope, the 2004 pilot offered contracts to both BASIX borrowers and non-borrowers through village meetings and farmer workshops. Feedback sessions were added in the month leading up to the groundnut and castor growing season. New contracts were also offered for cotton farmers in the Khammam district and an excess rainfall product for harvest was offered to all castor and groundnut farmers. In total, over 400 farmers bought insurance from BASIX in 2004. Several farmers were repeat customers from 2003. During 2004, BASIX itself also bought a crop lending portfolio insurance policy based on weather indexes. ICICI underwrote both the retail and institutional rainfall policies, but did not seek reinsurance as in 2003 (World Bank 2005).

The 2005 scaled-up program

The pilot experience proves to be valuable for BASIX and ICICI Lombard in understanding the crop-rainfall relationships and the product design. In addition, interactions with farmers indicate the potential for commercial expansion and highlight the necessary factors in bringing the right weather insurance products to farmers. In the 2005 scaling-up phase, BASIX and ICICI Lombard further improved the product by adding new features recommended by farmers: i.e. the dynamic starting date and the exclusion of daily rainfall below 2 millimeters (mm.) and above 60 mm. from the cumulative level which determines payout.¹⁰ Another important change is the crop parameter. Instead of crop-specific policies, BASIX sells area-specific generic weather insurance products which suit all principal rain-fed crops within the same agro-climatic region. The products are sold to farmers in 36 locations in 6 Indian states. BASIX planned to reach a minimum goal of 5,000 policies, with a target of 10,000 policies.

¹⁰ According to farmers, rainfall below and above the mentioned levels does not help crop growth.

Table 2: Design Evolution of BASIX- ICICI Lombard Weather Insurance Product

<i>Criteria</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
<i>Sale locations</i>	The product is sold in only one district (Mahabubnagar) with only one reference weather station at the district level.	The product is sold in 3 districts with 10 product variations, linked to 5 weather stations. Three out of these stations were block-level (Mandal) weather stations. Excess rainfall product was also introduced in one location.	The product is made available across BASIX operational areas spread over 6 states where rainfall data will be available. One product is designed for each agro-climatic region which covers the minimal risk for all the principal rain-fed crops in the region.
<i>Premium</i>	Premium is charged per farmer based on the size of the land holding and proportionate risk coverage. Thus there was one rate for farmers with land holdings less 2 acres, 2-5 acres, and above 5 acres.	The premium is charged on a per acre basis, thus making the product linked to the quantum of agricultural activity rather than loan size and gives the farmer the flexibility to buy multiple units based on his affordability.	BASIX retains the per acre system from 2004.
<i>Product structure</i>	The product has one phase of coverage for the entire monsoon season.	The product has three phases with separate coverage for sowing, growth, and harvest seasons. Claim pay out is made after each of the 3 stages of the crop season.	BASIX adds two new features to the 2004 design based on farmers' feedback: 1) Minimum rainfall level (2 mm. per day) is considered for arriving at the rainfall received during a period. Rainfall above 60 mm. is also excluded from the aggregate. 2) The starting date of the insurance period is determined dynamically based on the minimal accumulative rainfall required for starting the sowing activity (50 mm.) The coverage will start automatically on July 1, 2005 if accumulative rainfall has not reached the 50 mm.
<i>Payout</i>	The loss pay out is made as a function of deviation in percentage from the threshold rainfall index.	The loss pay out is made a function of per mm deviation from the threshold rainfall index. The farmers were able	BASIX retains the per mm. deviation system from 2004

<i>Criteria</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
		to grasp this pay out structure in absolute deviation rather than as a percentage deviation.	
<i>Process</i>	BASIX operates the sale of weather-insurance through a manual, paper based system.	Manual, paper-based system is continued.	The operational processes have been designed to minimize transaction costs, automate information processing, and simplify premium routing process.
<i>Product communication</i>	Product literature delivered to customers in vernacular, resulting in good awareness and grasp of the product by customers.	Vernacular communication.	Vernacular communication.
<i>Subsidy</i>	No subsidy. Farmers paid the premiums entirely out of the their own pockets.	No subsidy.	No subsidy.

Source: BASIX

3. STRATEGIC CONSIDERATIONS IN SCALING-UP THE WEATHER INSURANCE PILOT

According to Mr. D Sattaiah, BASIX Associate Vice President for Operations and Human Resources, “it is a deliberate strategic decision to scale up the weather insurance service in an aggressive way.”¹¹ Planning for weather insurance is not done in isolation at BASIX. Rather, it is part of the overall corporate business plan which envisions the company’s growth in all of micro-insurance lines of business. By 2007, BASIX expects that “6 out of 13 insurance companies operating in India will partner with BASIX in selling the weather insurance product aggressively.”¹² Three key considerations motivate this vision of expansion: staff productivity, the demonstration effect of the pilot, and cost recovery and profitability.

¹¹ D Sattaiah (2005).

¹² Ibid.

STAFF PRODUCTIVITY

BASIX's estimate of the productivity of staff determines the scale of expansion mainly through Customer Services Agents (CSAs) that handle day-to-day services with rural customers. Since BASIX's distribution channel is also involved in the delivery of multiple credit and non-credit services, the selling effort on weather policies has to be integrated into the rest of the work schedule of CSAs. Therefore, the criterion used by management in determining the scale of weather insurance expansion is how many credit accounts and insurance policies a CSA can handle per day. BASIX established a minimum goal of selling 5000 weather insurance policies during the 2005 monsoon season, based on the level of information technology and incentive system in place (Hubka and Manuamorn 2005). Potentially, the establishment of an upper target of 10,000 policies could be achieved due to: 1) the ease in using BASIX's existing rural outreach in distributing the rainfall product; and 2) the 25 percent incentive payment that expected to boost the productivity in sale.¹³

THE DEMONSTRATION EFFECT OF THE PILOT

BASIX decided to scale-up dramatically in order to take advantage of the demonstration effect of the pilot. The feasibility of weather insurance demonstrated by BASIX and ICICI Lombard created new enthusiasm for weather products in the Indian insurance market. In turn, this broadened the choice of partner insurance companies for BASIX.¹⁴ On the demand side, individual farmers and self-help groups articulated product satisfaction in all of the pilot areas. In 2004, farmers in a few villages received claim payouts for the first stage of crop, even before the regular harvest period was complete. Such a prompt settlement of claims won the appreciation of the farmers who expressed their willingness in becoming repeat customers in 2005.

COST RECOVERY AND PROFITABILITY

BASIX needs to sell a large number of insurance policies in order to recover capacity building costs the company invested in insurance services. The main components of the cost come from training CSAs and automating the insurance administration system. While BASIX used revenue surpluses from group life insurance to finance the experiment with weather insurance during 2003-4, ultimately the product needs to generate independent income to sustain itself, and contribute to the overall cost recovery and profitability of the insurance business. BASIX estimates that reaching at least 10 percent of the households in each village in which BASIX operates will be a good start.

A scaled-up weather insurance program will also significantly enhance BASIX's financial performance. Currently, all of the premium collected is remitted to the insurance company. After underwriting the policies, the insurance company pays out a commission to BASIX up to a maximum of 15 percent of the premium collected on each policy. Given an average weather insurance premium of Rs 300, the sale of 5,000-10,000 policies in Khariff 2005 will generate a collected premium of Rs. 1.5- 3 million, of which BASIX will generate up to 15 percent or approximately Rs 220,000 – 440,000 as income.¹⁵ This projected revenue will elevate the financial contribution of weather insurance to the company to approximately the same level as that of retail life and livestock insurance products in 2004. Table 4 gives an overview of the

¹³ BASIX gives 25 percent of the 15 percent commission to CSAs who sold the policies as an incentive payment.

¹⁴ In 2005, BASIX has started a new partnership with the Government-own AIC, which underwrites weather insurance policies for BASIX's customers in Orissa.

¹⁵ As of September 19, 2005, the latest estimate of income is close to Rs. 275,000.

comparative business performance of BASIX's insurance products, while Table 5 provides an overview of the comparative service performance of BASIX insurance products.

Table 3: Comparative Business Performance of BASIX's Insurance Products

<i>Product</i>	<i>Policies</i>		<i>Premium (Rs.)</i>		<i>Average Sum Insured (Rs)</i>
	<i>Apr 04</i>	<i>Apr 03</i>	<i>Apr 04</i>	<i>Apr 03</i>	
	<i>-Mar 05</i>	<i>-Mar 04</i>	<i>-Mar 05</i>	<i>-Mar 04</i>	
Group life insurance under Credit Plus	86,540 <i>(As of 31-Mar-04)</i>	48,024 <i>(As of 31-Mar-04)</i>	6,139,000	28,000	12,500
Retail life insurance	6,038	369	1,581,000	123,000	22,000
Livestock	5,040	4,430	1,637,000	1,623,000	7,500
Rainfall Insurance (customers/ acres)	427/ 670	230/ 450	150,000	100,000	6000

Source: BASIX

Table 4: Comparative Service Performance of BASIX Insurance Products

	<i>Claims Reported</i>	<i>Claims Settled</i>	<i>Claims Rejected</i>	<i>Claims in Process</i>	<i>Settled Amount (Rs.)</i>
Life	208	195	0	13	2,260,000
Livestock	257	233	14	10	1,732,000
Rainfall	305	305	0	0	450,000
Total	770	733	14	23	4,442,000

Source: BASIX

4. CONDITIONS FOR THE SCALABILITY OF BASIX WEATHER INSURANCE PILOT

The following sub-sections detail the key managerial, administrative, and technical conditions which underline the expansion of BASIX weather insurance service throughout the country following only 2 years of the pilot experience.

CRITICAL MASS OF INSURANCE- TRAINED STAFF

BASIX currently has a large number of qualified insurance advisors who were trained and licensed by the IRDA to sell retail life insurance. 120 executives in the company took the IRDA prescribed online insurance training and qualified in the course. This level of training is equivalent to that of business team leaders in private insurance companies. Since these advisors are already knowledgeable in insurance products, BASIX could extend their responsibility to the sale of the rainfall product within a short period of time, without the need for significant additional training.

EXISTING EXTENSIVE RURAL OUTREACH

Operating in over 10,000 villages in 46 districts in seven states, BASIX takes advantage of the existing outreach to farmers. They market the rainfall insurance product as well as loans and other agricultural development services. BASIX deployed one CSA for every 10-15 villages who visit customers on a weekly basis. According to P. Sai Gunaranjan, BASIX Insurance Executive, “creating a network just for the delivery of weather insurance will be too expensive.”¹⁶ From a development perspective, it is also important that weather insurance is distributed as part of a whole package of livelihood enhancement products. This reduces the operational cost of the distributor while maximizing development impact. Relying on the existing distribution channel has allowed BASIX to maintain low administrative expenses.

PRODUCT SIMPLIFICATION

The insurance team made a conscious decision to sell a generic, instead of crop-specific, rainfall insurance product during the 2005 monsoon season. Designing such a simplified product minimizes cost, time, and complexity for both BASIX and ICICI Lombard during the preparation stage. It facilitates the sale to a large number of customers since BASIX staff only have to understand and explain one product during sale sessions. Simplifying the product also reduces the amount of instruction from the Headquarters to Unit Offices, which are responsible for the sale, thus simplifying the monitoring task of the insurance team at the Headquarters itself. According to Gunaranjan, “a trade-off between product specification and outreach has to be made.”¹⁷

PRODUCT MANAGEMENT SYSTEM: THE USE OF PROCESS CHARTS

Apart from standardizing the product, BASIX also standardizes the insurance administration process. The objective is to ensure each and every person involved in the insurance operations understands the procedures in a unified and complementary manner. Applying a common approach in manufacturing to service provision, BASIX achieves the objective by creating “process charts” (refer to Appendix II) which perform the following functions: 1.) outline all the elementary steps of the entire process, giving

¹⁶ P. Sai Gunaranjan, Insurance Executive, Interview with the author at BASIX Headquarters, Hyderabad, May 24, 2005.

¹⁷ Ibid.

both a micro and macro view of the process; 2.) assign responsibilities to specific individuals for various stages in the process, providing role clarity; 3.) determine the amount of time involved in each of the processes; 4.) determine the costs involved in the various steps; 5.) give relevant references, such as check lists or formats which are needed at various stages of the process; and 6.) classify each of the elementary steps into four kinds of activity (and inactivity in some cases). The entire process may be viewed as a combination of these four kinds of activities:

- *Execution (E)*: specific work done by an individual
- *Screening (S)*: cross-checking or verification completed before passing a job to the next stage; for example, checking a customer profile before drafting an insurance proposal
- *Transit (T)*: travel or transit time involved
- *Idle (I)*: inactive stage in the process, causing delayed movement to the next stage

The purpose of this classification is to identify those stages in the process which may not be adding reasonable value to the overall work being done. It is broadly accepted that the stages of execution (E) and screening (S) are the only ones which add value to the whole process. Once identified, BASIX attempts to minimize those stages which deliver least value, by either combining these events, automating them, or eliminating those that may be redundant.¹⁸

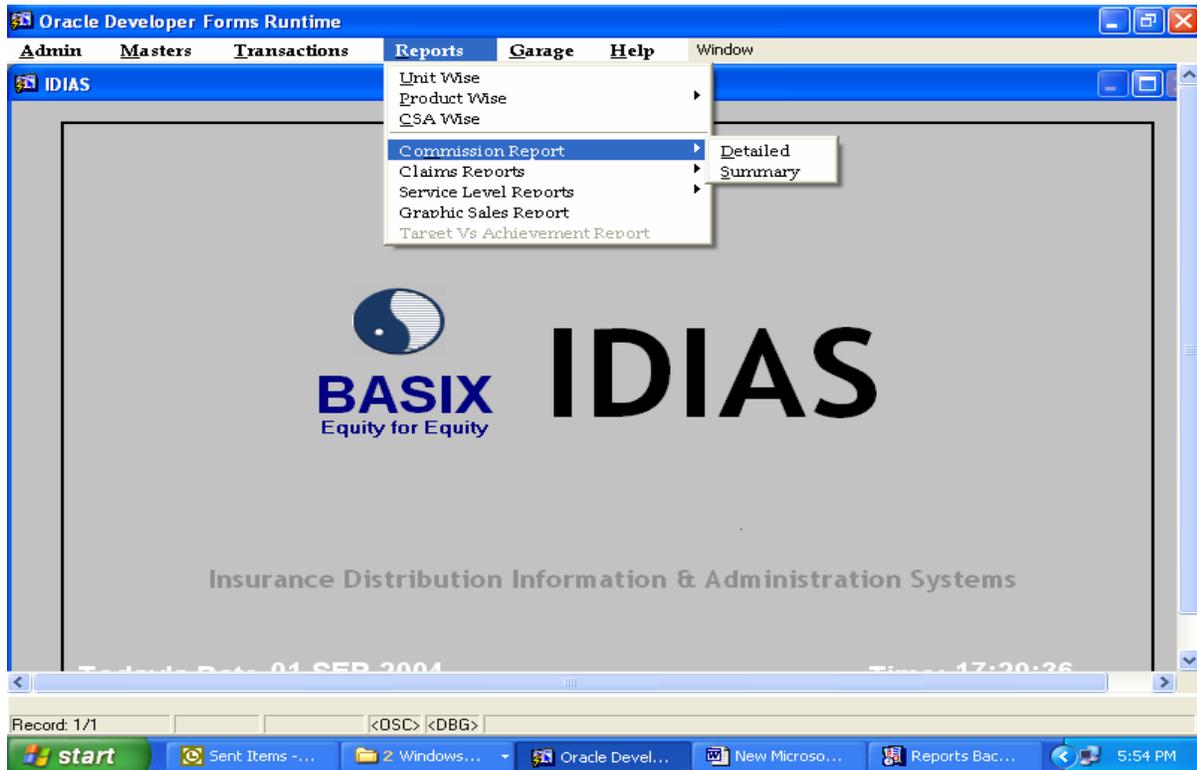
The product management system is fundamental to BASIX's ability to scale up its weather insurance operation. First, the process charts serve as a template for the insurance team to effectively estimate time and cost for each stage, thus obtaining accurate estimates needed to plan for the scaling up. Second, the charts work as a training material which shrinks to one page the amount of instruction from the Headquarters to field staff who are new to the delivery of the rainfall product. Finally, the charts also allow BASIX to monitor closely performance of each Unit Office throughout the process and identify points of inefficiencies in different activities in order to take early actions for improvement.

INFORMATION MANAGEMENT SYSTEM TAILORED TO SUIT INSURANCE OPERATIONS

BASIX always implements robust IT requirements before functional expansion. For insurance, the team has dedicated substantial effort in developing Insurance Distribution Information and Administration Systems (IDIAS) --a program which translates functional requirements of all lines of the insurance business (life, health, livestock, and weather) into database language which is shared across the entire organization. Figure 1 shows what the IDIAS screen looks like. Serving over 10,000 credit and non-credit insurance customers, this program has been instrumental in smoothing the processing of insurance policies across various product categories and states. Automation through IDIAS also contributes directly to the product management system by reducing transit (T) and idle (I) stages in the insurance process.

¹⁸BASIX Insurance Unit, "Process Charts Introduction to Units" (Office memorandum from BASIX Headquarters to Unit Offices, 27 November, 2003).

Figure 1: IDIAS Functions



Source: BASIX

A one-and-a-half-year-old program, IDIAS is central to the operation and scaling up of weather insurance by supporting the following functions:

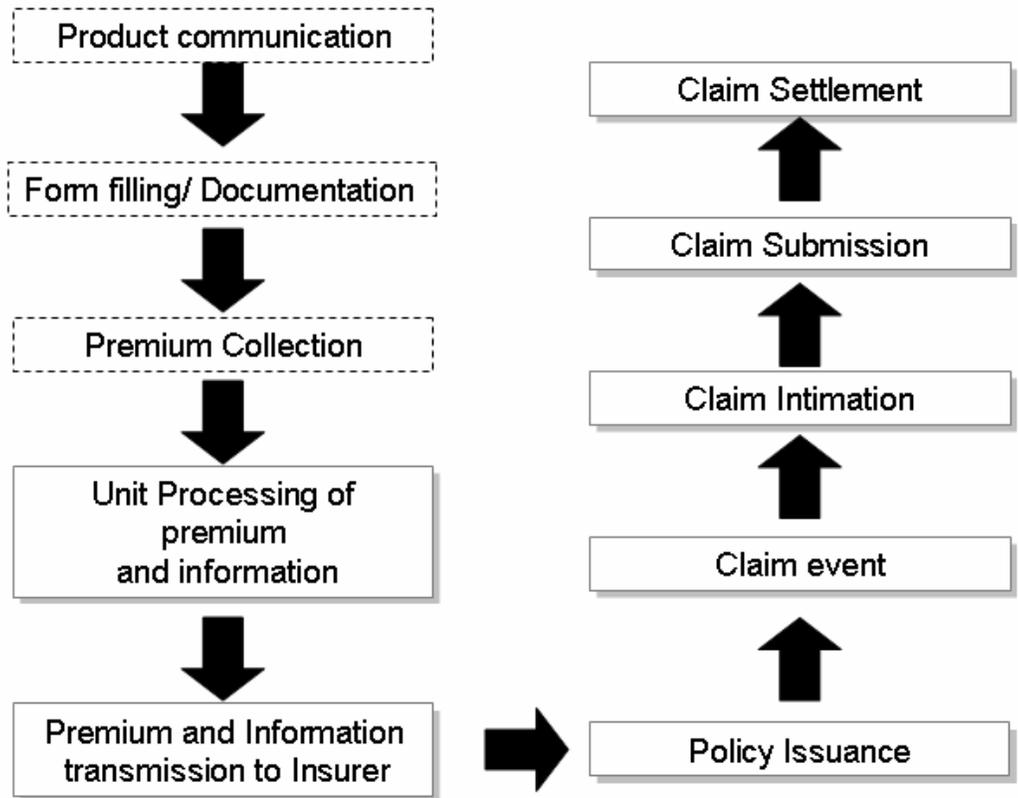
1) Advanced database

Staff in Unit Offices can enter into IDIAS all of the information on weather insurance sales (customer profile, location, premiums paid, policy number, detail of coverage, etc.). Once the data are entered in IDIAS by field-based transactions assistants (TAs), Headquarters and the insurance company can instantaneously access the data, resulting in complete documentation of the whole process in a standardized and real-time format. The recording of customer profile in IDIAS is also equivalent to eliminating the screening activity (S) listed in process charts. The system can also generate customer and insurance policy proposal reports with a specific customer ID and the current status of the policy.

2) Insurance process administration

IDIAS allows BASIX to automate most of the steps (as shown in Figure 2) required to deliver weather insurance service to farmers, such as: information and premium processing, information transmission to the insurance company, policy issuance, and claim processing.

Figure 2: BASIX Insurance Process (automated steps in shadowed boxes)



Source: BASIX

In the past, when a customer purchased a rainfall contract, BASIX field staff would manually draft a policy proposal. The proposal was then carried back to the responsible Unit Office, then to ICICI Lombard via the BASIX Headquarters, and eventually returned to the customer as an insurance policy after a month. With IDIAS, the system instantaneously generates two copies of policy, one given to the customer on the spot and another rests with the responsible Unit Office. The policy proposal and issuance information is subsequently entered into IDIAS’s off-line data entry platform. Then, it is transported to the central IDIAS platform when staff connects to the central server. This allows both the BASIX Headquarters and the insurance company to access the information on-line, while shrinking the policy proposal and issuance process from approximately a month to a week.

Once a weather event has triggered payouts for farmers with coverage, BASIX also uses IDIAS to handle 95 percent of the claim process on behalf of the insurance company. Once notified by ICICI Lombard of the forthcoming payout, a claim event is registered in IDIAS and instantly processed. Over 750 claims from weather and other insurance products have been processed by IDIAS to date.

This automation of the insurance process has minimized actions needed on the part of ICICI Lombard. At the same time, it also allows BASIX to handle a larger number of insurance customers and further scale up at its own pace, while reducing manpower, time, and money required. Apart from the time saving mentioned above, some other indications of efficiency created by IDIAS include: 1.) an 80 percent reduction in courier cost for BASIX and 2.) sizable cost savings in underwriting on the part of ICICI Lombard.

3) Information verification

IDIAS automatically corrects errors in premiums or payouts made by staff. The system is built to reject the processing of an insurance contract with wrong information. As a result, IDIAS allows BASIX to offer a large number of policies for a variety of insurance products with no confusion and informational mistakes.

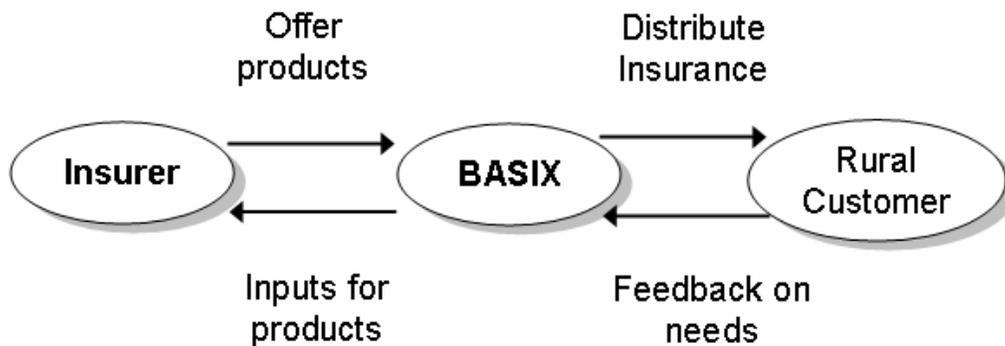
IDIAS is an example of how "process-oriented details"¹⁹ matter in improving operational efficiency at BASIX. According to Mr. D. Sattaiah, "BASIX chooses to place more emphasis on process than product. While product can be updated from time to time, process needs strength from the beginning. And strengthening the internal insurance process can be done independently without relying on the insurance company."²⁰

In addition to the importance of process, IDIAS also demonstrates the need for an organization to accumulate a culture of paying attention to details and use it to guide the design of IT infrastructure. BASIX is willing to make the IDIAS package available to other organizations which need an IT system to support micro-insurance operations. However, the use of such a ready-made package could only be enhanced by "the fine-tuning of its functions to suit each organization's details."²¹

EMPHASIS ON COMMUNICATION

Effective communication between BASIX, the insurer, and rural customers lies at the heart of BASIX insurance business model (as seen in Figure 3). Effective communication also plays a key role in scaling up the sale of weather insurance.

Figure 3: BASIX Insurance Business Model



Source: BASIX

To sell more policies, BASIX needs to educate a large number of customers. For a new product like weather insurance, this means allocating significant time for repeated information and question and answer sessions with farmers (a lot of the farmers are illiterate). All verbal communication and literature on the product must be done in vernacular language to facilitate customer understanding. Sessions must be conducted at appropriate times, such as in the early morning before farmers go out to field or in the

¹⁹ P. Sai Gunaranjan (2005)

²⁰ D. Sattaiah (2005)

²¹ P. Sai Gunaranjan (2005)

late evening after they have returned. This facilitates farmer participation and allows them to ask questions and give feedback on the product structure directly to BASIX staff. The feedback is then channeled back to the Insurer, serving as inputs for improving the product design to suit the demand. Not only does this strategy pay off by creating close relationships and trust between BASIX and farmers, it also directly enlarges the customer base for weather insurance as the first group of educated farmers further expands demand within the village through peer communications. According to BASIX, as much as 90 percent of new customers come from "word of mouth."²²

5. THE ROLE OF ICICI LOMBARD

ICICI Lombard is the first insurance company to offer weather indexed insurance in India by underwriting for BASIX during the 2003 and 2004 pilot.²³ The company continues to play a major role in the 2005 scaling-up phase by underwriting rainfall-deficit contracts for BASIX to sell in 35 locations in 5 states. From an insurance company's perspective, there are several advantages (see Table 5) which make weather index insurance a more viable business than traditional multi-peril crop insurance (MPCI), which is financially unsustainable (See Appendix V).

Table 5: Comparison of Indicative Expected Cost Levels Involved in Underwriting and Administration Functions of Traditional and Index Insurance

<i>Function</i>	<i>Traditional</i>	<i>Index</i>	<i>Comment</i>
Establishing insured yield	Key function: Insurers must establish farm or district level yield.	Not required: Use an index as an agreed basis for payout.	Individual farmer yield setting not feasible in small scale farming.
	Cost: High	Cost: Low	

²² D. Sattaiah (2005)

²³ ICICI Lombard was also involved in another project in the Khariff 2003 season in Aligarh, Uttar Pradesh, where 1,500 soya farmers bought protection against excessive rainfall. ICICI Lombard filed all the necessary forms and terms of insurance with the IRDA, registering their products before the programs were launched. In 2004, a further 320 groundnut farmers, members of the Velugu self-help group organization in the Anantapur district, bought insurance directly from ICICI Lombard. For wider distribution, the insurance company also partners with ITC Ltd. in selling weather insurance policies through ITC's e-Choupals, internet kiosks at the distance of 3 kilometers from farmer homes. Run by the sanchalak (farmer co-ordinator), each kiosk gives farmer's access to information on prices of crops across different mandis (markets), tips on best practices in farming, weather information, answers by expert panelists, and various insurance products including weather insurance. For the Khariff 2005 season, 329 farmers bought 914 units (1 unit = 0.5 acre) of weather insurance policies through e-choupals, with a combined premium of Rs. 228,500 and total sum insured of Rs. 2,742,000.

<i>Function</i>	<i>Traditional</i>	<i>Index</i>	<i>Comment</i>
Underwriting	Needs assessment of individual risk or localized district risk.	Not required, but insurers need to screen clients to check for insurable interest.	Product must be adapted to local weather situation to minimize basis risk.
	Cost: High	Cost: Low	
Policy Sales	Sales process requires high skills since it involves underwriting decisions.	Sales process also requires good product knowledge. No major underwriting decisions in sales process.	Education and extension remains important for any crop or index product.
	Cost: High	Cost: Medium	
Paperwork/IT	Generally complex.	Simplified certificates or coupons.	A key to cost reduction is effective IT in head office and districts
	Cost: High	Cost: Medium	
Field inspection	Check for crop emergence.	Not required.	The insurer should monitor crop growing conditions in all cases.
	Cost: High	Cost: Low	
Loss adjustment	Needs inspection of crop damage and claim adjustment.	Not required: Payment according to measured index.	This category is one of the most important differences between traditional and index products.
	Cost: High	Cost: Low	
Claims payment	Settlement of claim.	Settlement of claim.	Once claim finalized, similar payment costs are incurred.
	Cost: Low	Cost: Low	

Source: William Dick, CRMG

Since BASIX is responsible for marketing and distribution, most of the preparation undertaken by ICICI Lombard concentrates on two activities. First, the insurance company is responsible for designing the rainfall product. The main tasks involved are analyzing historical weather data and converting the data into the product values which include premium rates, unit exposure, and trigger and exit points of the insurance contract. The source of historical data is the Indian Metrological Department (IMD). For the 2005 season, such a conceptual process took place over a period of approximately two and a half years, but intensified since February 2005, three months before the sale period commenced in May 2005. The long period of intellectual work reflects the intensity of human capital, which, according to ICICI, forms the biggest part of the company's cost in underwriting weather contracts.

Second, ICICI Lombard is responsible for training BASIX staff and bears the cost of the training. The company also supplies product literature (policy term sheets) and product information posters to BASIX.

Despite the cost of human capital and training, ICICI Lombard sees a strong profitability potential for weather insurance. The key factors in the company's market assessment are: 1.) the large market size (60 percent of India's agriculture is rain-fed); 2.) the high satisfaction of farmers with the transparent nature of index instruments and timely payouts; and 3.) low administrative cost of index insurance due to no need for field loss adjustments. According to Virat Divyakirti, ICICI's weather product specialist, "an investment of Rs 30-50 million, a reasonable amount to make business sustainable, can be recouped within 2-3 years from the growing Indian weather risk market."²⁴

To date, weather insurance has been well-performing compared to other products offered by ICICI Lombard. Even though product-specific figures have not been established for weather insurance, the company estimates that the business ratios for weather insurance following two years of operation are not very different from other product lines. This indicates that the weather insurance business if underwritten properly is at least as attractive a business proposition as other lines of general insurance (refer to Table 6). In the near future, the company also expects the underwriting expenses for weather insurance to go down significantly. This will make the weather insurance business even more attractive given the growing demand.²⁵

Table 6: Overall Business Ratios for all ICICI-Lombard Insurance Products including Weather Insurance

<i>Business Ratios</i>	<i>Percent</i>
Expense ^a on Gross Written Premium (GWP)	22
Expense on Net Written Premium (NWP) ^b	35
Net Claim on Net Earned Premium (NEP) ^c	70
Gross Loss Ratio (Gross Claims on GWP)	37

Notes: a. Only management expenses, not including any commission; b. Net Written Premium = Gross Written Premium – Reinsurance Ceding Commission; c. Net Earned Premium = Gross Written Premium – Reinsurance Ceding Commission– Net Unexpired Risk Reserve

Source: ICICI Lombard

To further expand the underwriting of weather insurance, ICICI Lombard identified three significant factors. First, the primary insurer-reinsurer relationship must move beyond a case-by-case system, whereby ICICI Lombard must receive approval from the reinsurance company before underwriting each portfolio to a reinsurance treaty system. In this case, ICICI Lombard is granted automatic capacity to underwrite weather risk on behalf of the reinsurance company. It is estimated that a reinsurance automatic capacity of USD 1 million in premium, or USD 25 million in sum insured, is needed in the short term for ICICI Lombard to expand fully in the Indian weather market.²⁶ However, the treaty system is not imminent, and the reliance on the inflexible case-by-case system still forms a major constraint for ICICI Lombard. The same constraint is likely to apply to other Indian insurance companies.

²⁴ Virat Divyakirti, Interview with the author, ICICI Lombard, Mumbai, May 30, 2005.

²⁵ Ibid.

²⁶ Ibid.

Second, there must be more public and private investment in expanding the network of automatic weather stations throughout the country. More geographically dispersed automatic stations reduce basis risk, and increase the speed and accuracy of weather data. Both lead to a higher rate of acceptance of weather index contracts by reinsurers, translating into improved reinsurance rates.

Third, the government should revise subsidy policy to be more conducive to weather index products relative to traditional yield insurance products. Currently, the government only subsidizes yield insurance which distorts incentives of farmers from weather insurance. With the appropriate policy support from the government (i.e., removing subsidy from other products or giving equal subsidy to rainfall-indexed insurance), index instruments can become a cheaper and more effective production risk management option for smallholder farmers due to low administration costs and lack of moral hazards.

6. CONCLUSION

Like the pilot launch in 2003, BASIX sets a precedent for other rural development institutions by mainstreaming weather insurance within its operations. Several factors account for BASIX's ability to dramatically scale up its weather insurance business. First, the pilot stage was used not only as a feasibility experiment but also as a platform for raising customer awareness and improving the product. As a result of the pilot experience, BASIX is able to: 1.) design an economical product which suits the weather risk management need in different rural areas; 2.) devise an effective product communication strategy that both sustains and boosts customer demand; and 3.) make the necessary trade-off between product specialization and scalability.

Second, BASIX's holistic approach to livelihood promotion contributes directly to the capacity to intermediate a large number of weather insurance policies to rural customers. BASIX takes advantage of its existing strong delivery channel by adding weather insurance to a comprehensive set of livelihood services. This maximizes staff productivity and cost effectiveness, while increasing the impact of micro-insurance in improving farmer livelihoods.

Third, the scalability is also a product of BASIX's consistent attention to details, and of the effort to convert the details into the necessary administrative and technical infrastructure. Such infrastructure is instrumental to the weather insurance process which targets smallholder farmers, requiring the capacity to process small but critical details.

BASIX identifies the following issues as major challenges in further expanding the weather insurance business. First, BASIX and partner insurance companies must work together in formalizing a multi-year continuity plan in order to ensure common speed and matching energy in the business expansion. Second, as customer demand increases, BASIX must seek to build partnership with multiple insurance companies to overcome the underwriting limitation naturally incurred by the reliance on one company. Finally, there is a need for more investment in the network of weather stations throughout the country, especially in distant rural areas. The Indian Government, private companies, or insurance companies themselves should invest in the weather data infrastructure to facilitate the growth of the domestic weather risk market, and the placement ability of domestically-underwritten weather contracts in the international markets.

APPENDIX 1. SALE PERFORMANCE OF RAINFALL INSURANCE PRODUCT BY BASIX FROM THE MONSOON SEASON 2005

<i>Weather Station Location</i>	<i>State</i>	<i>No. of customers</i>	<i>No of units</i>	<i>Sum Insured (Rs)</i>	<i>Premium (Rs)</i>
ADILABAD	ANDHRA PRADESH	80	83	249,000	19,090
ADONI	ANDHRA PRADESH	10	10	10,000	900
ATMAKUR	ANDHRA PRADESH	38	85	255,000	23,800
BHADRACHALAM	ANDHRA PRADESH	231	231	692,000	69,300
HINDUPUR	ANDHRA PRADESH	68	81	98,000	10,510
KADAPA	ANDHRA PRADESH	18	23	69,000	7,130
KALINGAPATNAM	ANDHRA PRADESH	76	121	363,000	39,930
KHAMMAM	ANDHRA PRADESH	303	305	904,000	87,270
KODANGAL	ANDHRA PRADESH	108	143	429,000	38,610
KURNOOL	ANDHRA PRADESH	73	73	213,000	24,040
MADIRA	ANDHRA PRADESH	184	184	244,000	22,530
MAHABUBNAGAR	ANDHRA PRADESH	272	366	1,039,000	79,840

<i>Weather Station Location</i>	<i>State</i>	<i>No. of customers</i>	<i>No of units</i>	<i>Sum Insured (Rs)</i>	<i>Premium (Rs)</i>
NALGONDA	ANDHRA PRADESH	19	19	33,000	3,270
NANDYAL	ANDHRA PRADESH	9	9	22,000	2,340
NARAYANPET	ANDHRA PRADESH	392	651	1,912,000	165,980
NIRMAL	ANDHRA PRADESH	156	159	477,000	49,290
NIZAMABAD	ANDHRA PRADESH	161	164	492,000	49,200
PRODDATUR	ANDHRA PRADESH	22	23	25,000	2,290
RAMAYAMPET	ANDHRA PRADESH	314	316	918,000	91,920
SADASIVPET	ANDHRA PRADESH	48	48	141,000	16,040
SIDDIPET	ANDHRA PRADESH	182	182	546,000	56,420
SURYAPET	ANDHRA PRADESH	115	117	210,000	22,650
VIKARABAD	ANDHRA PRADESH	204	209	601,000	50,045
DEOGARH	JHARKHAND	171	178	320,000	21,280
RANCHI	JHARKHAND	7	7	21,000	1,960
BELLARY	KARNATAKA	139	139	157,000	15,970
INDORE	MADHYA PRADESH	79	417	493,000	44,750
JABALPUR	MADHYA PRADESH	81	85	255,000	22,950
SHAJAPUR	MADHYA PRADESH	107	107	321,000	28,890

<i>Weather Station Location</i>	<i>State</i>	<i>No. of customers</i>	<i>No of units</i>	<i>Sum Insured (Rs)</i>	<i>Premium (Rs)</i>
CHANDRAPUR	MAHARASHTRA	231	272	816,000	68,000
GONDIA	MAHARASHTRA	145	158	474,000	39,500
NANDED	MAHARASHTRA	812	813	1,967,000	202,730
PARBHANI	MAHARASHTRA	718	718	2,063,000	199,120
WARDHA	MAHARASHTRA	605	623	1,869,000	155,750
YAVATMAL	MAHARASHTRA	511	552	1,656,000	143,520
GOPALPUR	ORISSA	14	14	52,000	4,146
Total		6,703	7,685	20,406,000	1,880,961

Source: BASIX

APPENDIX 2. EXAMPLE OF PRODUCT CHART FROM LIVESTOCK INSURANCE BUSINESS

Process Code	P-LI-RS									
Process Description	Proposal to Policy-Livestock Insurance									
Present Method	***									
Date (effective)	27-Nov-03									
Proposed Method										
Date										
<i>S No</i>	<i>Person</i>	<i>Description</i>	<i>E</i>	<i>S</i>	<i>T</i>	<i>I</i>	<i>Time(days)</i>	<i>Mat Req/Ref</i>		
1	CSA/FX	Screen Animal for Eligibility	1				D	Check List 1		
2	CSA/FX	Communicate product to Customer	1					Check List 2		
3	CSA/FX	Tag Animal	1					Tag, Applicator Certificates		
4	CSA/FX	Fill Policy Certificate	1							
5	CSA/FX	Policies in field				1	D+1			
6	CSA/FX	Policies sent to UO			1					
7	TA	Entry made in MIS	1				D+2			
8	TA	MIS report print taken	1							
9	TA	Tally report and Policy certificates		1						
10	UH	UH screens and signs Policies		1						
11	TA	Policies at UO				1	D+3			
12	TA	Policies sent to HO			1		D+4			
13	IX	Policy summary data entered in MIS	1							
14	IX	Policy at HO				1	D+5			
15	IX	Policy sent RS			1					
16	RS	Policy screened and signed by RS		1						
17	RS	Data entry at RS	1							
18	RS	Policy at RS				1				
19	RS	Policy sent to HO			1		D+8			
20	IX	Policy sent to UO			1		D+9			
21	TA	Policy at UO				1	D+12			
22	CSA	Policy sent to Customer				1	D+13			

Present (expected)	7	4	5	6	14
Proposed					
Saving					

Source: BASIX

APPENDIX 3. TERM SHEET OF AN ICICI-LOMBARD- BASIX RAINFALL INSURANCE PRODUCT

TERMSHEET FOR WEATHER INDEX INSURANCE

Crops	Any crop in the district
Reference Weather Station	Bhadrachalam
Index	Aggregate rainfall during the cover phases in mm. If rainfall on a day is < 2 mm it is not counted in the aggregate rainfall If rainfall on a day > 60 mm then the rainfall in excess of 60 mm will not be counted in the aggregate rainfall.
Definition of Day 1	Calendar day in the month of June 2005 when cumulative rainfall for the month of June at reference station is observed \geq 50 mm If above condition is not met in June, Policy invariably starts on July 1
Policy Duration	105 days

Cover Phase	I	II	III
Duration	35 days	35 days	35 days
Strike (mm) <	95	110	95
Exit (mm) <	10	10	10
Notional (Rs / mm)	10.00	10.00	10.00
Policy Limit (Rs)	1,000	1,000	1,000
Phase premium (Rs)	90	130	90

Combined Premium (Rs) **300**

Combined policy limit (Rs) 3,000

Data Source Indian Meteorological Department

Settlement Date Thirty days after the data release by IMD and verified by Insurer.

- The quantity of rainfall received on Day 1 is divided into two parts: Policy Activation Rainfall and Index Rainfall. Policy Activation Rainfall is the quantity of rainfall that contributes towards the requirement of first 50 mm rainfall condition and Index Rainfall is the balance rainfall of the day. Index rainfall is included in calculating the policy index.

- This term sheet is tentative and subject to verification of weather data by a professional data cleaning agencies.

- Premium inclusive of service tax

Explanations for the terms used

<i>Term</i>	<i>Explanation</i>
Reference Weather Station	This mentions the meteorological station where the observations for the purpose of claim settlement of the policy would be done.

<i>Term</i>	<i>Explanation</i>
Index	Mathematical construct on the basis of which policy is operationalized. Here, it is the total rainfall received at the reference weather station in the Policy period.
Policy duration	Defines the time period for which the policy is active.
Cover Phase	These are the independent sub periods of the policy for which independent Strike, Exit, Notional, and Policy Limit are set. Each cover phase has a different index calculation.
Strike	The level of Index below which the insured starts getting compensated.
Notional	The amount of compensation that the insured gets when index is below strike in Rs.
Phase Premium	Premium that insured is required to pay for every unit of policy of respective phases, if he/she does not choose to take combined cover for all the phases.
Combined Premium	Premium that insured is required to pay for one unit of coverage across all the four phases.
Policy Limit	Mentions the maximum compensation that the insured would be eligible for across each cover phase and jointly for combined policy of all phases
Data Source	Mentions the identity of the authority that will certify the weather data.

Source: BASIX-ICICI Lombard

APPENDIX 4. VARSHA BIMA – 2005

The Agriculture Insurance Company of India Limited (AIC) introduced Varsha Bima – 2005 in about 125 India Meteorological Department (IMD) station areas spread over 10 States. Under each IMD rain gauge station area, two or three blocks adjoining the station were chosen for implementation for major crops in that area. Varsha Bima – 2005 shall compensate the insured against the likelihood of financial loss on account of anticipated loss in crop yield resulting from any adverse rainfall incidence. The product is available for non borrowing farmers and provides for at least two options: one covering the limited sowing period and the other covering the complete season. The farmers can choose any one coverage option – either ‘sowing failure’ or full season option (‘seasonal rainfall’ / ‘rainfall index’). Below are the brief details of Varsha Bima-2005 Coverage Options:

OPTION – I: SEASONAL RAINFALL INSURANCE

Coverage is against adverse deviations of 20 percent and beyond in “Actual Rainfall” (in mm) from “Normal Rainfall” (in mm) for the entire season. “Actual Rainfall” is the monthly cumulative rainfall from June to November (with June to September or October for short & medium duration crops). The payout structure is designed on the basis of yield output elasticity. The claim pay-out shall be on a graded scale (in slabs), corresponding to different degrees of adverse deviation in Actual Rainfall. Full sum insured is given as payout once the adverse deviation (shortfall) in actual rainfall reaches 80 percent.

OPTION – II: RAINFALL DISTRIBUTION INDEX

Coverage is against deviations of 20 percent and beyond in “Actual Rainfall Index” from “Normal Rainfall Index” for the entire season. The index is constructed to maximize the correlation, by assigning “Key Factor Weights” for weekly rainfall within the ‘season-span’. Key Factor Weights are determined on the basis of (i) Yield Response Factors (as per the research work carried out by Food & Agriculture Organization (FAO), and (ii) Crop Weather Calendar issued by the IMD. The claim pay-out shall be on a graded scale (in slabs), corresponding to different degrees of adverse deviation in Actual Rainfall Index. Full sum insured is given as payout once the adverse deviation (shortfall) in actual rainfall index reaches 90 percent.

For any given area and crop, only either option I or option II were made available depending on suitability and affordability of premium rates.

Option – III: Sowing Failure

Coverage is against adverse deviation of 40 percent and beyond in “Actual Rainfall” (in mm) from “Normal Rainfall” (in mm) between 15th June and 15th August. The sum insured per hectare is the maximum input cost incurred by the cultivator until the end of the sowing period, and is pre-specified. The claim payout shall be on a graded scale, corresponding to different degrees of rainfall deviation. The maximum payout of 100 percent of the sum insured is available at deviations of 80 percent & above.

Sum Insured pre-specified and normally is between cost of production and value of production. In case of ‘Sowing Failure’ option, it is the maximum input cost incurred by the cultivator until the end of the sowing period, which again is pre-specified, and may be up to 50 percent of the full season’s sum insured.

Varsha Bima – 2005, despite limited time available for marketing, could be sold to more than 125,000 cultivators growing crops over 98,000 hectares covering a risk of approximately Rs 560 millions, earning a premium of Rs. 32 millions. The details of option-wise coverage are as follows:

Sale Performance of Varsha Bima -2005

<i>Option</i>	<i>Sowing failure</i>	<i>Seasonal rainfall insurance / distribution index</i>
Cultivators insured	17476	107977
Acreage insured (hectares)	19945	77693
Risk value Insured (Rs. Million)	37.53	520.86
Premium (Rs. Million)	3.41	28.32

Source: Kolli Rao, AIC.

The claims of ‘sowing failure’ option have been processed within a month from the close of indemnity period. As per the actual rainfall data made available by IMD, two station areas in the state of Uttar Pradesh suffered deficit in rainfall beyond 40 percent, and hence compensation of approx. Rs. 1.20 millions has been paid to nearly 300 insured cultivators. The claims of full season option would be processed in the coming 4 – 8 weeks depending on the duration of the indemnity period.

APPENDIX 5: EXPERIENCE WITH PUBLIC CROP INSURANCE

Peter Hazell (Skees et al 1999) quantifies the condition for sustainable insurance as follows:

$$(A+I)/P < 1$$

Where

A = Average Administrative Costs

I = Average Indemnities Paid

P = Average Premiums Paid

The basic formula above suggests that for an insurance program to be financially sustainable, premiums collected by the insurer must exceed indemnities paid plus administrative cost. In other words, the insurance program must be profitable. However, in most cases the loss ratio exceeds one. The following table shows the experience with public crop insurance in 6 countries in which all the programs incurred financial losses.

Financial Performance of Crop Insurance Program in Six Countries

<i>Country</i>	<i>Program Period</i>	<i>(A+I)/P</i>
Brazil	75-81	4.57
Costa Rica	70-89	2.80
Japan	85-89	2.60
Mexico	80-89	3.65
Philippines	81-89	5.74
USA	80-89	2.42

Source: Skees et al (1999)

The above examples demonstrate some of the least viable, or failed, traditional, public sector crop insurance programs, where high administration costs were a major contributory factor to the programs' lack of viability. However, there are some crop insurance programs which have achieved more manageable administrative cost structures. At its simplest, private sector hail insurance is typically practiced with loss adjustment costs of 5 percent of premium, internal administration costs of 7.5 percent to 10 percent of premium, and acquisition costs (costs of commission to those selling the policies) of 10 to 15 percent. Similarly, specialist crop insurance programs such as Windward Islands Crop Insurance, and Mauritius Sugar Insurance Fund Board, have achieved economies of scale by automatic insurance of the whole of the banana and sugar industries respectively on those islands, in spite of large numbers of small farmers. In all of these relatively more successful cases, relatively low administration costs contribute to the program's manageability.

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