Assessing Opportunities for Agricultural Insurance and Risk Coping Strategies

In Dong Thap, Thai Binh and Vinh Phuc Provinces, Vietnam



ADB-TA No. 34480 VIE Developing Agricultural Insurance (TAR 38561)

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Measurements and Conversion Rates

MEASURE	EQUIVALENT		SOURCE
1 Quintal =	100 kg		Wikipedia
1 Sao =	360 m^2 =	0.04 hectares	http://www.unc.edu/~rowlett/units/dictS.html
1 Cong =	0.24177 acres =	0.1 hectares	http://www.unc.edu/~rowlett/units/dictC.html
1 USD =	15,900 VND (as of 12/31/05)		FX Converter: Online Currency Exchange Conversion Rates (conversion rate found for 12/31/05: www.oanda.com/convert/classic)

List of Abbreviations

ADB	Asian Development Bank
CPC	Commune People's Committee
FGD	Focus Group Discussion
GRET	Groupe de recherche et d'exchange technologiques
INCOMBANK	The Industrial and Commercial Bank of Vietnam
PCF	People's Credit Fund
PRA	Participatory Rural Appraisal
ROSCA	Rotating Savings and Credit Associations
TYM FUND	Tao Yeu May Fund (Compassionate Fund)
VBARD	Vietnam Bank for Agriculture and Rural Development
VBSP	Vietnam Bank for Social Policy

Glossary[1]

ADVERSE SELECTION (ALSO ANTI-SELECTION)	Also called anti-selection, the tendency of persons who present a poorer-than-average risk to apply for, or continue, insurance. If not controlled by underwriting, results in higher-than-expected loss levels.
ASSETS	The stock of wealth in a household.
BENEFIT	The amount payable by the insurer to a claimant or beneficiary upon the occurrence of the insured event. The benefit amount should be consistent with the insurable interest. Allowing coverage above the insurable interest encourages fraud and moral hazard risks.
CLAIM	A request for payment under the terms of an insurance contract when an insured event occurs.
CLAIMS PROCESSING	The system and procedures that link the occurrence of an insured event with a payout. It is extremely important that microinsurers minimize the time spent in processing claims so that the insured receives the payouts as quickly as possible.
COVERAGE OR COVER	The scope of protection provided under an insurance contract.
ECONOMIC STRESSOR	A predictable event that puts pressure on household cash flow such as a marriage or school fees.
HEALTH INSURANCE	Protection from the costs of illness, accidents, and other health-related risks.
INSURANCE	A system under which individuals, businesses, and other entities, in exchange for a monetary payment (a premium), are guaranteed compensation for losses resulting from certain perils under specified conditions.
INSURED	The policyholder, the person or entity protected in case of a loss or claim.
INSURED EVENT	The trigger event that leads to the submission of a claim (e.g., death of the policyholder).
LIFE INSURANCE	Coverage providing for payment of a specified amount on the insured's death, either to the deceased's estate or to a designated beneficiary; or in the case of an endowment policy, to the policyholder at a specified date.
MORAL HAZARD	A risk that occurs when insurance protection creates incentives for individuals to cause the insured event; or a behavior that increases the likelihood that the event will occur, for instance bad habits such as smoking in the case of health insurance or life insurance.
POLICY	The legal document issued by the company to the policyholder that outlines the conditions and terms of the insurance; also called the policy contract or the contract.
POLICYHOLDER	A person or entity that pays a premium to an insurance company in exchange for the coverage provided by the insurance policy.
PREMIUM	The sum paid by a policyholder to keep an insurance policy in force.
RISK	The chance of a loss or the loss itself.
RISK MANAGING FINANCIAL SERVICES	Emergency loans and accessible savings accounts (in addition to insurance) that assist low-income persons in managing risks.
VERIFICATION	The process by which claims are determined to be valid, i.e., life insurance requiring a death certificate and/or attending the funeral of the deceased. Verification should provide proof, from two independent parties that the insured event occurred but not cause undue hardship for beneficiaries. (Also known as claims validation, claims underwriting, or adjusting.)
VULNERABILITY	The ability of individuals and households to deal with risk.

[1] Sources include: Churchill, Craig F., Dominic Liber, Michael J. McCord, James Roth. Making Insurance Work for Microfinance Institutions: A Technical Guide to Developing and Delivering Microinsurance.(ILO, Geneva: 2003).

1. INTRODUCTION

Managing agricultural risks and improving the well-being of rural populations are key components of Vietnam's agricultural development strategy. The Asian Development Bank's (ADB) Technical Assistance Project No. 4480 VIE is assisting the Vietnam government with the development of risk management tools for the agricultural sector. The purpose of ADB's technical assistance is to:

- identify impediments to developing sustainable agricultural insurance in Vietnam and propose policy options;
- provide feasible models for informal agricultural risk mitigation and formal agricultural insurance for pilot testing;
- conduct pilot testing of informal and formal risk mitigation models.

The technical assistance project is following a formal process to develop agricultural insurance and risk mitigation models that meet the needs of the low-income rural market. In order to ensure that the product offered was one that the market demanded, this process includes the following:

- needs and capacity assessments of institutions responsible for the delivery of insurance[2];
- market research with farmers;
- product design (incorporating market research and supply side assessments);
- product pilot testing;
- final product refinement and implementation (assuming satisfactory pilot testing).

The project team is carrying out this technical assistance project in two phases. The first phase included market research and institutional assessments and resulted in an agricultural insurance product design. The second phase involves a pilot implementation of the insurance in a selected region of Vietnam. This report summarizes the results of the market research that led up to the product design. There were two stages to the market research: the Demand Assessment Survey and the Product Concept Test Survey.

The Demand Assessment Survey took place in three provinces of Vietnam between late 2005 and early 2006. It identified the major risks and vulnerabilities facing farm households. Where agricultural or other types of insurance were available, the study explored farmers' satisfaction with these services. The study also assessed the financial profile of farm households and their capacity to afford insurance premiums in the context of other financial commitments. In addition, the research team examined an existing informal agricultural risk mitigation scheme—founded by GRET (Groupe de recherché et d'exchange technologiques) a French NGO which provides livestock insurance to farm households. An analysis of consumer behavior, along with

[2] The results of these assessments were presented in Developing Agricultural Insurance for Vietnam: Interim Report, ADB TA 4480 VIE, December 2005 (Revised January 2006) by World Perspectives Inc. and Developing Agricultural Insurance for Vietnam: Next Steps, ADB TA 4480-VIE by World Perspectives, Inc. April 2006.

an assessment of the supply side provided the information needed to develop an agricultural insurance product concept.

The Product Concept Test Survey—the second stage of the market research—test marketed the product concept with farmers in Dong Thap Province in early 2007. This survey helped determine farmers' demand for the insurance product and their willingness to pay for it.

Together the two market research surveys addressed the following questions:

- What are the key agricultural risks and vulnerabilities facing farmers in Vietnam?
- How do these risks affect farm households?
- How do farm households respond to and cope with these risks?
- How effective are these responses?
- How can farmers respond more effectively to risks?
- What are the gaps between the impact of the risks and farmers' coping strategies?
- Do farmers understand the concept of agricultural insurance?
- Are farmers willing to pay for agricultural insurance?
- Are farmers willing to purchase the index insurance product concept?

This report includes seven chapters, four annexes, and several case studies. Chapter 1 introduces the purpose, methodology, sampling strategy, survey locations, conceptual framework that guided the research, and the economic status and strategies of surveyed households. Chapter 2 describes the agricultural risks and their impacts on farm households. Chapter 3 and 4 review the strategies that farm households use to cope with agricultural risks. Chapter 5 presents the case study of an active semi-formal livestock insurance program in North Vietnam. Chapter 6 presents preliminary conclusions about the opportunities for agricultural insurance in Vietnam and describes the results of the Product Concept Test Survey.

Methodology

An international team assembled by World Perspectives, Inc. (WPI) carried out the surveys. A microinsurance specialist from Microfinance Opportunities led the team. The microinsurance specialist designed the market research and reported the results, trained local researchers and supervised them, and carried out some of the field research. Dr. Dao Van Hung led the team of local researchers that conducted most of the field research and analyzed the results.

The study used three qualitative research instruments to collect information: Focus Group Discussions (FGD), Participatory Rural Appraisal (PRA) tools, and individual in-depth interviews. The focus group participants came from a variety of backgrounds. They were either members of farm households or community leaders with experience and knowledge of the rural economy, agricultural production risks, and risk management techniques. In addition to focus group discussions, the survey team conducted individual interviews using a questionnaire.

Sampling Strategy

Over 300 individuals participated in the demand assessment survey. The sample households all depend on agriculture for the majority of their livelihood. The survey team selected the following groups to ensure a broad representation of households in rural Vietnam:

- male and female farmers;
- poor, average, and better-off farmers;
- households with agricultural income from crops and from livestock;
- farmers with and without prior experience with informal or formal insurance.

Table 1. Number of Survey Instruments by Province

	PROVINCE		
	VINH PHUC	THAI BINH	DONG THAP
Survey Instruments	**Number**		
Focus Group Discussions (FGD)			
Risks and Risk Management Strategies	3	4	4
Client Satisfaction with Insurance	2	4	4
Participatory Rapid Appraisals (PRAs)			
Time Series of Risk	3	4	4
Seasonality of Risk	3	4	4
Seasonality of Income and Expenditures	3	4	4
Individual Interviews			
Case Study on Informal Insurance	1		
Loan, Savings, and Insurance Use	3	7	7
Agricultural Risks and Risk Management Strategies	3	7	7

Survey Locations

The study team's task was to survey the agricultural insurance needs of farmers in Vietnam and design a pilot project. Given the resources available, field research took place in three provinces: Dong Thap in the Mekong River Delta, Thai Binh in the coastal region of the Hong (Red) River Delta, and Vinh Phuc in a hilly area on the Red River north of Hanoi. By selecting three locations, the study was able to capture different types of agricultural activities and risks related to agricultural production. The study team selected a representative district for each province; within each district, the team selected two communes as research sites—one poor and one better-off. The team used similar research methods in all three provinces.

In Dong Thap, Tam Nông District has a considerable dike and canal system and produces both rice and fruit trees. There is a primary weather station nearby in Cao Lanh. In Thai Binh, Kien Xuong District is located 10 kilometers from Thai Binh City near a primary weather station. Kien Xuong District has significant rice production and is prone to flooding. In Vinh Phuc, Lap Thach District's dominant economic activity is animal husbandry.

Water-related disasters are the most frequent and destructive natural disasters occurring in Vietnam. In particular, flooding causes significant damage because most of the population lives

in low-lying areas. The research team selected two of the three provinces for study because of their considerable exposure to flooding risks. In Dong Thap Province, flooding is a slow onset event; there is some lead-time between the stage of excess rainfall and the onset of flooding. In Thai Binh Province, flooding is a rapid onset event with little lead-time; heavy rains can create problems quickly. In both of these provinces, agriculture production, predominantly rice, is the main source of livelihood. The study team chose Vinh Phuc Province because an informal livestock insurance program started by GRET is already in place there. (Livestock is an important source of farm income in this province.)

Table 2. Selected Characteristics of the Three Provinces

	PROVINCE		
	DONG THAP	**THAI BINH**	**VINH PHUC**
Region	South	Central/North	North
Population	1,654,500	1,875,000	1,200,000
Population Density	449 persons/km^2	1,183 persons/km^2	540 persons/km^2*
Land Area	3,390 km^2	1,542 km^2	1,371 km^2
Location	Mekong River Delta, bordering Cambodia	Hong (Red) River Delta, on coast	Hong (Red) River Delta, north of Hanoi
Other	1,240-1,450 mm rain/year	1,400-1,800 mm rain/year	Hilly

** Population density of Lap Thach District only.*

Dong Thap Survey Sites

Dong Thap Province is located in the Mekong River Delta in South Vietnam, 171 kilometers from Ho Chi Minh City. The province has a tropical climate, with 1,240-1,450 millimeters of rainfall annually, and shares a 52-kilometer border with Cambodia to the north.

The survey team selected Tam Nông District in Dong Thap for the study. Tam Nông has 11 communes and 1 town, and a population of 96,641 people with 22,238 households. The district specializes in agricultural production. Its agricultural output (84% crops) accounted for 98% of the district's total output value, with rice making up 98% of total food crops in the district.

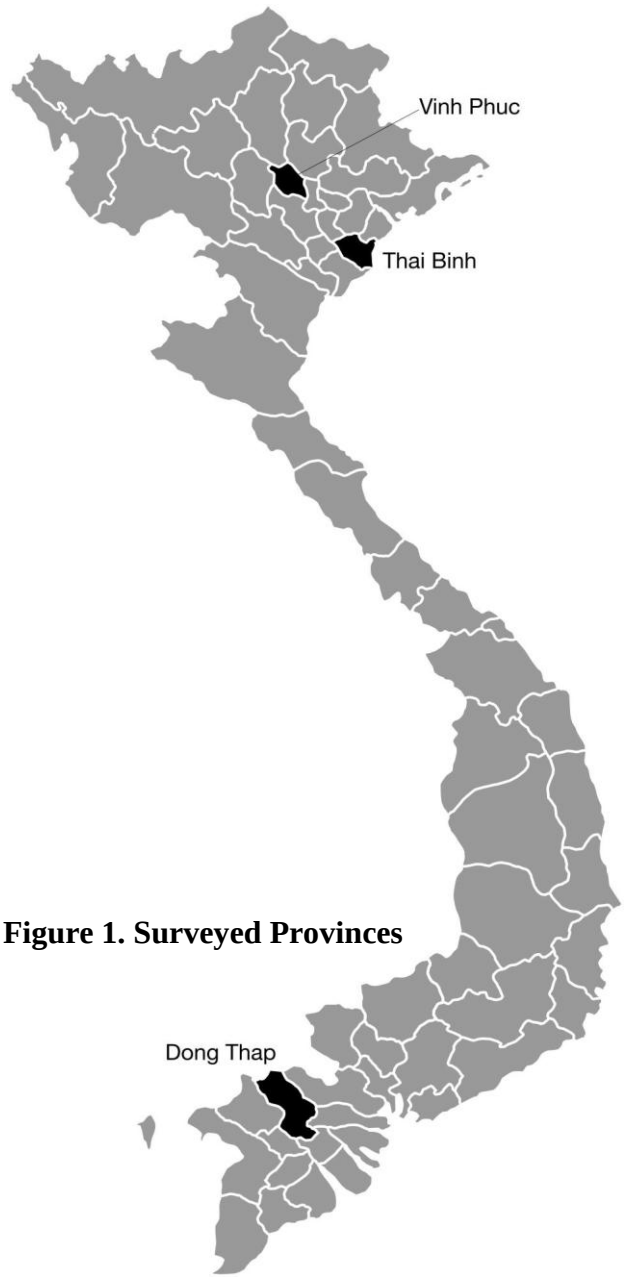


Figure 1. Surveyed Provinces

The study team selected two communes within Tam Nông: Phu Cuong, which is better-off compared to the district average (only 17% of households are poor), and Phu Hiep, which is poor (21% of households are poor). Households in both communes depend heavily on rice production. On average, each household in Phu Cuong and Phu Hiep has 1 hectare and 1.4 hectare of rice fields, respectively, and as much as 90% of household income comes from rice. Table 3 presents basic data on the two surveyed communes of each of the three provinces.

Thai Binh Province Survey Sites

Thai Binh Province is located 110 kilometers southeast of Hanoi in the Hong (Red) River Delta, close to the northern economic triangle of Hanoi-Hai Phong-Quang Ninh. The province is in the middle of a system of seas, rivers, and coastline; located on the edge of a tropical zone with heavy rainfall (1,400-1,800 millimeters annually), it is prone to flooding.

The survey team selected Kien Xuong District, in south Thai Binh, because its population and production are typical to Vietnam, and as a low-lying district, it is subject to flooding every year. The district's current irrigation system is not sufficient for agricultural production purposes and the drainage system is inadequate to handle the annual floods. The total area of rice production is 26 hectares (26,000m^2), with average productivity in the winter/spring season of 70 quintal (700 kilograms) per 10,000 m^2, and in the summer/autumn season, 50 quintal (500 kilograms) per hectare (10,000 m^2). Farmers in Kien Xuong District experience crop failures on a regular basis and lose on average four crops out of every ten harvested.

The survey team selected two communes in Kien Xuong: Thanh Tan and Dinh Phung. Dinh Phung is the poorer of the two communes with a poverty rate of 18%; Thanh Tan's poverty rate is 15%.

Vinh Phuc Province Survey Sites

Vinh Phuc Province lies in the Hong (Red) River Delta, 50 kilometers northwest of Hanoi. The province is hilly and crisscrossed by many streams and rivers. About 85% of the population lives in rural areas, although the average cultivable land per capita is only 400m^2. Crop cultivation

accounts for about 61% of agricultural activity but is on the decline. Given its mountainous terrain and proximity to Hanoi, Vinh Phuc has a clear advantage in animal husbandry. Vinh Phuc has recently seen an increase in the breeding and raising of livestock.

Lap Thach District, chosen as the site for this survey, is a mountainous district with a total land area of 416,200 m^2. The province is divided into 39 administrative units of 38 communes and 1 town. Lap Thach is the most impoverished district of Vinh Phuc Province—27% of all households are poor. Average per capita income is 4.1 million VND ($257.86) per year.

Agriculture is the dominant economic activity in Lap Thach, accounting for 59% of all economic activity. Animal husbandry makes up 42% of agricultural activities, and crop cultivation makes up the rest. The husbandry activities in the district follow traditional methods using local breeds of animals with low weight and low productivity.

The study took place in two communes within Lap Thach: Ngoc My, with a poverty rate of 12%, and Dong Thinh with a poverty rate of 24% (see Table 3). The study team selected Dong Thinh because a pilot livestock insurance program is already in place in two villages there.



Figure 2. Rice Fields in Lap Thach, Vinh Phuc, February 2006

Table 3. Basic Data on the Communes in the Selected Provinces[3]

		PROVINCE					
		DONG THAP		THAI BINH		VINH PHUC	
	Unit	Phú Hiệp Commune	Phu Cường Commune	Thanh Tân Commune	Đình Phùng Commune	Ngoc My Commune	Dong Thinh Commune
Number of Villages							
Total Number of Villages		4	5	7	5	12	15
Poor Households (%)		21%	17%	15%	18%	12%	24%
Number of Households		1,720	1,949	1,157	960	1,265	1,848
Number of People		7,425	8,647	5,800	5,300	5,600	8,575
Agricultural Land Area							
Total Agricultural Land area	*hectares*	2,565	4,644	352	238	400	800
Rice Cultivation Land	*hectares*	2,500	4,522	295	216	149	400
Average Rice Cultivation Land	*hectares/hhd*	1.4	2	n/a	n/a	0.12	0.22
Average Rice Production		n/a	n/a	259 quintal/ha	124 quintal/ha	150 kg/sao	130 kg/sao
Rice Productivity Summer/Winter Crop	*(quintal/ha)*	50.22/62	50/60	50/75	50.8/72.9	n/a	n/a
Husbandry Activity							
Total Number of Livestock	*unit*	n/a	n/a	n/a	n/a	2.680	1.900
Total Number of Pigs	*unit*	n/a	n/a	n/a	n/a	4.000	6.685
Total Number of Poultry	*unit*	n/a	n/a	n/a	n/a	29.000	54.000

[3] As per Annual Statistics Publication, 2004, provided by the Statistical Office of Tam Nông District.

Conceptual Framework for the Demand Assessment Survey

A conceptual framework is necessary to understand the significance of the risks facing agricultural households and the coping strategies that farmers use. This report draws on the conceptual framework developed by Sebstad and Cohen in "Microfinance, Risk Management and Poverty."[4] This framework defines risk as the chance of a loss, or the loss itself, and vulnerability as the ability of individuals and households to deal with risk. The framework defines assets as the supply of wealth in a household, which include rights or claims related to property and intangibles such as household relations, social entitlements, and human capital.

Low-income families strive to maintain the fragile balance between limited income and ongoing financial needs. Given the precariousness of their financial situation, events that require additional expenses can deal a heavy blow to the poor. To understand the financial implications for low-income households, this study began with a look at these stress-producing events, categorized as risks and economic stressors. Risks are unpredictable events that result in an economic loss. Economic stressors are predictable events—usually associated with milestones in one's life, like marriage—that put pressure on cash flow when expenditures exceed income. This study included both types of events, thereby allowing for a more comprehensive understanding of the dynamics of household economics, the coping options available to the poor, and the motivations behind the choices of risk-managing strategies.

The amount of assets and the range of coping mechanisms that are available to a household determine its vulnerability. Households with fewer assets and coping mechanisms are more vulnerable, and those with more assets and coping mechanisms are less vulnerable. Rural households in Vietnam constantly strive to maintain living standards and stable consumption levels in the face of shocks and risks. In general, there are three sources of risk:

1. Structural factors such as seasonality, inflation, or the weather;
2. Unanticipated crises and emergencies such as sickness or death of a family member, unemployment, fire, or theft;
3. High-cost, life cycle events such as marriage, funerals, childbirth, homebuilding, festivals, and educating children.

The probability and level of loss resulting from a risk depends on the nature of the risk. There are several types of risk:

1. Covariant risks affect all households in the same location at the same time;
2. Idiosyncratic risks affect only one or a few households at the same time;
3. Low frequency risks are one-time events that do not repeat;
4. High frequency risks are those that happen repeatedly;
5. Anticipated risks are predictable and expected;
6. Unanticipated risks are not expected;
7. Low-impact risks result in temporary shortfalls in income;
8. Severe risks result in sharp and less reversible drops in income.

[4] Sebstad, Jennefer and Monique Cohen. "Microfinance, Risk Management and Poverty: Synthesis Study". CGAP, The World Bank, Washington, DC 20001.

The impact of risks on rural households also depends on the combination, timing, and sequencing of different risks.

Risk management strategies vary based on the following characteristics:

- the timing of the strategy;
- the nature of the risk itself (severity, frequency, reversibility, and cost);
- the impact of the strategy on the long-term well-being of the household;
- whether the strategy involves just the household itself—intra-household measures, or draws upon resources outside of the household—inter-household measures; (Intra-household measures are referred to as self-insurance. Inter-household or group-based measures include informal and formal insurance.)

Timing of Risk Management Strategies

The timing of the risk management response is one of the most common ways to categorize risk response strategies. Strategies that people use to protect themselves from risks ahead of time are called precautionary or ex-ante strategies. Precautionary strategies reduce vulnerability by increasing the options and resources available to a household in the event of a shock or economic stressor. After risks occur, people use loss management or ex-post coping strategies. The choice of loss management strategy depends on several key factors including the level of loss in relation to the household's resources, the frequency of the event, the type of event—covariant or idiosyncratic, and the length of the event—temporary or permanent. It also depends on the resources and options that are available to an individual or household.

Precautionary or ex-ante strategies include:

- smoothing income by diversifying income earning sources and livelihood activities;
- building assets by saving, stocking food, investing in land housing and health care, and strengthening coping mechanisms such as reciprocal social networks.

Loss management or ex-post strategies include:

- modifying or reducing consumption, depending on the initial endowment of the household, in terms of income and assets, and current level of consumption;
- raising income through strategies such as mobilizing labor and selling physical assets;
- drawing on financial resources such as savings deposits, insurance, and loans.

Nature of Risk

Loss management strategies will also depend on whether the risk is low-impact (resulting in a temporary shortfall in income) or severe (resulting in a sharp and less reversible drop in income).

- Low-impact risk responses include: (1) mobilizing labor (including migration or a search for alternative employment); (2) reducing expenditures; (3) modifying consumption; (4) drawing down physical stocks; (5) using savings or insurance; (6) borrowing; (7) selling or pawning assets; and (8) seeking help from friends and relatives.

- Severe risk responses include some of the above as well as: (1) intensifying income-generating activities; (2) postponing marriage or other social obligations; (3) entering asymmetric interpersonal dependencies; (4) migrating; and (5) turning to drastic measures such as illegal activities or abandoning children.

Long-Term Impact on the Household

Strategies for managing loss are not all equal. Positive coping strategies do not threaten the long-term survival or security of the household. Reducing consumption, mobilizing family labor, finding a new source of income, using cash savings, and seeking gifts or loans from relatives and friends are positive coping strategies. In contrast, negative coping strategies permanently reduce the resource base and increase the vulnerability of the household in the long-term. For example, selling key productive assets is a negative coping strategy because it reduces a household's ability to generate income. Similarly, the degree of reversibility of the risk and the value of resources needed to cope with the risk differentiates coping strategies (see Table 4, following page). Low-stress coping strategies are more positive, while the high-stress coping strategies are more negative. The timing and sequencing of the shocks affects how a household copes. Usually, one event does not push a household into poverty, but a mix of serial and simultaneous crises can. Multiple events can exhaust the household's supply of low-stress coping strategies forcing them to resort to medium or even high-stress coping strategies. The availability and choice among different coping strategies depend on a household's poverty level and existing endowment of assets.

In this study, the research team explored the opportunities for insurance by examining the range of coping strategies that households in different parts of Vietnam use. Their preferences reveal both the variety of available options and the vulnerability of these households.

Table 4. Montgomery's Classification of Coping Strategies by Level of Stress[5]

COPING STRATEGY	NOTES
LOW-STRESS COPING STRATEGIES	
• Activating saving activities (gathering fuel/ fodder/culinary condiments from common lands) • Changing diets (cheaper foods) and reducing consumption (eating less) • Periodically migrating (one or more household member) to look for higher wage income • Calling in small informal debts from family and neighbors	Primarily effective for dealing with minor shortfalls in income; relatively low value and reversible; insufficient for meeting major crises and contingencies.
MEDIUM-STRESS COPING STRATEGIES	
• Using up cash savings • Pledging future labor in return for advanced wages or loans • Taking cash or in-kind loans from family and neighbors • Taking cash or in-kind loans from moneylenders and shopkeepers	Likely to help counter sudden crises and contingencies, but are less reversible, and reduce future coping capacity; may act as "ratchets", forcing a household further into poverty (especially if an initial crisis is compounded by subsequent shocks).
HIGH-STRESS COPING STRATEGIES	
• Mortgaging or pawning assets (utensils, jewelry, land, etc.) • Selling nonproductive assets (initially small ones, such as household utensils; or larger ones such as housing materials, tin-roofing sheets, etc.) • Selling working capital at knock-down prices (e.g. stocks of paddy to be husked, petty trading goods) • Selling productive assets (small animals, livestock, tools, plots of land, etc.) • Pulling children out of school to work • Leaving a microfinance program	Hard to reverse; indicative of severe distress and increased vulnerability to further stress; may constitute "ratchets" from which a household may be unable to recover.

[5] Montgomery, Richard, Debapriya Bhattacharya, and David Hulme. "Credit for the Poor in Bangladesh: The BRAC Rural Development Programme and the Government Thana Resource Development and Employment Programme." In *Finance Against Poverty, Volume II: Country Case Studies*, edited by David Hulme and Paul Mosley: 123-227. London: Routledge, 1996, quoted in Sebstad and Cohen, 2001.

Livelihoods and Household Economics within the Selected Communes

An understanding of the average household economy is important to developing agricultural insurance in the study area. The survey team used Participatory Rural Appraisal (PRA) exercises on the seasonality of income and expenditures and individual interviews with farmers in each location to gather information on household cash flows.

Table 5. Household Income & Expenditure Categories Ranked by Importance to the Household (with 1 ranked most important)

INCOME SOURCES

PROVINCE	DONG THAP	THAI BINH	VINH PHUC*
Rice Cultivation	1	1	✓
Secondary Crops		3	✓
Fruit Trees	3		
Livestock		2	✓
Casual Labor	2	3	✓
Traditional Handicrafts		3	
Fishing	4		
Fish Farming/Aquaculture			

EXPENDITURES

PROVINCE	DONG THAP	THAI BINH	VINH PHUC
Investment in Agriculture	2	1	2
Daily Consumption	1	2	1
Schooling for Children	4	3	4
Healthcare		4	
Repay Debts	3		
Holidays & Social Obligations			3

* *The Vinh Phuc results were taken from one case study and from information gathered during the Seasonality of Income and Expenditure PRA session. Ranking of expenditures for Vinh Phuc was done by the survey team, not the respondents..*

Household Income

The most significant sources of income vary across the three provinces, but three sources stand out as particularly important: rice, casual labor, and livestock.

Rice Production: Rice is the number one source of income for households in Dong Thap and Thai Binh and is an important source in Vinh Phuc, where the amount of available rice fields per family is limited. In Dong Thap, although a few farmers are able to sell large amounts of rice outside the region, many of them keep rice for their own consumption and only sell extra rice if they have it. In Thai Binh, rice cultivation accounts for 60%-70% of total household income. Land devoted to rice cultivation accounts for 84%-91% of land in the communes studied. In Thai Binh, only households that rely on small business activities did not rank rice as the most important source of household income. All three regions have two rice seasons although the timing of the seasons varies (see Table 6).

Table 6. Rice Seasons by Province

PROVINCE	RICE SEASONS	
	WINTER-SPRING CROP (CHIEM CROP)	SUMMER-AUTUMN CROP (MUA CROP)
Dong Thap	Plant in December; Harvest in March	Plant in April; Harvest in July/August
Thai Binh	Plant in November; Harvest in May	Plant in May/June; Harvest in September
Vinh Phuc	Plan in February; Harvest in May	Plant in June; Harvest in September

To diversify their harvests, farmers in all three provinces grow secondary crops. In Dong Thap, fruit trees are the only secondary crop to produce significant income and are the third most important source of revenue there. In Thai Binh, income from secondary crops such as cucumbers and peanuts has increased in recent years, especially among average (neither poor nor better-off) farmers who have started to diversify their crops. Secondary crops can account for as much as 15% of total income per household. In Vinh Phuc, the secondary crops can provide a household with almost as much income as rice.

Casual Labor: Another important source of income in all three regions is migratory or casual labor. In Dong Thap, especially for households with little to no cultivable land, casual labor in agricultural activities provides an important means of living. Workers earn about 30,000 VND ($1.89) per day at planting and harvesting times.

In Thai Binh, only 53% of casual laborers in the Thanh Tan and 31% of those in the Dinh Phung communes work in agriculture. Most laborers migrate to towns or cities and work as porters, masons, and construction workers. Migrant labor is especially important to better-off households, where this type of labor can make up between 15%-25% of annual household income. Casual labor was relatively less important for poor and average households and ranked last among those with small businesses.

Remittances from family members who have migrated for work are also important to families in Vinh Phuc, where up to 70% of households have migrant family members.

Livestock: Livestock activities are significant sources of income in Thai Binh and Vinh Phuc. They are especially important in Vinh Phuc where the natural land areas are fairly big and suitable for raising livestock, especially buffalos and cows. Households on average own two to three animals, although some can have up to 10 to 15. Poultry and pig raising activities are increasingly popular, making livestock the biggest source of income for households in this district.

Expenditures

The key areas of expenditure are daily living costs, investment in production, repayment of debts, and children's education.

Daily Living Expenses: Food consumption and the purchase of household items make up the bulk of daily living expenses, which fluctuate regularly but rise most significantly during the Tet holidays (January and February).

Investment in Agricultural Production: Households spend a lot of money on seeds, fertilizer, pesticide, and farm labor, especially at the beginning of the two rice seasons (April-May and December-January). Among the better-off households in Dong Thap, these expenses can

account for almost 50% of a family's total annual budget. The costs of agricultural investment can be so high that households have to borrow or buy agro-materials and services on credit. Almost all the Dong Thap households included in this study have borrowed for agricultural purposes at some point.

Debt Repayment: Given the popularity of loans for investment in agriculture, debt repayment becomes a major financial obligation for many households, especially in Dong Thap. Banks generally charge a penalty fee at the end of the harvest season for unpaid loans and refuse loans to borrowers who have been repeatedly unable to repay on time. Therefore, households face significant pressure to repay bank loans, particularly at the end of the calendar year.

Educational Expenses: School-related expenses for children are another large expenditure for the interviewed households. They include tuition fees, contributions for construction of the school, textbooks, notebooks, and clothing. The biggest outlay usually takes place at the beginning of the school year (August or September). In Dong Thap, among the better-off households, the amount spent on children's education is about 2,925,000 VND ($183.96) per lower secondary school pupil per year (or up to 2% of total household expenditures). In Thai Binh, respondents estimated school-related costs to be the equivalent of 30%-40% of household income or about 300,000 VND ($18.87) per child per month.

Two other areas of expenditure are noteworthy. Many respondents in all three regions mentioned social obligations such as gift envelopes or Tet as necessary expenses, although on average these expenditures are relatively insignificant. Another area is health care. In Thai Binh, poor households ranked medical expenses as the third largest area of household expenditure, ranking higher than even daily living expenditures.

Seasonality of Income and Expenditure

Because of the agricultural nature of household economic activities, household income and expenditures are highly seasonal and vary by region.

Dong Thap: In general, income and expenditure are relatively frequent and regular, but gaps occur at certain times of the year. In January and February, incomes are low just when households need a lot of money for the Tet holidays and the winter/spring planting season. Similarly, October and November are lean months when incomes dip.

Thai Binh: The peak time for farmers' incomes in Thai Binh are May, October, and December. Farmers keep their income either in cash or in-kind for self-consumption. Farmers primarily lack money in March and August just before the harvests.

Vinh Phuc*:* Income is highest in December, January, May and September due to the rice harvests, sale of animals (December and January), and cash from returning migrant workers (January). Households in these communes suffer through hunger months in February and March, the same period that farmers have the greatest shortfall of cash. July is also a difficult month as income is very low. The need for credit is highest in March. Although households need to borrow in February too, they are reluctant to do this as it goes against custom to borrow in the first month of the new year. Farmers can manage to save during December, January, May and September when incomes are high.

Table 7. Seasonality of Financially Fat and Lean Months in Three Vietnamese Provinces

PROVINCE	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
Dong Thap												
Thai Binh												
Vinh Phuc												



Seasonal incomes, household livelihoods, economic stressors, and agricultural risks are all factors to consider when developing an agricultural insurance product for Vietnamese farmers. Chapter 2 provides an in-depth examination of the risks facing rural households in the three surveyed provinces.

2. RISKS FACING AGRICULTURAL HOUSEHOLDS

The households surveyed in Dong Thap, Thai Binh, and Vinh Phuc provinces face a variety of economic risks stemming from agricultural or animal husbandry activities and life cycle events, such as illness or death of a family member. Agricultural risks include production risks, which lower the productivity of agricultural activities, as well as price and market risks, which lower the price or return from agricultural products. The most severe agricultural risks are those that affect the rice crop—the largest income earner for most farmers. Flood and drought are the two most damaging crop risks while disease is the most severe risk for livestock farmers.

Life cycle risks or economic stressors are events that cause households to lose income or assets or require large sums of cash. Life cycle risks can be predictable, such as marriage, or unpredictable such as serious illness or death. Illness of a family member is the most severe life cycle risk in terms of financial pressure.

Agricultural Risks

Survey participants identified and ranked the agricultural risks that cause the most severe economic pressure. The table below summarizes the results from the three provinces (1 denotes the most risk; 5 the least risk). Several risks were significant across all provinces while others were unique to specific areas.

Table 8. Ranking of Agricultural Risks

TYPE OF RISK		RANKING OF SEVERITY BY PROVINCE		
		DONG THAP	THAI BINH	VINH PHUC
Naturally Occurring	Flood	1	1	4
	Drought			2
	Heavy Rain/Storm	4	4	
	Insect Infestations	5	2	5
	Alum in the Soil	2		
	Animal Diseases		5	3
Not Naturally Occurring	Prices	3		
	Family Sickness			1
	Low Quality Inputs		3	

Several naturally occurring agricultural risks affect Vietnamese farmers in the three surveyed provinces. The most significant of these are floods, drought, heavy rain, alum soil, pestilent insect, and animal diseases. In addition, non-naturally occurring risks affect farmers including market price changes and poor quality agricultural inputs. Because rice cultivation accounts for a large portion of household income, the most severe risks are those that affect rice crops: flood, drought, alum soil, and pestilent insects. In Vinh Phuc, livestock diseases that affect farm animals are the second most severe agricultural risk.

Impacts of Flood

Flood is the main cause of income loss for farm households in many of the studied areas. Each flood can cause significant losses; the cost of replanting, refertilizing, and respraying pesticide can put a strain on household expenditure. More importantly, floods have cumulative impacts, especially for those who are most vulnerable.

Box 1. Flood Impacts by Province

Dong Thap: Both poor and better-off farm households in the Dong Thap communes ranked flood as the biggest risk to their agricultural activities and their livelihoods. Floods are common in the Mekong River Delta area and can bring beneficial silt and alluvium to the rice fields and fish to local residents. However, since 1990, extensive flooding during the spring-summer harvest have devastated crops, damaged houses and property, and caused loss of life. High floods occurred in 1991, 1999, and 2000, wiping out almost all of the crops. Because many households consume the food that they grow, losing an entire harvest, can lead to starvation.

***Thai Binh*:** Farmers in the Thai Binh communes also ranked flood as the number one agricultural risk. Flooding is most common in July and August (although heavy storms can occur anytime between June and October) and can cause considerable damage to the September rice harvest. Unlike the Mekong River Delta floods, the Red River Delta floodwaters do not distribute fertile alluvial soil to Thai Binh Province's farms.

Major flooding occurred in the Dinh Phung and Thanh Tan communes between 2003 and 2004. The 2003 flood caused 85%-100% crop failure in the communes. All secondary crops and fish were lost. In 2004, floods reduced the rice crop by 75% and wiped out all secondary crops. The 2005 storm was less severe but still flooded half of Thanh Tan's rice fields, resulting in a 70%-100% loss of the winter-spring crop.

Vinh Phuc: Due to the varied topography in Vinh Phuc, floods were not as significant a concern as elsewhere. Nonetheless, flooding is a problem in selected locations. Twelve out of the 15 Dong Thinh villages flood every year during heavy rains. Problems with the drainage system make it very expensive and often ineffective to pump water out of the fields. In contrast, only a few villages in the Ngoc My commune experience floods.

The impact of flooding is worst in July and August when northern Vietnam experiences many storms and heavy rains. Flooding at this time can devastate the summer-autumn rice crop, which is the largest of the year, destroying between 70%-80% of the crop in an average year and up to 100% in a bad year. In normal years, due to the low level of agricultural productivity, farm households have to buy rice to cover two months of consumption. When floods occur, households have to buy enough rice to cover four to five months of consumption.

Impacts of Drought

Drought is a sizeable risk for many in Vinh Phuc, including areas that also experience flooding. Drought usually occurs from December to February affecting the winter-spring rice crop and the secondary crop. An average drought will cause a 30%-50% crop loss, but a serious drought can cause 100% loss of the winter-spring rice crop. Annual droughts are a contributory factor in the inability of households to meet food production needs in these communes. At the same time, drought increases production costs because of the need for water pumps. The lack of available

water to feed and clean livestock also affects animal husbandry. In addition to production problems, the lack of water affects daily activities such as drinking water and bathing.

In some parts of the Vinh Phuc communes, frequent droughts occur. In fact, respondents ranked drought as the second most important risk in Vinh Phuc after sickness, making it the most important risk for agricultural activities. Farmers are acutely aware of this serious problem, and they are diversifying their business through new crops and raising livestock in order to cope. During droughts commune leaders reported that seven out of twelve villages in Ngoc My lacked sufficient water for production and daily household activities, while 80% of households in Dong Thinh lacked water for production, and 60%-70% of households lacked water for daily activities.

Impacts of Aluminum Sulfate (Alum) Soil

Dong Thap: Aluminum sulfate soil/acidic soil is a risk unique to the Mekong Delta area. As mentioned in the Post-Interim Report, efforts to drain the wetlands of Dong Thap over several decades resulted in a problem with sulfate soils. As the acid sulfates rose to the soil surface, soil pH dropped to as low as 2.8 in some areas. For some Dong Thap farmers, due to their location, soil acidity is as damaging to their rice productivity as heavy rain. Although the situation has improved since 2000, the Dong Thap farmers ranked this as the second most significant risk to their agricultural activities.

Impacts of Pestilent Insects

Insect infestations are a serious production risk, especially for rice, and affect farmers in all three provinces.

Box 2. Impacts of Insect Infestations by Province

In Dong Thap, the Golden Apple snail, a yellow, medium-sized, edible snail is a particularly troublesome pest. In Thai Binh, if floods occur in August and farmers need to delay or transplant rice, insect blooms can be set off. In Vinh Phuc, insect pests affect the summer-autumn rice crop more than the winter-spring crop but also affect secondary crops.

In two of the three survey sites, farmers reported that the risk of insects increases every year as insects become more resistant to insecticides and as the climate changes. Annual crop losses are heavier as a result. In Vinh Phuc, researchers estimate average losses to be 30%-50%, but have been as high as 70%. Insect infestations result in production losses as well as higher costs for pesticides.

> *"We usually get headaches from spraying too much pesticide. We know that spraying pesticides at the end of harvest may poison the final products, especially vegetables. However, if we do not do that, we will lose everything."*
>
> *- Woman farmer, Thanh Tan Commune, Thai Binh Province*

Although farmers understand these negative impacts, they report that there is a trend to use more and more insecticide. The seriousness of this risk varies from region to region; farmers ranked it between second and fifth among significant agricultural risks.

Impacts of Heavy Rains/Storms

Rainstorms were the fourth ranked agricultural risk in both Dong Thap and Thai Binh. Respondents did not mention this risk in Vinh Phuc.

Box 3. Impact of Storms in Dong Thap and Thai Binh

***Dong Thap**:* Heavy rainfall from June through August can wreak havoc on rice crops. Not only can the rain damage the crop itself, it can require replanting, which reduces productivity. Heavy rains also create favorable conditions for two agents that often cause harm to rice crops: the Golden Apple snail and acidic soil. While the impact of rain on rice crops is less costly than that of a flood, heavy rains occur more frequently.

Thai Binh: This region usually faces serious storms during the autumn harvest causing a severe risk to productivity. Storms can reduce rice productivity up to 70%. In 2005, a Level 8 storm caused a 100% loss of cucumber and potato harvests, and almost a 95% loss of beans, cabbages, and kohlrabi harvests. Yet farmers still ranked this risk as less severe than the risk of flood or insect infestations.

Impacts of Low Quality Agricultural Inputs

Only farmers in Thai Binh mentioned low quality agricultural inputs as a risk to their productive activities and livelihoods. Farmers there were angry about the risks incurred from poorly performing seeds, fertilizer, and pesticides. They ranked low quality inputs third in terms of severity. This problem started when the government liberalized the agricultural input market in 2002. Farmers reported that either the seeds did not grow, or they produced inferior crops; in addition, the pesticides they used actually increased the insect population.

LIVESTOCK PRODUCTION RISKS

Livestock Disease

In all surveyed provinces, livestock disease was the largest risk facing livestock production. However, livestock risks were greatest in Vinh Phuc where farmers rely more heavily on livestock for their income. In Dong Thap, disease affects fish as well as livestock. In Thai Binh, diseases affecting cows and pigs reduced the annual income from livestock by about 70% in 2003 and 2004. In 2004 and 2005, farmers were nearly unable to sell chickens due to the bird flu.

In the Vinh Phuc communes, animal husbandry is the most important source of cash income for farm households. The most common husbandry activities in these communes are buffalo, cow, pig, and poultry breeding. Not only is livestock a major source of income, but it is also an important source for plowing fields or pulling carts. As a result, those surveyed reported animal disease as the second most important naturally occurring agricultural risk and the most important in terms of livestock production. Numerous diseases affect livestock production and become problematic from November to February when the weather is cold and epidemics spread. Farm households can experience a high level of economic stress if an animal becomes sick and dies. The impacts of animal disease include:

- Cost of treatments. Costs vary depending on the animal and the type and intensity of the disease. For example, the cost of treating congestion virus in a cow is 200,000 VND ($12.58), compared to a pig at 100,000 VND ($6.29).

- Increased expenses. When livestock die, farmers lose productive capacity and have to hire other draft power.
- Loss of a large investment. When an animal dies, the household loses a large investment. Cows and buffalo usually cost between 3-8 million VND ($188.68-$503.15), and sometimes as much as 10 million VND ($628.93). A good sow may cost 800,000-1 million VND ($50.31-$62.89) while a litter of piglets may be worth 1.5 million VND ($94.34). Although most households do not raise a large number of poultry, it is an important income source for covering daily expenses.
- Increased indebtedness. For many farm households, the death of an animal has multiple impacts. Farmers often purchase animals with loans from the bank; in addition, farmers often purchase animal feed on credit with the intention of repaying the balance after selling the animal. Indebted households who have lost an animal often have to borrow from moneylenders at high interest rates to pay off their previous bank debts in order to maintain their reputation. This increases the amount of financial stress on the household.

Farmers from the two communes differed in opinion about the impact of animal diseases. In Ngoc My, farmers reported that animal disease was the most significant of all production risks while Dong Thinh farmers affirmed that animal disease was not as big a risk as flood or drought. This difference in perception may be due to the difference in terrain or to the better veterinary services in Dong Thinh. In Dong Thinh there is one veterinarian for each village. In Ngoc My there are three veterinarians serving all the villages. In addition, many households in Dong Thinh have participated in the GRET Livestock Insurance Program. (See Chapter 5 for an explanation of the GRET program.)

Agricultural Risks – Market Price Risk

In addition to production risks, farmers reported facing price fluctuations due to changing supply and demand for their product. Even a good harvest may be a disaster for farmers if their profits decline due to decreased prices from over supply. Farmers raising livestock also suffer from price risk and market factors.

As modern products are developed, farmers' price risks become more important. In Dong Thap, farmers ranked price risk as the third most significant risk to agricultural activities. Problems in the onion market in 2003 (see box below) influenced this ranking. Farmers in Thai Binh explained that although crop prices fluctuate, the price of agricultural inputs increases every harvest irrespective of crop prices.

> *"The price of rice seeds and fertilizer just increases year by year, while the output market fluctuates significantly."*
>
> *-Farmer, Thanh Tan Commune, Thai Binh Province*

These farmers also reported that the prices of livestock products are less stable than prices of crops. For example, the average price of a pig can drop by as much as 50%-66% depending on the supply.

Box 4. Impacts of the Decline in Onion Prices in Thai Binh

In 2003, the price of onions in the Phu Hiep commune fell by 80%. The price drop was so severe that some households did not even bother to harvest the crop; the cost for hiring laborers was almost equal to the worth of the harvest. This decline in price was due to over supply—many farmers invested in onions

that year—and poor quality, due to a drought. Many households lost as much as several hundred million VND (more than $200) from this drastic decline in price. As a result, some farmers shifted from onion to rice production.

Other Risks: Life Cycle Risks and Economic Stressors

Farm households in Vietnam are subject to economic stress and shocks from a variety of life cycle events. In Vinh Phuc, the survey team interviewed a group of farmers about life cycle risks, risk impacts,, and risk coping mechanisms.The respondents ranked the risks and economic stressors in their everyday lives according to the severity of financial pressure as follows:

- illness of a family member;
- schooling for children;
- building a house/buying land;
- starting an enterprise;
- marriage of children;
- death of parent.

Illness of a Family Member

The most financially stressful event faced by families was illness of a household member. Illness or accidents can happen to any household and the economic shock can be severe. In Vinh Phuc, commonly recurring illnesses are a problem from December to March, and June and July.

Illness has many different kinds of negative impacts on the family. The first direct financial impact is the cost of treatment. The family's financial outlay depends upon where treatment takes place and the transport costs incurred in accessing health services. Farmers reported using local medical centers to treat common illnesses for little cost. However, families must use hospitals at the district, provincial or even the central level in Hanoi for treatment of more serious conditions. The cost of treatment for serious illnesses increases dramatically when costs such as transportation and living expenses for family members who accompany the patient are factored in (see Table 9).

Table 9. Costs of Medical Treatment for Different Levels of Health Providers

LEVEL/LOCATION OF TREATMENT	RANGE OF COSTS
Commune	Several thousand to over one hundred thousand VND
District	Several hundred thousand VND for normal sickness Several million VND for operations or long-term intensive care
Provincial/Central Level	Several million to several tens of millions VND for serious diseases (includes transportation and food)

Illness has indirect costs for the family including a loss of labor for farm production activities and a reduction in the family's income. Simultaneously, the family's expenses are increasing. This loss is more severe if a second family member must stop their economic activities to look after the patient.

Most farm households, especially poorer ones, have no savings or cash available for coping with medical problems or accidents. When a medical crisis strikes, they have to sell assets such as furniture, the TV, a motorbike, or livestock to cover expenses. If the sale of assets fails to generate sufficient cash, they may have to borrow money. As a result, households can become indebted for a long time.

School Expenses

Farmers ranked education costs as the second most economically stressful event for their households. Although education costs are predictable and they are not as large as the potential costs of medical treatment, these costs recur annually for many years, thus creating a cumulative burden on families. This burden increases for households with many school-aged children. Education fees increase with the level of education (see Table 10).

Table 10. Estimated Average Schooling Costs Per Pupil, Per Year in Vinh Phuc, 2006

LEVEL OF EDUCATION	ANNUAL COST
Primary School	300,000-500,000 VND ($18.87-$31.45)
Middle School	800,000-1 million VND ($50.31-$62.89)
High School	Public 1.5-1.8 million VND ($94.34-$113.21); Private 1.8-3 million VND ($113.21-$188.68)
Vocational School, College or University	700,000-1 million VND/month ($44-$63/month)

Meeting education expenses presents farm households with major challenges. Few can manage such a large expense, and many families must resort to borrowing to cover the cost of their children's education.

Building a House/ Buying Land

In rural areas, young people create a demand for housing. Building a house is one of the largest and most important investments in a family's life cycle.

House construction, however, is a planned event. Families start to prepare 5 or 10 years in advance. An investment of 30-60 million VND ($1,887-$3,774) to build a house, plus 70-80 million VND ($4,403-$5,031) to purchase the land is required. The strategies for saving and paying for a new house include working as laborers, raising money from animal husbandry, saving construction materials year-by-year, and participating in Rotating Credit and Savings Associations (ROSCAs) with a payout at the time of house building. However, these strategies are usually insufficient, and farmers resort to borrowing from family, friends, and neighbors. As a result, it may take many years for farm households to clear their debt.

Starting up an Enterprise

Investment in production activities is normally a frequent but not very stressful expense. Most households regularly purchase agriculture inputs such as fertilizer, seeds, insecticide, animal feed, etc., on credit. However, when a farmer wants to start a new agricultural activity or expand an existing one, the investment needs can be substantial. Farmers estimated that 20 million VND ($1,258) is the minimum initial investment for a household to develop a new livestock activity while 40-50 million VND ($2,516-$3,145) is the cost for a larger scale livestock activity.

Investing in a new agricultural activity usually requires that farmers borrow from the Vietnam Bank for Agricultural and Rural Development (VBARD).

While households do not perceive such investments to be stressful by themselves, when it comes time to repay loans, households experience significant financial pressure.[6] To remain on good terms with the bank, households borrow money from other sources (often at high interest rates) to repay the bank. Once they have repaid the bank, they take a second loan from the bank to pay back these other sources. Eighty to ninety percent of the survey respondents had resorted to this spiral of indebtedness.

Marriage of Children and Death of Parents

Marriages may create economic difficulties for households in the short-term, but in general, families can manage to overcome these shocks without using high-stress coping strategies. In two Vinh Phuc villages, wedding costs were estimated at 7-15million VND ($440.25-$943.396). Although these are large sums of money, the cost is not financially stressful because this is a planned event and families get assistance from friends and relatives. This assistance comes in the form of gift envelopes, which can cover about half the wedding party expenses.

Funerals of family members are unexpected events and are more stressful emotionally than financially. Children of the deceased share the obligation to pay for the funeral expenses. These expenses range from 5-10 million VND ($314.5-$628.93) in the Vinh Phuc villages. Bereaved families receive gift envelopes from family, friends, and neighbors which can amount to 2-3 million VND ($125.78-$188.68).

Summary

Households in the three regions identified flood, drought, heavy rains, insect infestations, price changes, aluminum sulfate soil, and livestock disease as sources of significant risk to their agricultural production and farm incomes. Rural households also face a variety of economic stressors and risks in their daily lives apart from agriculture. Vinh Phuc farmers identified several life cycle events that require substantial financial commitments such as illness of a family member, schooling of children, and building a home. It is necessary when assessing the opportunities for agricultural insurance to look at more than just agricultural risks. Given the competing needs for scarce household resources, understanding the place of agricultural risks within the context of overall household risks is important. Life cycle risks can pose even greater financial burdens on farm households than agricultural risks. Interviews in Vinh Phuc revealed that households ranked illness in the family as the most severe of all risks above drought and livestock disease.

It is important to understand how farmers prioritize risks in terms of the economic impact on a household's wellbeing. For example, many households are financially constrained when choosing between purchasing agricultural insurance and medical insurance. The way farmers rank risks indicates what actions they might take regarding precautionary risk management strategies.

Although some respondents ranked life cycle risks as more severe than agricultural risks, agricultural risks have special characteristics that can make them more difficult to manage than

[6] Most of the survey respondents reported that one-year loan terms were too short for them, particularly when they are accustomed to financing livestock investments.

life cycle risks. Agricultural risks are usually covariant risks, affecting a large number of households in the same location and at the same time. As a result, farmers have fewer coping mechanisms to turn to as local safety nets and strategies (e.g., relying on friends and family) are also stretched thin. Furthermore, most agricultural risks occur according to natural and seasonal cycles, making them regular, if not frequent hazards. The time series below records the most important risk milestones in Dong Thap as reported by local farmers. The cumulative impact of risks can have dire consequences for farmers. It becomes increasingly difficult to absorb the losses created by repeated agricultural shocks as available coping mechanisms become exhausted (see Case Studies 1-2, Annex 2).

The strategies farmers use to cope with agricultural risks are discussed in the next section.

Table 11. Risk Milestones in Dong Thap

RISK	IMPACT
1991 Flood	The flood occurred during the summer-autumn harvest. Farmers lost 80%-90% of their crop and the residual affects lasted 2-3 years. Many local residents lost their homes.
1994-2000 Aluminum Sulfate (Alum) Soil	The soil become acidic due to an inefficient boundary dike; the productivity of the rice crop was significantly reduced. After 2000, the boundary dike system was improved; currently this is less of a problem.
1996 Flood	This flood struck during the summer-autumn harvest. Farmers lost 60%-70% of their rice crop. Many households lacked food and were unable to repay their loans.
2000 Flood	This flood caused the dike to fail during the summer-autumn harvest. Farmers lost 20%-30% of their rice crops. Farmers harvested some fields earlier than planned, cutting their yield in half. Many households fell into debt and some families had to sell their land.
2003 Onion Prices	A steep decline in onion prices caused severe losses for households growing onions.
Since 2002 Golden Apple Snails	The Tam Nông District suffers from the presence and rapid growth of an epidemic of snails that destroys rice crops.

3. EXISTING COPING MECHANISMS OF RURAL HOUSEHOLDS: LOSS MANAGEMENT STRATEGIES

Farm households generally rely on the resources and assets at hand when disaster strikes. The most common response is to turn to forms of self-insurance, or intra-household measures. After self-insurance, households will seek to raise cash by other means such as borrowing or by selling assets. In Vietnam, the first strategies employed after a disaster are to increase income and reduce household expenditures.

Increase Income

In all regions, a common response to agricultural shocks is to increase off-farm income through casual or migrant labor. Even if the amount earned is small in comparison to the size of losses, casual labor can still help to smooth household consumption. For example, in Dong Thap, even though daily returns from migrant labor average only several thousand VND ($0.31-$0.62), they do allow a family to continue eating every day. In Thai Binh, respondents reported that migrant laborers send home 400,000–500,000 VND ($25.25-$31.45) each month.

Off-farm labor cannot be categorized solely as a loss management strategy, although it often plays that role. In Dong Thap, income earned from casual labor is the second largest source of household income, after rice cultivation. For landless households, it is even more important. Increasingly out migration is becoming an accepted household financial strategy. In Vinh Phuc, in some villages 60%-80% of households have family members working as migrant laborers; some households even have two or more migrant laborers. For some families migration or casual labor is a one-time loss management strategy. In Thai Binh, an estimated 70% of poor and middle-income farm households resort to this strategy in the face of an agricultural risk. In other cases, family members begin to work regularly as casual laborers, either domestically or internationally.

In Vinh Phuc and Thai Binh, migrant workers who travel to other parts of Vietnam, especially cities can spend 3-8 months away, only returning home at harvest times. Both men and women migrate to find work. Workers who travel overseas may stay for 3 years or more. Ironically, those who travel overseas to find work often have to borrow money to do so. The income earned by migrant laborers helps smooth family incomes and builds up household savings and assets (precautionary strategies) enabling families to cope better with future risks.

> *"Two families in our village have wives in Malaysia and Taiwan. They borrowed 30 million VND ($1,887) from VBARD and 30 million VND ($1,887) from relatives for the investment. Each year, the wives send 70 million VND ($4,403) home. They will stay overseas for 3 years."*
>
> *- Farmer, Thai Binh Province*

Raise Cash

There are several options households use to raise cash. Families can raise cash in an emergency by selling crops in advance. However, the discount rate on the advance sale is equivalent to paying an interest rate of 20% per month, making this a high-risk coping mechanism. Families can also borrow to raise cash. Households reportedly borrow for consumption, especially for food, repayment of debts, and investment in agricultural production. While borrowing can help households in the short-term, it often creates long-term problems by reducing the amount of cash available for future consumption or agricultural investments. Borrowing at high interest rates exacerbates the problem and may push families deeper into poverty over time.

The use of debt varies considerably. In Dong Thap, where floods are a major risk, all households reported that they borrowed to deal with an agricultural or household-related economic shock. Sources of credit varied. Eleven out of 14 households surveyed borrowed from banks or moneylenders in times of crisis, making it by far the most frequently and widely used coping strategy in Dong Thap. In Thai Binh, the percentage of respondents resorting to borrowing in response to agricultural risks was lower, around 20%-40%.

There are three borrowing mechanisms available to rural households to raise cash: formal financial borrowing, semi-formal borrowing, and informal credit. These mechanisms are described further in the following section.

Formal Financial Sector

Access to formal financial services is limited for rural households. In general, the formal financial landscape consists of two banks, the Vietnam Bank for Agriculture and Rural Development (VBARD) and the Vietnam Bank of Social Policy (VBSP). In some areas including Thai Binh and Dong Thap, a People's Credit Fund (PCF) is also available. A PCF is a type of commune-level, autonomous, small-scale financial institution.

Vietnam Bank for Agriculture and Rural Development (VBARD)

The Vietnam Bank for Agriculture and Rural Development seeks to serve rural communities through a large branch network found throughout Vietnam. It offers an individual loan for production investments. These loans require land use certificates or retirement pension books as collateral. Poorer households that do not have these assets lack access to this channel of borrowing.

The Vietnam Bank for Agriculture and Rural Development is the largest source of formal credit in all of the surveyed locations except for Ding Phung Commune. In the Vinh Phuc communes, an estimated 80% of the households had borrowed from VBARD. Households have welcomed improvements in lending procedures since 2000 and in Dong Thap, the ability to reschedule and refinance loans. Officials also noted that as VBARD's level of lending activity rose in Vinh Phuc, the rate of interest in the informal sector declined significantly.

Some farmers expressed dissatisfaction with some aspects of VBARD's loan product. With VBARD's term loan of only 1 year, farmers reported not having enough time to meet their livestock investment needs. Thai Binh farmers complained that loans were too small for restructuring their agricultural production. Clients also found the time-consuming process required for loan applications a constraint.

Farmers reported that VBARD loans are relatively large. The average loan per household is 15-20 million VND ($943.34-$1,257.80), but can be as large as 50 million VND ($3,144). The interest rate at the end of 2005 was relatively low at 1.05% per month, and repayment procedures were reportedly satisfactory (see Table 12).

Vietnam Bank of Social Policy (VBSP)

The mission of the Vietnam Bank of Social Policy is to eliminate hunger and reduce poverty. At the time of the surveys, VBSP targeted households that local authorities categorize as poor or sub-poor with a below-market interest rate of 0.5% per month. (The interest rate in early 2007 was 0.6%). The maximum VBSP loan amount is 7 million VND ($440.25). In practice, the loans given are substantially less because of the limited supply of funds at the bank.

Farmers consider the procedures of the VBSP cumbersome. The bank gives loans only once per year and only after a long waiting period.

> *"It is very complicated to borrow from VBSP, even though the interest rate is only half the rate of the PCF."*
>
> - *Woman farmer, Dinh Phung Commune, Thai Binh Province*

People's Credit Fund (PCF)

The People's Credit Fund is part of a nationwide network of credit unions that has a much smaller reach than VBARD. Only one of the communes, Dinh Phung in Thai Binh, had a PCF branch. Here, the PCF was more popular among respondents than VBARD. According to respondents in Dinh Phung, PCF loans are easier and more convenient to access, procedures are simpler, and loan terms are more flexible. Additionally, the PCF was more likely to allow rescheduling or refinancing of loans.

Table 12. Loan Conditions in Local Financial Institutions in 2005

	LOAN CONDITIONS		
	VBARD	**VBSP**	**PCF**
Maximum Loan Size	50 million VND ($3,144.63)	7 million VND ($440.25) 1.5-3 million VND ($94.33-$188.70)	30 million VND ($1,886.79)
Loan Term	1 year	3 year	6 months-1 year +
Interest Rate	1.05%/month	0.5%/month	1.1%/month
Payments	Balloon payment of principal; trimester interest payments for loans less than 30 million VND ($1,887); monthly interest payments for larger loans	unknown	unknown
Collateral Requirement	Farmers borrowing from VBARD only need collateral if they borrow more than VND 10 million ($629)	Household must be officially categorized as poor.	Unknown
Other Benefits			Rescheduling and refinancing are easily available

There are regional variations in borrowing behavior. The Dong Thap communes have more outstanding credit than the other communes do—two to five times more outstanding credit and approximately two times more total outstanding credit per household. Dong Thap households rely more heavily on credit. It is possible that the much larger rice fields of Dong Thap farm households allow higher levels of borrowing while at the same time creating a greater demand for agricultural investment credit.

Household Use of Loans

The Vietnam Bank for Agriculture and Rural Development loans are the most widely available formal financial service that farm households can access to cope with risks following a disaster. Although VBARD normally provides loans for productive purposes only, some farmers reported that the bank also provides loans for consumption including life cycle events. Of the eleven VBARD loans examined in Dong Thap, eight were for production investments and three were for risk management, covering expenses such as medical costs, repayment of debts, and redemption of mortgaged land. Of the eight loans that were for productive activities, farmers had diverted some of the money to risk management needs. In Thai Binh and Vinh Phuc, many farm households used part or all of their VBARD loans for purposes other than those stated in their loan application, including land purchases, home building, health care, and debt repayment.

However, the usefulness of VBARD loans as a risk management instrument is limited. As noted earlier accessibility is restricted. The bank denies loans to farmers who do not have the required assets for use as collateral. Those households with access to these loans find that they are ill suited to meeting emergency needs. Loan processing is very slow, and households cannot get a second VBARD loan when they already have one outstanding. In addition, the repayment behavior of farmers suggests that VBARD loans are not well designed for their intended purpose—agricultural investment.

In Dong Thap and Vinh Phuc, farmers often resort to a high-risk strategy of borrowing from moneylenders in order to repay their VBARD loans on time and therefore maintain their ability to borrow in the future. As soon as they pay off their first VBARD loan, they apply for another one, so that they can pay off the moneylender. Table 13 summarizes formal lending activities in the surveyed communes.

SEMI FORMAL BORROWING

In addition to banks, households can access semi-formal credit from non-regulated financial institutions. The Women's Union (WU) one such organization with a presence in all the communes in Vietnam, is a potentially powerful delivery channel for services to rural households. However, in the locations covered by our survey, the role of the WU was limited; its financial services were small-scale and locally funded.[7] For example, in Dong Thinh members contribute 20,000 VND ($1.26) every year to a fund that must cover several program areas before the remainder becomes available for loans.

[7] The Dong Thinh Commune People's Committee reported that the amount of loans from local organizations was 2-3 million VND ($123.78-$188.68)—a fraction of the loans outstanding from VBARD.

Table 13. Formal Lending Activity in the Six Studied Communes

		VBARD	VBSP	PCF
DONG THAP PROVINCE				
Phu Hiep Commune	Outstanding Loans (millions of VND)	18,000 ($1,132,075)		
	Average/Loan (millions of VND)	21 ($1,321)		
	Number of Borrowers (hhds.)	Na		
	Total Number of Households	1720		
	Total Outstanding Loans/Total Households[8]	10.465 ($658.18)		
Phu Cuong Commune	Outstanding Loans (millions of VND)	22,000 ($1,383,648)		
	Average/Loan (millions of VND)	22 ($1,384)		
	Number of Borrowers (hhds.)	Na		
	Total Number of Households	1949		
	Total Outstanding Loans/Total Households	11.2878 ($709.25)		
THAI BINH PROVINCE				
Thanh Tan Commune	Outstanding Loans (millions of VND)	5,000 ($314,465)	1,000 ($62,893)	
	Average/Loan (millions of VND)	10.0 ($628,93)		
	Number of Borrowers (hhds.)	500	Na	
	Total Number of Households	1157		
	Total Outstanding Loans/Total Households	5.1858 ($326.15)		
Ding Phung Commune	Outstanding Loans (millions of VND)	450 ($28,302)	747 ($ 46,981)	2,900 ($182,390)
	Average/Loan (millions of VND)	2.25 ($141.51)	2.91 ($183)	10-15 ($629-943)
	Number of Borrowers (hhds.)	200	257	Na
	Total Number of Households	960		
	Total Outstanding Loans/Total Households	4.2677 ($268.41)		
VINH PHUC PROVINCE				
Dong Thinh Commune	Outstanding Loans (millions of VND)	6,000 (includes loans with VBSP too) ($377,358)		
	Average/Loan (millions of VND)	15-20 ($943-$1,257)		
	Number of Borrowers (hhds.)	Na		
	Total Number of Households	1,848		
	Total Outstanding Loans/Total Households	3.2468 ($204.2)		
Ngoc My Commune	Outstanding Loans (million of VND)	8,300 ($522,013)		
	Average/Loan	Na		
	Number of Borrowers (hhds.)	Na		
	Total Number of Households	1,265		

[8] Total outstanding bank loans (across the three banks) divided by total households.

	Total Outstanding Loans/Total Households	6.5613 ($412.66)		

INFORMAL CREDIT

Moneylenders

Moneylenders are widely used in all surveyed communes. Users of moneylenders tend to fall into two groups. The first are households who find loan sizes in the formal sector insufficient or are unable to borrow funds for consumption or emergencies on short notice. The second are households that cannot access the formal financial sector due to a lack of collateral or some other condition. They include poorer households or those that are already deeply in debt and who formal lenders view as a credit risk.

Borrowing from moneylenders is a high-cost risk management strategy. Moneylenders meet farmers' needs for short-term, emergency loans with simple procedures, flexible terms, immediate accessibility, low transaction costs, and high prices. Moneylenders play an important role in helping farmers cover the costs of medical treatment, bank loan repayments, school fees, or wedding expenses. The amounts borrowed from moneylenders range from 3-30 million VND ($188.68-$1,886.79). In Dong Thap, loans are usually given for one week only and the interest rates range from 5%-10% per month. In Vinh Phuc, officials noted that the cost of credit from moneylenders has declined; it was once 5% per month, now it is only 2%-3% per month. They attribute this decrease to the increased supply of formal sector credit.

Agricultural Input Vendors/Shop Keepers

Farmers frequently use credit from agricultural suppliers. At a cost of 2%-3% interest per month in Dong Thap, households do not consider this source of credit to be very expensive. Repayment may be in cash or in-kind, with debts settled at harvest time.

Friends and Family

For most rural households borrowing from friends and family is a limited risk management option. Few relatives and friends can afford to lend very much money or have money available when the need arises.

> *"Most of the farmers are poor so it is quite difficult to assist each other when facing big risks. They just visit and express their concern when one is ill."*
>
> *- Farmer, Dong Thap Province*

The result is that the borrowers patch together several small loans from many lenders in order to accumulate the needed cash. In the event of a covariant shock like a flood or drought, loans from friends and family are not possible as all households suffer losses.

Despite the shortcomings of loans from family and friends, this practice is more prevalent in some areas. Indeed, farmers in Vinh Phuc actually preferred to borrow from friends or relatives when they need to pay for medical treatment because this money is easy to come by. They also reported borrowing from family and friends for large, planned events such as home building,

weddings, funerals, education expenses, and loan repayments. Loans of this sort are usually, but not always, interest-free.

Selling Assets or Mortgaging Land

Mortgaging or selling land is a measure of last resort. Farm households would rather borrow money than sell or mortgage their land. However, losses from economic shocks may force some households to sell or mortgage part or all of their land. This normally happens over time when a chain of events or shocks cause farm households to accumulate extensive debts. When the debt burden becomes too much, and the family income is no longer able to support the debt repayments, the family has to mortgage or sell the land. Before selling land, households will try to sell any other productive assets such as tools, motor boats, cultivators, tractors, or motorbikes in order to repay debts. Rarely do households have to sell or mortgage all their land as a result of just one economic shock.

Box 5: Selling Off Land in Dong Thap

Among the 31 households interviewed in Dong Thap, almost 55% have had to mortgage or sell their land in order to repay debts. This included not only poor households but also some who were better-off. The farmers in Dong Thap described a series of risks that led to the accumulation of large debts and the need to sell off some fields. These risks involved repeated flooding, alum in the soil, and a drop in the price of onions. The combination of these risks caused significant losses and huge increase in borrowing.

Mortgaging or selling land is a high-stress strategy that provides only short-term, temporary relief. In fact, it is the most stressful of all strategies for farm households. Households who have sold their land have almost no chance to buy it back because land prices are always increasing. It is hard to accumulate large sums of money, especially by working as a casual laborer. Those who mortgage land, also have difficulty redeeming it. If they spend the money received from the mortgage on consumption items, gradually their land will be lost as well.

Recognizing the negative impacts created when farmers lose their land, the government issued a policy to allow farm households to obtain loans for repurchasing their land. However, this policy has not worked according to farmers in Dong Thap. After regaining ownership of their land, farmers once again faced the same risks. Forced to borrow money again, households repeat the cycle of selling their land to repay their debts. Finding more sustainable solutions to this problem is not only a concern of farm households but also of local authorities and government.

Government Assistance

A variety of government assistance plans exist to support rural households to cope with shocks, big and small. Following the floods in 1991, 1996, and 2000, farmers received assistance from the government and other organizations in the form of food, medicine, clothes, and in some cases, cash grants. While the level of funding only partially covered the losses, farmers reported that this assistance was extremely valuable when they faced difficult conditions.

Following one flood, VBARD, with government support, implemented a lending program to encourage people to use piles to elevate their houses. (Under normal circumstances, this would be a precautionary strategy; however, in this case, farmers implemented it after the flood.) This risk mitigation measure allowed for loans up to 5 million VND ($314.46) for 3 years at a

preferential interest rate of 0.6% per month. However, few farmers were capable of repaying these loans and VBARD had to reschedule or forgive much of this debt. The Vietnam Bank for Agriculture and Rural Development further rescheduled these debts after the big flood in 2000. This suggests that farm households in Dong Thap may have become accustomed to receiving subsidies or grant support after flood disasters. These subsidies have negative implications for the development of an insurance product in this region.

Summary

Farm households rely on several loss management coping strategies to respond to agricultural shocks. These include increasing household income through migrant labor, formal and informal borrowing, and the sale of assets such as crops, equipment, or land. Borrowing from formal and informal sources is the most widely used response to agricultural risks. Repeated borrowing following severe agricultural losses could lead to selling agricultural land, a very high-risk coping mechanism. Selling off land to cope with losses was a widespread practice in Dong Thap, but not in the other provinces. Coping mechanisms that rely on family, friends, and the government are inadequate for dealing with the magnitude of losses that result from agricultural risks.

Box 6. Case Study: Coping Strategies after the 2000 Flood in Dong Thap

The 2000 flood: In 2000, the Dong Thap region experienced catastrophic flooding from mid-June through mid-July. Because of the timing, this was an early inundation flood. Normally, Dong Thap is susceptible to floods during this time of the year; however, floodwaters build up very slowly. In 2000, flooding was rapid and early. The floodwaters peaked at 15 meters higher than normal river levels.

When the flood occurred, the rice crop was only half-ripe. Those farmers with rice fields inside the dike system, rushed to harvest their crop. Rice grown outside of the dike system was completely lost. The flood damaged 20% of the rice fields and 30% of the rice production was lost (due to the lower productivity of unripe rice). The unripe rice did not dry properly and declined in value by about 30%, fetching only 900-1,000 VND ($0.06) per kilogram, causing farmers to earn less. Farmers, in their attempt to harvest rice as quickly as possible, incurred higher than normal expenditures for labor and equipment. In addition to the damage to the rice crops, the flood washed away bridges, roads, homes, and animals.

Household impacts: The impacts on the households in the region were immediate and long lasting. Incomes were lower, expenses were higher, and in some cases, valuable assets were lost. Households had to borrow from the banks to cover daily consumption expenditures. They had to borrow from moneylenders to invest in next season's agricultural activities. Many of these households took years to repay their debts. Some households had to sell off part or all of their land. Thirty percent of focus group respondents reported that their land holdings declined after the 2000 flood. Households also resorted to casual labor to increase their income.

Bank response: Many farmers could not repay their outstanding loans at the time of the flood. In Tam Nông VBARD reported that their bad debts grew to 10% after the flood. In order to help farmers, VBARD branches in this region lent farmers 3 million VND ($188.68) per hectare. At the same time, they extended existing loan terms by 5 years with no interest payments. In Tam Nông and Thanh Binh, 6,400 households had their loans rescheduled in this way.

Government response: Prior to 2000, the government had not invested in improving the dikes; however, the government's response after the flood was to improve the boundary dike system. At the time of this report, the community has built the dike up to a level 1-meter higher than the 2000 floodwaters. In the Phu Cuong Commune, farmers contributed rice to support the costs of the dike improvements. The dike now completely protects some communes while only partially protecting other communes. In addition to the dike improvements, some communes have purchased pumps.

Because of these improvements, farmers report that rice fields have not experienced any flood damage since 2000. However, farmers' opinions of the reliability of the dike system are varied. Some believe that the dikes will fully protect their rice crops from floods. Others believe that the communes have not invested enough in the dikes and severe floods or heavy rains could break the dikes.

Household-level responses: Since the flood, some communes have encouraged local farmers to diversify their activities away from rice. In the Tam Nông District, some farmers have started to cultivate melons. Farmers harvest melons one month before the early floods and sell them for more than the price of rice. Some farmers with land outside the boundary dike system have converted to aquaculture. However, aquaculture is limited to only a few households because of the large initial investment required, the technical complexity of the process, and other difficulties with growing basal fish. Although the local authorities tried to encourage farmers to grow rice that ripened much sooner, this crop was not successful. As a result, 90% of households are still reliant on rice cultivation.

4. EXISTING COPING MECHANISMS OF RURAL HOUSEHOLDS: PRECAUTIONARY STRATEGIES

Self-insurance

Individual households can take preventative actions to mitigate the impacts of risks after they occur. Self-insurance risk management strategies are measures that households can take using their own means to prepare for potential risks or to respond to losses once they have occurred.

Prevention of Risks

Since the most significant risks facing farmers are production-related, agricultural-based preventative measures are important. The range of strategies used is as varied as the agricultural activities involved. In Dong Thap, farmers try to minimize the impacts of risk by:

- timing rice planting so that the harvest will precede the expected arrival of floods;
- building canals and dikes for irrigation in an attempt to mitigate drought and improve the problem of alum soil;
- taking measures to avoid livestock epidemics and applying pesticides to their crops;
- modifying crop and livestock activities in response to market and price fluctuations.

In Vinh Phuc, farmers try to minimize the impacts of risk by:

- diversifying their crops and their income earning activities;
- cultivating crops that require less water;
- migrating out of the commune as casual laborers;
- developing new livestock activities.

In addition, livestock farmers are vaccinating their animals to prevent common diseases that affect farm animals. Vinh Phuc farmers benefited from a district government program that provided free, annual vaccination campaigns for livestock and poultry. The objective of the program was to instill the animal vaccination habit within the rural population. During the campaign, the rate of vaccination was 90% in the whole district. In 2005, the province stopped financial support for these vaccination campaigns and the rate of vaccination dropped to less than 30%. This suggests that many farmers do not see the benefits of vaccination as outweighing the costs.

Savings

Savings allows households to build assets (primarily financial) for future use to respond to losses. Households can save in cash or in-kind, such as in gold or livestock. They may save at home, in formal financial institutions such as banks, or through informal social mechanisms such as Rotating Savings and Credit Associations (ROSCAs). While the Vietnamese use a variety of savings mechanisms, the interviews indicated clear differences across the three areas surveyed:

- **Thai Binh**: Respondents estimated that 100% of households have both cash savings and in-kind (seeds and food) savings.

- **Dong Thap**: Only a very small number of rich and better-off households have savings in the bank or some cash on hand. Respondents observed that farm households lacked the habit of saving and few earn enough money to save.
- **Vinh Phuc**: It is very difficult for farmers to save; however, those that do, keep their cash in small amounts ranging from 10,000-100,000 VND ($0.63-$6.29). These savings are for managing any sudden expenses during the year.

FORMAL SAVINGS

Not surprisingly, given the low propensity to save, the value of household savings in formal financial institutions is limited. People save where they borrow. The People's Credit Fund (PCF) is the dominant savings institution used in the Thai Binh communes while VBARD use is more prominent in the Dong Thap province.[9]

The low levels of usage of formal financial institutions reflect a lack of familiarity with the concept of saving in a bank. In Vinh Phuc, the low savings rate is attributed to both the physical distance to the bank branches (banks are located in the district center, not at the commune level) and to the lack of available saving products. Despite the availability of post office saving services in every commune, few farmer households use this potentially convenient savings service. Reasons are unclear. One explanation is that it is still a new and unproven service. Another explanation is that the available savings products are not attractive to potential depositors and/or the amounts available for savings are too low.

INFORMAL SAVINGS – IN-KIND SAVINGS

Savings in-kind is a common risk managing strategy. Buying gold is the most common way for farmers to save when they receive a large amount of money all at once. It is convenient, and by investing in gold, farmers avoid losing cash-value due to inflation. Aside from gold, farmers in Vinh Phuc commonly save in building materials when they plan to build a house.

Livestock serve as both a source of income for households and an important means for saving for the future. Animal husbandry is also an easy and convenient means for farmers to save. In Vinh Phuc, this is an important coping strategy. Investing in livestock is savings with visible interest. Farm households keep cows, buffalos, and pigs to prepare for expensive life cycle events like land buying, house building, marriages, or educational expenses. When the time comes, they can sell the animals to cover the needed expenditures, either fully or partially. When flood, drought or other hazards affect their crops, farm households sell their animals to buy food and cover their losses, or use them for food. When a family member becomes ill, they sell animals to raise the funds for medical expenses. Because animals are also subject to risks such as disease and death, they are at once a convenient but insecure means of saving.

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[9] In Thai Binh, rural households keep cash savings in formal financial institutions. They prefer to save at the PCF rather than in VBARD or VBSP. In Dinh Phung, total household savings in the PCF amount to 2.6 billion VND ($163,522)—if using the US definition of billion. This results in a deposit to loan ratio of 0.8922.

In Dong Thap, the rate of overall savings is low and the amount saved in formal institutions is extremely low. At the VBARD branch in Tam Nông District, the savings balance was only 35 billion VND ($2,201,258) compared to a loan portfolio of 230 billion VND ($14,465,409). In contrast to Thai Binh, this results in a deposit to loan ratio of 0.1522.

Inter-household or Group Measures

Prevention of Risks (Government Assistance)

The government, often with the assistance of local people, undertakes programs that prevent or mitigate some of the devastating consequences of natural disasters, particularly in Dong Thap and Thai Binh. In Thai Binh, local farmers are required to contribute labor time for upgrading irrigation channels as part of the government's prevention funds. However, respondents reported that the irrigation channels are still inadequate. In Dong Thap, where floods are frequent and severe, the government invested in building and fortifying a system of boundary dikes to mitigate floods. The results have been positive. The respondents reported that the boundary dike is useful for minor floods but is still inadequate for holding back the bigger floods. In addition, the People's Committees of the two surveyed communes, established residential zones on higher elevations and resettled many households from low-lying areas.

Informal Savings – ROSCAs

Rotating Credit and Savings Associations (ROSCAs), a traditional mechanism for savings and credit, have a long history in Vietnam. There is a ROSCA for almost every income group and every need.[10] Cash sources for ROSCA contributions come from selling animals or rice, or from wages earned. Farmers described ROSCA schemes that are as diversified in terms of the types of contribution, their scale, and the number of members. For example:

- on average a ROSCA has 10 participants, but some have up to 30 members;
- contributions are in cash; the average premium is 100,000-500,000 VND ($6.29-$31.45) per head per cycle but may be as high as 1 million VND ($62.89) per head per cycle;
- contribution schedules vary from monthly, quarterly, or yearly according to specific events;
- cycles are 2-3 months, 6 months, or 1 year.

Rotating Savings and Credit Associations with in-kind contributions are common and include housing construction materials (cement, iron and steel) and rice. Rice ROSCAs have a contribution of 100kg of rice per cycle with two cycles per year and one cycle per rice crop.

These funds are popular. In one village in Ngoc My Commune, there were only 98 households, but up to 10 types of active ROSCAs. In Thai Binh, respondents estimated that 40%-80% of households in the surveyed villages participate in one or another kind of ROSCA. Most ROSCA members are relatives, close friends, or neighbors. The result of such close ties with fellow investors is that few people worry about the danger of the ROSCAs breaking up or losing funds. The main attraction of the ROSCAs is their flexibility; they allow for contributions in cash and in-kind, and terms can vary.

[10] Members of ROSCAs make defined cash or in-kind contributions on a regular schedule to a group fund that is distributed in full to one group member. There are two systems for identifying who will receive the ROSCA payout.

- In the first scheme, the ROSCA members meet and consider the situation of each member's household. The household that is experiencing the most difficult conditions will take the first turn.
- The second scheme is by drawing names at random.

Once everyone has taken their turn and received their payout, the ROSCA ends; although, the group usually will start up a new cycle immediately after the old one.

Despite these advantages, ROSCAs are not an effective risk management tool because the cash is not usually available in emergencies. They are better suited to meeting the demand for lump-sum, planned expenditures. Yet, the experience with ROSCAs in Vietnam offers some insights that may be relevant to the opportunities for agricultural insurance. In Dong Thap, although ROSCAs existed in the past they are almost nonexistent now. While it is unclear why, the relevant question is whether trust within Dong Thap's communities has broken down. This would have negative implications for any group-based insurance.

In Thai Binh, even households that kept savings in the PCF participated in ROSCAs. Clearly, households do not see ROSCAs as a simple substitute for bank savings. An intangible social component to ROSCAs provides an incentive for participation even when other financial services are available. Where ROSCAs continue to play a role in the household's financial portfolio, they represent a regular financial obligation. Future insurers should view the cash outflow to a ROSCA as competing for scarce household funds with any potential insurance products. The example in the box below illustrates a case where the farmer is not making any trade-offs in terms of ROSCAs and insurance. However, for poorer households this would probably not hold true.

Box 7. Example of Precautionary Strategies in a Better-Off Household in Thanh Tan, Thai Binh

Mr. TVT's family is a better-off household in the Tu Te Village, Thanh Tan Commune. The family raises pigs and fish and sells dried fish in the local commune market. The average annual household income is 50 million VND ($3,144.65). Mr. TVT bought two life insurance policies from the Bao Viet Company, one for his wife and the other for his son. The premiums cost 286,300 VND ($18) per quarter for 5 years and 82,000 VND ($5.16) per month for 20 years, respectively. Mr. TVT also belongs to three ROSCAs: rice, cash, and gold. His contributions are 1 quintal (100kg) of rice per season for the rice ROSCA, 500,000 VND ($31.45) every six months to the cash ROSCA, and 0.376 grams of gold per season to the gold ROSCA.

Insurance

Rural households' experiences with existing insurance products reveal something about their preferences for future insurance products. Among the different kinds of insurance currently available in rural areas, the purchase of these products ranges from very high (health and accident insurance for school children) to very low (life insurance). The survey did not find any evidence of formal agricultural insurance.[11] The insurance available to rural households in the study areas includes:

- government health insurance
- health and accident insurance for school children
- life insurance
- Women's Union life and accident insurance
- auto insurance

Table 14 illustrates the rate of participation in these different insurance products.

[11] Chapter 5 looks closely at the GRET Mutual Assistance Program for Livestock.

Table 14. Households Participating in Insurance – Thai Binh

	THANH TAN COMMUNE		DINH PHUNG COMMUNE	
	Tử Tế Village	An Cư Bắc Village	Nam Huân Trung Village	Cao Bạt Nang Village
Total Households	315	182	180	136
Government Health Insurance	70%	20%	40%	80%
Women's Union Insurance	70%	70%	90%	90%
Life Insurance (Bao Viet Company)	negligible	negligible	NA	3
Life Insurance (Prudential)	negligible	negligible	NA	NA

Source: Estimated data from leaders and WUs in surveyed villages

Vietnam Social Insurance (Government Health Insurance)

The Government of Vietnam supports a voluntary, not-for-profit nationwide health insurance program administered at the commune level. This program is free to families officially categorized as poor; for all other families, the premium is 80,000 VND ($5.03) per capita per year. Many of the respondents said that the health insurance coverage was good. Medical exams and treatment are covered 100%. Procedures are quick. Health insurance policyholders were thankful for the health insurance because they no longer had to pay for medical treatment. They were especially grateful that the insurance covered in-patient treatment in district hospitals, as the costs of hospitalization are significant (see Table 15).

> *"I find that health insurance is very useful to people because when sick, the health insurance company will pay all the fees. The cost for a check-up and treatment is about 400,000-500,000 VND ($25.15- $31.45)."*
>
> *- Farmer, Phu Hiep Commune, Dong Thap Province*

> *"My fees for hospitalization and medicine were paid by the health insurance. Without the insurance, I would have had to pay over 1 million VND ($62.89). I still don't know where I would have gotten the money to pay this amount."*
>
> *- Farmer, Phu Hiep Commune, Dong Thap Province*

Table 15. Vietnam Social Insurance Provisions

PLAN COMPONENTS	VIETNAM SOCIAL INSURANCE PROVISIONS
Eligibility	Everyone
Coverage	Preventative care, medical examinations, treatment, and hospitalization
Premiums	80,000 VND ($5.03) per person, per year
Benefits	Receive insurance payments for health care services according to schedule set by the Ministry of Health.

Yet as Table 14 shows, enrollment in insurance is variable. Accessibility, defined in terms of location and the length of time it has been available in the community, is a mediating variable that influences participation. In Thai Binh, the lower participation rates were in villages where insurance had not been available for very long. With insurance only sold at certain times of the year, latecomers must wait for the next registration. (Latecomers were not included in these figures.) Furthermore, enrollment periods are not always clear.

> *"I sold to more than 50 people in 2004. After that, many have come to buy policies but I have to refuse because the new period has not started."*
>
> *- Women's Union leader, Thai Binh Province*

Sometimes there is a mismatch between cash flow and premium payments. In Dong Thap, insurance is sold at a time of the year when farmers do not have money, and they must pay the premium all at once.

While the cost of the insurance at 80,000 VND ($5.03) per capita may seem reasonable, when multiplied by several family members it becomes a very significant outlay for a farm household. Farmers prioritize health insurance for their children first by purchasing the school children's insurance. Generally, adults believe they are still young and healthy and do not need medical insurance.

Some households that can readily afford the health insurance do not buy it, arguing it is not a good value for the money. Respondents in two of the regions complained that the quality of communal health services, including the attitude of health workers, was not good. Others generally agreed that the quality of care at the district, provincial, and central levels was good. Perceived lower quality service at the communal health centers is one of the challenges posed in marketing this insurance.

The Vietnam Social Insurance program involves the cooperation of district health insurance agencies, the commune clinics, and the commune governments. In Dong Thap, the product is well advertised. Promotional information in the form of brochures was brief and easy to understand and reached all farm households in that commune. Elsewhere officials have faced challenges in marketing this voluntary product. In Thai Binh, the Women's Union and the head of each village jointly market and sell the insurance policies. The consumers found the payment procedures for the insurance unsatisfactory. Survey respondents suggested that insurance should be available at various times during the year, particularly in the months when farmers have

money. They also suggested that the insurers divide the premium payment into smaller more affordable installments. In one of the survey sites, the Women's Union leader responsible for selling insurance reported that she had advanced money to customers so that they could pay for their premium at the required time. Another challenge to the sale of health insurance in rural areas is that many villagers do not understand the benefits of insurance.

Health and Accident Insurance for School Children

Health and Accident Insurance for School Children, a nationwide government program, covers accident and medical expenses. In the studied communes, 90% -100% of eligible households are policyholders. Survey respondents attribute these high participation rates to low premiums and the strong public movement promoting the product.

Marketed and administered through the schools, purchase of this insurance is easy and convenient for parents. Every September, provincial health insurance agencies work with school boards to promote insurance in the schools. Teachers sell (and administer) these policies. Parents usually give the premium money to their children who buy the insurance at school. Both the teachers and the school boards earn commissions on the policies sold.

Unlike the Vietnam Social Insurance, the school children's insurance requires little marketing. School authorities deliver the information directly to pupils or their parents. The insurance is easy to understand and the payment structure is clear. Parents consider the cost of insurance as part of the total cost of children's education (see Table 16). While they complain that the cost of education is too high, they do not single out the insurance policy as too expensive.

Table 16. Health and Accident Insurance for School Children Provisions

PLAN COMPONENTS	HEALTH AND ACCIDENT INSURANCE PROVISIONS
Eligibility	School children
Coverage	Initial health care at school, expenses related to traffic accidents, medical examination, and treatment expenses
Premiums	25,000-30,000 VND ($1.60-$1.90) per pupil, per year
Benefits	If the child has to go to the hospital, the insurance will cover 60% of payments over 10 million VND ($629); it will cover 100% of bills less than this amount

Life Insurance

Private and state-owned companies sell life insurance in the areas surveyed. In Dong Thap, where Prudential Insurance and AIA sell life insurance, the market is competitive. Both companies are also active in Thai Binh, along with the Bao Viet Company.

In Dong Thap, both companies target better-off families. To market their product, insurance workers repeatedly visit potential policyholder's homes and explain their products in detail. Respondents commented that the marketing materials for the products were attractive.

However, this product has limited penetration in the areas surveyed. In one Dong Thap commune and in Thai Binh, the survey team estimated that less than 10% of households had purchased life insurance. Generally, farmers consider private life insurance to be too expensive.

Box 8. Life Insurance Policy Holders in Dong Thap

In the course of this survey, the study team came across only two households in Dong Thap that had purchased life insurance. One household had a term policy for 10 years for their son at a cost of 2,400,000 VND per year ($150.94), payable in two semi-annual installments. The other household bought a policy for 2,090,000 VND per year ($131.45). The term of the policy was 15 years. Respondents consider these households rich. They own 60-150 CONG (60,000-150,000 m^2) of land and they also raise tunnel fish. Therefore, they can easily manage the cost of the insurance.

Future providers of insurance can learn from past household experiences with life insurance and incorporate these lessons into any low-income insurance product. Insurance competes with other uses of funds, despite its utility. Many relatively high-income households do not buy life insurance. They prefer bank accounts or credit funds because they are easy to liquidate and the interest rates are higher. In addition, the offices of the life insurance companies are far away. Villagers are afraid that it will take too long to get payouts from their claims. Many do not clearly understand the procedures of life insurance. In Dong Thap, there is dissatisfaction with the Prudential Insurance Company's product because the administration of the insurance is unreliable. Turnover in the sales staff make it difficult for policyholders to pay their premiums or settle their claims.

Box 9. Mixed Feelings about Life Insurance in Thai Binh

One customer, a successful farmer in Thanh Tan Commune, regrets that he bought life insurance. He pays a premium of 1 million VND ($62.89) per year in four installments, over 10 years. He will get 12 million VND ($754.72) after 12 years. He considers this an investment for his children; however, he wonders how much the 12 million VND will be worth in the future, given inflation.

Another customer in this commune bought life insurance because her relative, who sells insurance, convinced her to buy it. She has bought a policy worth 60 million VND ($3,774) in 18 years. She regrets this purchase when she considers a comparable investment in gold. Nevertheless, she has paid into this policy for 5 years and will not stop because she does not want to lose her investment.

Auto Insurance

Auto insurance is compulsory for vehicle owners. In the Dong Thap communes, the purchase of this insurance applies mainly to motorcycles. The premium is 65,500 VND ($4.12) per month. If an auto accident occurs, the insurance will provide a maximum payout of 30,000 VND ($20) per person per case and a maximum property payout of 30 million VND ($1,887) per incident.

Auto insurance is very convenient and accessible. Agents at petrol filling stations sell this insurance as do branch offices of VBARD in the district center; it is available at any time.

MUTUAL ASSISTANCE FUNDS

TYM Mutual Assistance Fund

The Vietnam Women's Union (WU) through their TYM Fund[12], manages a mutual assistance fund that covers life, health, and accident liability. This fund is not registered with the Ministry of Finance. (Respondents in the Thai Binh study sites were the only ones to mention it.) However, TYM is active in the northern part of Vietnam.

The head of the Women's Union in each village sells policies, collects premiums, and receives a commission for her work. Respondents estimated that from 70%-90% of the women in the study villages purchased this insurance. Reasonable premiums, clear rules, and the feeling of responsibility clients get when buying insurance from the WU contribute to the popularity of this insurance. Access to this insurance requires participation in the TYM fund, a microfinance program operated by the WU. Poorer women are less likely to buy this insurance because they do not have the money and do not understand how insurance can help them.

The Women's Union did not intend the TYM mutual assistance fund to be a full insurance scheme.[13] The benefits cannot fully cover the costs incurred by funerals or medical problems. Funerals cost 5-10 million VND ($315-$629) while the benefit paid by this fund is only 500,000 VND ($31). However, the policyholders still appreciate the product.

Table 17. TYM Mutual Assistance Fund Provisions[14]

PLAN COMPONENTS	TYM MUTUAL ASSISTANCE FUND PROVISIONS
Eligibility	Women aged 18-49 who are members of TYM Fund and their husbands
Coverage	Death and injury
Premiums	10,000 VND ($0.63) per year, payable once per year
Benefits	Upon death, policyholder's beneficiaries receive 500,000 VND ($31.45) and a wreath. Death of a spouse: 200,000 VND ($12.58) In case of serious injury, policyholder receives up to 700,000 VND ($44.03). If the policyholder needs to visit the communal health center, they receive 30,000 VND ($1.89); for a hospital visit, they receive 100,000 VND ($6.29)

Government Mutual Assistance Funds

In the Thai Binh communes, survey participants mentioned government mutual assistance funds that help people cope with shocks. Each household contributes 1 kilogram of rice each season to the Natural Risk Prevention Fund[15] and 2.4 kilograms of rice per sao per season to the Fund for Upgrading and Consolidating Irrigation and Drainage Channels.

NATURAL RISK PREVENTION FUND: Locals expected that monies from the Natural Risk Prevention Fund would be used to help households after natural disasters. Unfortunately, the government has not met their expectation. For example, after the historic flood in 2003, the government sent 83 billion VND ($5,220,126) to the province for aid. Instead of immediate

[12] TYM Fund or Compassionate Fund. TYM stands for *Tao Yeu May* which means, "I love you" in Vietnamese.
[13] Tran, Nhu An and Tan See Yun. "TYM's Mutual Assistance Fund: Vietnam" CGAP Working Group on Microinsurance, Good and Bad Practices: Case Study No. 3. June 2004. p. 18.
[14] The focus groups reported that this product covers life, accidents, and health. The CGAP report on TYM's Mutual Assistance Fund states that the fund covers life and serious surgery or illness. It is possible that the insurance has changed since the time of the report.
[15] Also referred to as the National Fund for Building and Upgrading Dikes.

disaster aid, the government earmarked the money for infrastructure projects such as dredging the irrigation and drainage systems, hiring pumps to deal with water logging, conservation projects, and seed support. All those interviewed agreed that the support from the Natural Risk Prevention Fund to households following disasters was small and slow.

FUND FOR UPGRADING AND CONSOLIDATING IRRIGATION AND DRAINAGE CHANNELS: In addition to the Natural Risk Prevention Fund, there is also the Fund for Upgrading and Consolidating Irrigation and Drainage Channels. Households contribute to the village collecting team, and this team sends the rice contributions to the commune cooperative. Moreover, each laborer has to contribute their labor time for upgrading irrigation and drainage channels. It is unclear what benefits the villagers receive from this fund.

Summary

Farm households in the surveyed communes rely on a number of precautionary strategies to cope with the risks in their lives. Some of these strategies include forms of self-insurance, such as savings, or non-financial risk prevention measures like animal vaccinations. Others are group-based measures such as ROSCAs or formal insurance. The research found that most of the precautionary risk management strategies used by farm households are either irrelevant to agricultural risks (e.g., health insurance) or are inadequate for coping with these risks (e.g., savings and ROSCAs). At the time of this study, it appears that the most effective precautionary strategies for agricultural risks are the risk prevention activities such as dike building, crop diversification, and animal vaccination. However, the full extent of their effectiveness is unknown. The next section examines the GRET mutual assistance program that provided precautionary risk management options for livestock farmers.

5. SEMI-FORMAL LIVESTOCK INSURANCE PROGRAM[16]

GRET (Groupe de recherche et d'exchange technologiques), a French NGO, established a semi-formal insurance program for livestock farmers in Vinh Phuc Province of Vietnam in March 2003. Often referred to as livestock insurance, the GRET program is better understood as a mutual assistance program[17] with no links to formal insurance. The GRET program was established to protect farmers from the risks arising from livestock diseases and death of an animal. The project organized groups of livestock farmers and provided them with training, veterinary services, and a small insurance/mutual assistance seed fund for their livestock. Respondents from Vinh Phuc view livestock risks as second in importance to floods.

After experimenting with livestock, microcredit, and informal insurance projects in other locations in northern Vietnam over a number of years, GRET designed this project. At the start of the project, GRET established a local, non-profit organization called Song Lo. Headed by a local manager, Song Lo was responsible for implementation and ensuring sustainability of the insurance program. Even after the project funding ended 18 months later, the activities continued, albeit in a maintenance phase, and with negligible oversight from Song Lo.

The objectives of the project were to:

- reduce poverty and indebtedness of poor farm households;
- develop self-help or mutual assistance schemes among farm households;
- instill good animal husbandry habits;
- increase awareness of the prevention of animal diseases.

The original program had three key components, training, veterinarian services, and mutual assistance groups.

Training

The GRET program and Song Lo trained both livestock farmers and local para-veterinarians.[18] The focus was on animal husbandry and disease control. GRET trained group leaders in record keeping and other aspects of group management.

Veterinary Service

Para-veterinarians provided vaccination and animal treatment services for member households. One para-veterinarian worked with each member group. At the beginning of the project, the demand for animal vaccinations was low due to a lack of knowledge and understanding of their value. During the 18 months of the project, the benefits of knowledge plus the provision of free vaccines by the provincial government resulted in a rise in animal vaccination rates among the participants. The rate for sow vaccinations rose from 17% to 97%.

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[16] The members of the survey team interviewed Mr. Patrice Lamballe, Agronomist with GRET and Mr. Hoa of the Song Lo Company to learn about the history and operations of the GRET livestock insurance program. The team conducted focus group discussions with members of a meat pig group and a sow group to learn about their experience and satisfaction with the livestock insurance. The survey team also asked locals who were not members of the GRET program about their opinions of the program.

[17] In this report, GRET's mutual assistance scheme is referred to as an insurance program, although it is not officially linked with any formal insurance program.

[18] Para-veterinarians lack the level of formal education of real veterinarians.

Mutual Assistance Groups

The project organized interested livestock farmers into self-selected mutual assistance groups of 14 to 38 members according to the types of animal owned. The average size was 23. Most members were women, a reflection of the traditional gender division of labor. Additionally, many of the women were also members of the Women's Union, which promoted this insurance program and encouraged women to join.

Each group elected two key people: a group leader and a treasurer. The project also assigned each group a para-veterinarian as the third leader. Together they comprised the Group Management Unit (GMU) and they received a small commission for their activities. For example, each leader received 3,000 VND ($0.19) per cycle for male pigs and 5,000 VND ($0.31) per cycle for sows. For cow groups, only the para-veterinarian received a commission. Para-veterinarians received 500 VND ($0.03) per injection for vaccinations. The commission covered additional duties. GRET subsidized each group by matching the amount of premiums paid in the first cycle.

The GRET program's emphasis on record keeping led them to train group leaders in cash flow management for the group fund. They developed an accounting book, which recorded the financial transactions of the group including premiums collected, medicine, and vaccines purchased, animal treatment fees collected, GMU commissions earned, and veterinarian fees paid. They recorded all cases of animal illness and fees for treatment and clearly reported them at the quarterly group meetings. They also reported the groups' financial transactions and results at year-end meetings to ensure accountability and transparency in the use of funds.

Insurance Product Conditions

Premium

Participants in each group paid a premium for every animal that they wanted to insure—up to five animals. The insurance product related the insurance cycle to the animal cycle. For example, six months for a sow (two litters per year), four months for fattening pigs, and one year for a cow or buffalo. Table 18 provides a summary of the product. The premiums were 200,000 VND ($12.57) per cycle for a cow, 50,000 VND ($3.14) per cycle for a sow, and 10,000-15,000 VND ($0.63-$0.94) per cycle for a fattening pig.

Coverage

The insurance provided coverage in the case of sickness or death of an insured animal as well as access to veterinarian services. Key components of the coverage follow:

- upon payment of the premium, the group para-veterinarian visited the farmer and vaccinated the insured animals against the listed diseases; there was no charge for the vaccinations;
- if the animal became sick with one of the listed diseases during the insurance cycle, the veterinarian treated the animal free of charge; the mutual assistance group fund paid for the treatment;
- if an animal died and the death was due to one of the listed diseases, the farmer received a payout, which in some cases was 10 times as much as the premium amount; normally,

the amount of the payout was not sufficient to replace the animal, but it was enough to buy a smaller animal and start again.

Claims Procedures

The claims procedure was timely and accessible. With the para-veterinarian usually living in the same commune, he/she was able to be highly responsive to farmers' requests. Upon diagnosing the problem and treating the sick animal, the para-veterinarian filled out a form that served as evidence for the insurance payment.

If an animal died during the insurance cycle, two to three members of the group—one being the para-veterinarian—visited the farmer. The group members verified that the animal was dead and the veterinarian determined the cause of death. If the death was due to one of the listed diseases, the mutual assistant program provided payment within 7 to 10 days of the death. There was no paperwork for the farmer to fill out.

Medicine Cabinet

The GRET program aimed to provide all mutual assistance groups access to so-called medicine cabinets. The program only provided medicine cabinets to two of the five participating communes because a minimum of 6 to 7 mutual assistance fund groups were required. A pooling of resources at the communal level supplied these medicine cabinets. These resources supported refrigerators, thermoses, and vaccines. The GRET program subsidized the medical cabinets by 50%, and the groups supported the balance. The total cost of a medicine cabinet was around 2.3 million VND ($144.65).

Table 18. Summary of GRET Livestock Insurance Products

	COWS, BUFFALOS	SOWS	MEAT PIGS
Target Groups	Farm households who raise cows and buffalos	Farm households who raise sows	Farm households who raise meat pigs
Premium	200,000-300,000 VND ($12.58)/cycle/ animal	50-60,000 VND ($3.14)/cycle/animal	10-15,000 VND ($1.89) /cycle/animal
Premium Collection Procedures	One time at the beginning of the cycle	One time at the beginning of the cycle	One time at the beginning of the cycle
Insurance Cycle	12 months	6 months	4 months
Coverage – Listed Diseases	• Foot-and-mouth disease • Congestion virus • Blood parasites	• Swine Fever • Salmonella or paratyphoid • Pasteurellosis (pneumonia or respiratory disease) • Leptospirosis	• Swine Fever • Salmonella or paratyphoid • Pasteurellosis (pneumonia or respiratory disease)
Conditions on Implementation	All insured animals are to be vaccinated against the listed diseases	All insured animals are dewormed and are vaccinated against the listed diseases: • Sows received vaccinations 3-5 days after separating from piglets • Piglet received vaccinations when 20 days old	All insured animals are dewormed and are vaccinated against the listed diseases • Pigs received vaccinations 5-7 day after purchase by the farmer • Piglets received vaccinations after separating from mother pig
Benefits	First treatment free; second treatment 70% covered; third treatment 50% covered. (Coverage includes three disease listed in the insurance.) The group considered treatment for diseases not listed when the cycle was completed. • In case of animal death (from a listed disease) four times the premium amount will be paid to the animal's owner.	Free treatment and medicine provided for the four listed diseases. • In case of animal death (from a listed disease), up to 6 months after the vaccination, the owner of the sow receives 50% of the value of the sow • The owner of a piglet receives 50% of the value based on the market price of the piglet at the time of piglet death	Free treatment and medicine provided for the four listed diseases. • In case of animal death (from a listed disease), the owner will receive 80% of the value of the pig (based on the current market price). • In case the pig dies of an unlisted disease, 50% of the treatment cost are covered. (These diseases include: blood cell conglutination, E. Coli, Leptospirosis, and Hemolysis)

Current Status of the GRET Project

The GRET project ended in October 2004. Even lacking outside funding, the mutual assistance groups continued to operate. The Song Lo company continues a relationship with these groups but currently provides no financial support.

Table 19. Operational Results for GRET Livestock Insurance in Lap Thach and Tam Duong Districts, Vinh Phuc, 2004-2005

TYPE OF GROUP	NO. OF GROUPS		NO. OF HOUSEHOLDS		NO. OF ANIMALS	
	2004	2005	2004	2005	2004*	2005
Sows (pig breeding)	17	12	408	274	NA	297
Fattening Pigs	11	9	232	165	NA	618
Cows and Buffalo	5	3	99	60	80+	60
Poultry	3	2	33	14	1,235+	2,000
Total	36	26	768	513		

** The numbers of animals for 2004 only include animals in Lap Thach District.*

By December 2005 there were 513 participating households organized into 26 groups (see Table 19). Most of the groups were raising sows or fattening pigs. Although the program is smaller, it is impressive that it has remained in operation at all. This speaks to the value that the participants place on the mutual assistance groups and the insurance product.

Program Sustainability

Since 2004, the project has evolved, with changes happening on a group-by-group basis. This makes it difficult to document the program accurately. Some groups lend out the insurance fund to their members, sometimes on a rotation basis among group members. One group holds back enough of the fund in cash—500,000-1 million VND ($31.45- $62.89)—to cover urgent animal treatment.

Interestingly, the groups' loans closely resemble the design of VBARD loans. Groups charge an interest rate of 1% per month with a loan term of 1 year. The loan size depends on the households' needs as well as the available loan fund. Loans average several hundred thousand VND ($19-$57). Farmers use loans for different purposes, including productive investments, bulk purchases, wedding expenses, or pigsty construction. The demand for the loan fund far outstrips the supply.

Lending out the insurance fund has two benefits to the group: it meets the demand for loans among group members and it earns interest. Fifty percent of the accrued interest covered the management unit salaries; the group used the balance for meeting costs. As shown in Table 20, the interest from loans in the group in Chien Thang Village accounted for 3% of the total available fund. Despite the benefits of lending to group members, this is a risky strategy for the insurance groups. Lending puts the fund money at risk and could later result in insufficient funds available to cover claims.

In addition, the focus groups revealed that the mutual assistant groups have reduced or eliminated the premium payments. One group has reduced the premiums for subsequent cycles. Another group has paid no premiums since GRET stopped their support in 2004. The reason given for this lack of premium payment is that the insurance fund still has money in it.

Table 20 shows the accounts of one pig insurance group over three cycles (12 to 18 months in total). The balance of the fund consists of roughly 80% of the group insurance fund from the previous period. Payments into the fund are about 17% of the total value. Expenditures covered by the fund are for treatment, payment of commissions, meeting costs, and miscellaneous costs. Treatment costs average only 4% of the total available fund. Commissions to the group leaders make up about 7%. Compared to total expenses, the treatment expense is 27%; commissions are 49%, or about half of all costs. Overall, the expenditures of the fund come to about 14% of available funds.

More importantly, the bulk of the fund (80%) consistently comes from the balance from previous cycles. This suggests the fund is still primarily made up of the original seed money provided by GRET. This raises the question of sustainability of the fund and the mutual assistance group, should the fund need to cover large losses, for example from animal deaths.

Table 20. Pig Insurance Group Fund Records Over Three Cycles, Chien Thang Village, Dong Thinh Commune, Vinh Phuc (Thousands of VND and US Dollars)

		INSURANCE CYCLE							
		III		IV		V		AVERAGE	
		BALANCE	%	BALANCE	%	BALANCE	%	AVERAGE	%
1	Fund Balance, brought forward	2,225 $139.94	*79%*	2,396 $150.69	*79%*	2,553 $160.57	*81%*	2,391 $150.38	*80%*
2	Premiums Collected	508 $31.95	*18%*	528 $33.21	*17%*	514 $32.33	*16%*	517 $32.50	*17%*
3	Accrued Interest	86 $5.41	***3%***	99 $6.23	***3%***	104 $6.54	***3%***	96 $6.06	***3%***
4	**Total Fund (Row 4 = 1+2+3)**	**2,819 $177.3**		**3,023 $190.13**		**3,171 $199.44**		**3,004 $188.95**	
5	Treatment Costs	77 $4.84	*3%*	123 $7.74	*4%*	140 $8.81	*4%*	113 $7.13	*4%*
6	Payment for GMU	201 $12.64	*7%*	216 $13.58	*7%*	204 $12.83	*6%*	207 $13.02	*7%*
7	Meeting Costs	95 $5.97	*3%*	105 $6.60	*3%*	95 $5.97	*3%*	98 $6.18	*3%*
8	Other Expenditures	50 $3.14	*2%*	26 $1.64	*1%*	80 $5.03	*3%*	52 $3.27	*2%*
9	**Total Expenditures (Row 9=5+6+7+ 8)**	**423 $26.60**	***15%***	**470 $29.56**	***16%***	**519 $32.64**	***16%***	**419 $29.60**	***14%***
10	**Balance (Row 10=4– 9)**	**2,396 $150.71**		**2,553 $160.57**		**2,652 $166.80**		**2,585 $159.34**	

<u>Remarks</u>: Percentages are compared to Total Fund (line 4). Note: Pig insurance cycles can be 4 to 6 months.

Assessment of the GRET Program

Focus group discussions with members and non-members of the GRET livestock insurance program provided insight into the perceptions of this program in terms of access, affordability, coverage, understanding, and trust. The research also uncovered aspects of member satisfaction and dissatisfaction with the program.

Most mutual assistance group members were happy with their group and wanted to continue participating. They cited particularly valuable benefits of membership including technical training, the chance to learn from the experience of others, and free treatment or vaccinations for their animals. However, the experience of respondents with the insurance product was limited to the coverage for disease treatment and did not include animal death since none of the respondents had experienced the death of an insured animal. This may indicate the benefits of the program, or it may be due to the small sample size of respondents.

Group membership has been relatively stable. Dropout rates have been low at about 1-2 members per group, and have only occurred in certain groups. The most common reasons for a households to drop out of a group were, one, the monthly meetings were not convenient, and two, members felt that livestock insurance was not necessary with the small number of animals they kept.

Access: Results of the focus groups with non-members showed that these people also wanted to join livestock insurance group; however, the existing groups told them their groups were already too large to accommodate new members. Actually, the insurance groups denied membership to avoid sharing the group insurance fund that they received from GRET, and the funds they had already contributed. New group formation is not possible now since GRET no longer provides financial support for initial group set-up or for the necessary trainings. Therefore, there is no opportunity for non-members to access what remains of this program.

Affordability: Most participants in the program agree that the premiums are feasible for them, although some focus group respondents reported that a lump-sum premium payment of 200,000 VND ($12.57) was too steep for a farm household. Some managed the premium payment by selling crops (rice and corn) and animals (chickens). Other farmers had to borrow money to pay their insurance premium.

Coverage: One perceived drawback was that members could only insure one cow or one buffalo at a time even though many households own several cows or buffalo. Therefore, some farmers only insured the animal that they expected to keep for a long time. These animals tended to be the breeders. Other respondents complained about the limited abilities of the para-veterinarians.

Understanding of the Product: The focus group discussions showed that the members of the livestock insurance program do not have a strong understanding of the conditions of the insurance product or the procedures of the insurance groups that they had joined. Some respondents believed that they would receive their premiums back when the insurance was finished. Others believed that the premium for 1 year of cow insurance was good for the life of the cow. It was unclear whether respondents had trouble remembering the program procedures, or whether they had not understood them from the beginning. The GRET program trained all

group members at the time they joined, a few years before this study took place. In addition, group members did not have access to the group operations manual (typically kept by the head of the group if the group had one at all). Some respondents said they would like to receive additional training in animal husbandry and disease prevention and treatment since they could not remember what they learned.

Trust: Group members reported that at the beginning of the GRET project, there were challenges to find enough members. Some households did not want to participate because they thought the premium was too expensive. Many people were not completely aware of the benefits of being a member of a livestock insurance group. However, after some time, farmers saw the advantages of joining a group and many people wanted to participate. These results show that the demand for the livestock insurance is far greater than the project can supply, but only when the farmers know and understand the benefits.

Overall, group members were very satisfied with their membership. Members said they would like to expand livestock insurance products and increase the coverage of the existing products to include more diseases.

Benefits of the Program

The GRET project was short-lived with little documentation. However, the research suggests that the project provided a number of benefits for its participants, including:

- Participants now have better access to veterinary services than the average farmer who relies on veterinary services provided by the government; the project's provision of veterinary services and training has spillover effects, which have increased the health of participants' animals in the project location and thus reduced overall animal disease in the region.
- The project not only increased the skill levels of local para-veterinarians, it also provided them with a new opportunity for earning income; this has increased the supply of veterinary expertise in the villages.
- The program protects farmers from the full economic cost of treating their animals; it partially protects farmers from the significant economic loss incurred when an animal dies. Income from livestock is the single largest source of cash income for farmers in this region; Vinh Phuc farmers ranked livestock disease as the second most important agricultural risk facing their families.

There have been a few attempts to provide formal livestock insurance for farmers in Vietnam. These attempts have failed due to problems with fraud (stemming from moral hazard and adverse selection)[19] and poor coverage decisions. The GRET program avoided many of the problems associated with formal livestock insurance through these special design features:

- Group organization and management reduced fraud. The groups were self-selected and were very mindful of who they chose to belong to their group. This helped to reduce adverse selection. The organization also put other safeguards into place. For instance, at least three members of each group were required to verify animal deaths and only

[19] Moral hazard refers to the incentive insurance protection creates for an individual to behave in a manner that increases the likelihood the insured event will occur. Adverse selection occurs when persons who present a poorer-than-average risk purchase insurance.

veterinarians trained by the program could treat insured animals for treatment covered by the insurance.

- Group organization and management kept transaction costs low so the insurance was affordable to poor households. The use of local para-veterinarians helped reduce costs.
- Provision of veterinarian services and training reduced the moral hazard risk. Although participants were not required to follow all the training advice, they were required to vaccinate their animals. Additionally, the veterinarians knew the owners and their animals. Group members all knew each other and could monitor how other members cared for their animals.

Limitations of the Program

The GRET mutual assistant livestock program also had some limitations, as described below.

- Unlike formal insurance, the informal livestock insurance only pooled risks over the membership of individual groups (30 households maximum). Therefore, the risk was not transferred out of the group. If a covariant risk such as a livestock epidemic struck a group, all group members would suffer losses, and the group fund would be inadequate to handle the losses. In fact, GRET focused mainly on pig insurance because they found that pigs suffer less from covariant risks than other farm animals.
- Different groups had different fund endowments, which supported the purchase of vaccines and medicines. The program did not reached sufficient scale to provide the same level of benefits to each group or to be sustainable in the current configuration. Additionally, there was no federation of groups to encourage consistency across the funds or to aid with sustainability.
- Self-selecting group insurance mechanisms may not provide equal access to all rural households. Various and unclear reasons prevented some families from joining the funds. The reasons for exclusion may be related to adverse selection or completely arbitrary.
- Even with the GRET program training, participants had a less than perfect understanding of how the program worked. This suggests they would benefit from on-going training. It also has implications for the marketing or training of other agricultural products.

Summary

Despite the current limitations, the program is providing benefits to poor farmers in Vietnam. The GRET program and its successor have reduced the risk and the cost of livestock disease. There is more demand than supply for this popular program. Due to lack of funding, GRET and the local NGO Song Lo's roles have diminished. Yet the groups persist. Many groups continue to collect premiums, farmers continue to vaccinate their animals, and they hold regular meetings.

However, it is hard to see how the evolving self-managed groups will be sustainable for the long-term. They are putting their insurance fund at risk by reducing the premiums, and the funds available for medicine are declining in some groups. This evolution of groups demonstrates that a successful mutual assistance program needs to have some administrative structure as well as a budget to keep it operating according to the established rules and norms.

The GRET program for insurance proved that there is a demand for livestock insurance that farmers can meet on an affordable basis. Perhaps the most important aspect of the GRET program was the requirement to vaccinate insured animals. When the GRET program established the livestock vaccination policy, vaccination rates increased dramatically. Vaccination alone will go far to reduce the risks inherent in raising livestock.

The GRET experience here and with earlier programs, suggests that livestock insurance will not work in the absence of quality veterinary care. The GRET program addressed this problem by training local para-veterinarians. Since lack of veterinarian expertise is a problem in Vietnam, this will continue to be a challenge for implementing livestock insurance anywhere in the country. Local veterinary services that are easily and quickly available are an important and valued aspect of this program.

Even the poor families who participated in the program considered the premiums charged, 10,000-200,000 VND ($0.63-$12.57) per animal, per cycle, manageable. The participants were satisfied with the benefits of free treatment and the fraction of the value given to them upon the death of an animal. Whether a formal insurance company could deliver the same level of benefits for the same price remains unknown.

Given the difficulties encountered by formal insurance companies with livestock insurance in Vietnam, it may be worth considering how to expand an informal insurance program. Linking formal insurance with informal insurance would allow a pooling of risks across a much larger group. The GRET program was limited in what they could do because they did not have mortality data on livestock. The GRET program trained the groups in record keeping and animal mortality data at the group level should be available now. This would be helpful for anyone interested in providing livestock insurance in Vinh Phuc or other areas of Vietnam.

6. CONCLUSIONS: GAPS IN COPING MECHANISMS AND POSSIBLE SOLUTIONS

Introduction

The purpose of the Demand Assessment Survey was to determine the opportunity for agriculture insurance in Vietnam. The survey showed that rural households face a variety of risks and resort to a wide array of coping strategies to manage these risks. Households in the three regions identified flood, drought, heavy rains, insect infestations, price changes, alum soil, and livestock disease as sources of significant risk to their agricultural production and farm incomes. Agricultural risks are difficult to manage. They are covariant risks and they occur according to natural and seasonal cycles, making them regular if not frequent hazards. Severe agricultural risks such as the 2000 flood in Dong Thap can completely overwhelm households over a widespread region.

Rural households also face a variety of economic stressors and risks in their daily lives apart from agriculture. Life cycle events that require substantial financial commitments include family illness, schooling children, and building a home. Life cycle risks can pose even greater financial burdens on farm households than agricultural risks. In Vinh Phuc, households ranked illness in the family as the most severe of all risks, including the risks of drought and livestock disease.

The research found that farm households in Vietnam rely on a number of precautionary strategies to cope with agricultural risks. Some of these strategies are forms of self-insurance (savings or non-financial risk prevention measures like animal vaccinations); others are group-based measures (ROSCAs or formal insurance). Most of the precautionary risk management strategies were found to be either irrelevant (e.g., health insurance) or inadequate (e.g., savings and ROSCAs) for coping with agricultural risks. At the time of this study, it appeared that risk prevention activities such as dike building, crop diversification, and animal vaccination were the most effective strategies.

Farm households also rely on several loss management coping strategies including efforts to increase household income, borrowing from both formal and informal sources, and selling assets such as crops, equipment, or land. The research found that borrowing from both formal and informal sources is the most accepted and widely used response to agricultural risks. Research also revealed that repeated borrowing following severe agricultural losses could lead to selling agricultural land, a very high-risk coping mechanism. In Dong Thap, this practice was most widespread. The study team also discovered that coping mechanisms that rely on family, friends, and the government are inadequate for dealing with the magnitude of losses that result from agricultural risks.

These findings raise two issues. First, there is a need for risk managing products to cover both agricultural and life cycle risks. The gap between the needs for risk management and the adequacy of existing risk management strategies suggests that there is a need for insurance for both agricultural and life cycle risks. Second, even if most households could afford insurance, they cannot afford to buy insurance for both life cycle risks and agricultural risks. The data suggest that there is an opportunity and a role for agriculture insurance but households might prioritize other risk management needs such as health first.

Managing Debt

In all three surveyed regions, households borrowed heavily to manage their agricultural risks as well as some life cycle events. Farmers' cycle of indebtedness intensifies when they borrow money both to manage risks and to fund their agricultural activities. When a crisis hits, such as a flood or insect infestation, farmers find themselves in a difficult situation because of the need to repay the loans. This trend is more pronounced in Dong Thap where households appear to take more and/or larger loans. Thus, a large proportion of households in Dong Thap are in a downward spiral of increasing debt, increasing poverty, and vulnerability. Often they have had to sell or mortgage their land to pay off debts.

Farm households in all three regions find it difficult to manage debt and resort to borrowing from moneylenders in order to repay VBARD on time. The mismatch between the insurance/loan products and the needs of the clients causes this cycle. The Vietnam Bank for Agriculture and Rural Development should consider a redesign of their loan products to better meet the needs of their customers. Market research is required to examine farmers' preferences for financial services and loan use behavior of rural households. While poor product design is part of the problem, the amounts and use of the credit that farmers borrow are also problematic. Bank borrowers can improve their money management skill through financial education. Financial education must be a priority. Mismanagement or misuse of loans hurts the borrower more than the bank. By falling deeper into debt, households put their most valuable assets at risk, such as equipment and land. Additionally, debt forces family members to migrate to find work. Financial education can help improve borrowers' skills, knowledge, and attitudes towards managing debt.

Savings

Better loans and better financial management education are not the only solutions to the problem of too much debt. The research offers competing findings when it comes to saving. In all three regions, there was a low propensity to save. However, the high deposit-to-loan ratios at the PCF branch in Thai Binh suggests that rural households will deposit their cash if the right incentives, including a safe and convenient place to save, exist. Researchers need to study this further.

Insurance

The research shows that rural households have well-honed strategies for managing agricultural risk. Unfortunately, the frequency and severity of recent agricultural shocks is overwhelming households. Agricultural insurance can provide the protection that farmers need to mitigate the high costs of shocks prior to a disaster rather than waiting until a shock occurs. The experience with existing insurance products in rural areas (School Children's Insurance and Vietnam Social Insurance, for example) provides insights into the attributes of risk protection instruments that matter most to low-income households. These attributes include affordability, accessibility and timeliness (of premium payments and claims payouts), coverage, value for price, and administration.

Affordability: Many rural households currently pay the 80,000 VND ($5.03) per person, per year premium for Vietnam Social Insurance (government health insurance). The research did not indicate how many members of a household receive coverage. A few households pay 200,000 VND ($12.58) per year per cow for the GRET-founded mutual assistance program. Only rich households pay premiums of more than 1 million VND ($62.89) annually for life insurance

products. The data suggests the average farm household is comfortable paying a certain amount for insurance; however, researchers must analyze these figures carefully. There is not enough research to conclude what the maximum payment an average farm household can afford in terms of total insurance premiums.

In addition to affordable premiums, insurers must structure the premium payments in a way that makes sense for policyholders. In Albania, despite what appeared to be affordable premiums, a microinsurance product failed because the policyholders had to pay the premium in advance.[20] This study found that rural households in Vietnam prefer to buy insurance at the time of the year when they have cash (i.e., after the harvests). They also prefer to pay for insurance in smaller, more affordable installments. Premium payments with installments corresponding to the separate harvest periods are most affordable for farm households who rely heavily on crops for their income. This suggests three payments per year in most areas, although some farmers thought they could make quarterly payments (see Table 7). Payment procedures should be easy, convenient, and quick.

Accessibility/Timeliness: Accessibility is highly valued and significantly affects rates of adoption of new products. The most successful insurance products in rural areas are those sold by institutions present in the community and directly marketed to the household. Recognizing the importance of accessibility of sales, School Children's Insurance is delivered by the school, right to the child. Commune and village level institutions sell Vietnam Social Insurance (government health insurance) to the community. The life insurance companies sell door to door. Accessibility also refers to accessibility of policy administration and claims. The reputations of life insurance companies have suffered when their sales people fail to show up on a regular basis to collect premiums. The GRET program administered claims by visiting the farmer at home. Agricultural insurance for floods or other risks needs to address this issue in order to compete with existing insurance products.

Coverage: Farmers listed floods, droughts, family illness, animal disease, and insect pests as some of the top risks facing their families and their agricultural activities. Realistically, they cannot afford to cover all risks. In most areas, rice cultivation is the most valuable single activity; therefore, it makes sense to cover risks that cause significant losses of this crop. In Dong Thap, farmers suggested that flood insurance should only be applied to the summer/autumn rice crop—the crop most susceptible to flood damage. Additionally, they suggested that the elevation of the rice field determine the insurance premiums and payouts.

In Vinh Phuc, livestock rearing generates significant income for many farmers. This suggests that farmers in this area could benefit from livestock insurance. The experience of the GRET program points to the importance of good veterinarian services and animal vaccinations to support livestock insurance. Providing these services and setting an affordable premium price would make livestock insurance a viable option for farmers.

Value for Price: It is important that farm households believe that they are receiving a good value for the price they are paying; otherwise, they will not purchase insurance. Unlike life insurance, farmers purchase agricultural insurance in one-year cycles. The research showed that some life insurance policyholders are not convinced that they are receiving good value for the

[20] Cohen, Monique and Jennefer Sebstad. "The Demand for Microinsurance." Protecting the Poor: A Microinsurance Compendium. Edited by Craig Churchill. ILO, Geneva: 2006. P. 40

price; however, they are reluctant to drop their policies because they do not want to lose the investment they have made over a number of years. Agricultural insurance policy holders will not have the incentive to continue with the insurance, because they will not suffer a loss of their investment if they fail to renew their policy at the end of the year. Additionally, in order to gain the people's trust, farmers suggested that the insurance product be clear and transparent in terms of the premium payment and the rights of buyers.

Administration: With limited exposure to private sector insurance, it is not surprising that farmers in Thai Binh preferred agricultural insurance products delivered by state institutions. Successful experiences with government insurance have reinforced farmers' positive views. Farmers in this area do not trust the private sector. In Thai Binh, the top three ranked institutions for handling insurance were the agricultural cooperative, the People's Committee, and the Women's Union. Farmers agreed these organizations best understand local households. Farmers did not consider VBARD a potential provider of insurance because they specialize in banking. In Thai Binh, respondents reported that while the Vien Dong Insurance Company was marketing insurance products in their area, they were having difficulty selling any policies. Farmers reported that the Vien Dong Insurance Company Ltd. which offers 19 insurance products, including agricultural insurance, antagonized the village leaders (and possibly the farmers), with their attitudes and operating methods. This highlights the importance of working with local officials when approaching villagers with new products.

General Understanding of Insurance

Nearly 80% of the farmers in Dong Thap and Thai Binh had some level of understanding about insurance. Much of this understanding comes from their exposure to health insurance, the best-known insurance product. They recognize how it benefits everyone.

> *"Buying health insurance is beneficial in two aspects, if I am well but other poor people are ill, it can be considered my assistance to them, and if I am ill, then my exam and treatment costs will be fully covered."*
>
> *- Farmer, Phú Cường Commune, Dong Thap Province*

Villagers with health insurance policies thought they had a good basic knowledge of the product's attributes. While they reported that they understood the purpose of the product, the premium cost, the method of collection, the coverage of the insurance, and the benefits of having it, when pressed, they did not understand the product very well in terms of procedures. The research team met two policyholders (out of a group of seven) who were not entitled to insurance benefits when they became sick because they did not follow the correct procedures.

Health insurance is widely used in some locations. The question is whether the experience with health insurance is transferable to agricultural insurance. The need exists for agricultural insurance, but it is not known if farmers will make it a priority. The product concept test explores this issue in detail.

7. INDEX-BASED FLOOD INSURANCE PRODUCT CONCEPT TESTING

The findings from the Demand Assessment Survey combined with the review of the supply of insurance and other financial services in Vietnam, suggest that there are benefits to introducing an index-based insurance to protect farmers in Dong Thap Province from the early and rapid onset of floods. The project team leader proposed an index-based insurance product concept, and the market research team tested it with a sample of Dong Thap farmers. The results of this test suggest that 50% of the farmers are interested in the concept and open to purchasing the insurance.

Index-based Insurance[21]

Index-based insurance is a relatively new alternative to traditional agricultural insurance, which has been ineffective in developing countries and suffers from a number of weaknesses. Insurance is most effective when the insured risks are independent. Most agricultural risks, particularly those related to weather and other natural hazards are covariant (i.e., they happen to many people in the same area, at the same time). Problems with moral hazard and adverse selection combined with high monitoring costs make the provision of traditional agricultural insurance very expensive, if not impossible. On the other hand, insurers can make index-based insurance affordable and accessible to a wide range of people in rural areas. This alternative insurance can protect both household consumption and debt repayment capacity. It is also practical to implement in developing countries where the availability of relevant data is often limited. It does not require on-going government subsidies and perhaps most significantly, index-based insurance avoids the moral hazard and adverse selection problems that have undermined many other agricultural insurance programs.

Index-based insurance ties indemnity payments to an easily observable and objectively measurable event (i.e., the index) such as a weather event like rainfall or water levels. The chosen index must strongly correlate to the risk variable of interest. In the case of crop insurance, the risk variable is crop yield. The index must be outside the control of individual farmers. The measurement of the index must be reliable and secure. Index-based insurance contracts can be written to cover any weather or natural disaster risk that can be defined and measured at a regional level.

[21] This section and the three following sections are based on materials previously published in the following project documents: Developing Agricultural Insurance in Vietnam: Interim Report,ADB TA 4480 VIE, December 2005 (Modified April 2006) by World Perspectives Incorporated.

Developing Agricultural Insurance in Vietnam: Post-Interim Report, ADB TA 4480 VIE, January 2006 (Revised from the December Interim Report) by World Perspectives Incorporated.

Hydrological Risk Zone Mapping in Dong Thap Province: Technical Report (Draft Final), February 2007, In Developing Agricultural Insurance in Vietnam ADB TA 4480 VIE by World Perspectives Incorporated.

Developing Agricultural Insurance in Vietnam: Phase I Final Report, ADB TA 4480 VIE, March 2007 by World Perspectives Incorporated.

Purchase of index-based insurance entitles the policyholder to an indemnity payment in the event that the index is triggered, i.e., if the index crosses a predetermined threshold, a payment will be made, regardless of whether or not the policyholder experienced a loss. All policyholders in a given region will obtain the same payout (assuming they have paid the same premium amount). Indemnity payouts can be structured in different ways. The simplest payout structure is the zero/one contract. With this contract, once the trigger is reached (or the threshold index value is crossed), the payout is 100%. Another variation in payout is a layered payment schedule. Under this structure, a partial payment is made as different threshold values are reached. Additionally, index-based insurance is flexible. It can be sold based on the value of protection desired. For example, the premium rate can be quoted as *X* dollars per one hundred dollars of protection.

Rationale for the Index-based Flood Insurance Product Concept
Because early and rapid flooding is a significant risk for farmers in Dong Thap Province, the project team recommended an index-based flood insurance product concept to protect them. The product concept was developed after carefully examining the risks facing Dong Thap farmers and modeling the flood risks in that province.

Dong Thap Province is in the seasonally flooded, alluvial plains on the north bank of the Mekong River bordering Cambodia. Rice is the main crop and there are three rice seasons. The winter-spring season yields the most productive crop. Planting occurs in November and the harvest is in late February/early March. In the spring-summer season, farmers plant the rice in March/April and harvest it in July/August. During the summer-autumn season farmers plant rice in July and harvest it in October. The October crop is the least productive crop because farmers can only plant in areas that are not flooded at this time.

Dong Thap Province is a low-lying area with elevations ranging from 1.5 to 2.5 meters above sea level. The Tien Giang River (one of the two branches of the Mekong River) runs from Cambodia in the north for 105 kilometers to the south of the province. There are seven districts west of the river (almost 69% of the total area of the province). These districts are usually deep under water during the flooding season from early July to December. Rains and river flow can flood more than 300,000 hectares of cultivable land by as much as 2 meters. Peak flooding occurs between late September and the end of October.

Consequently, over a long period, the farming practices in the delta have evolved to match the patterns of the river's annual flood. Rains upstream in Cambodia, Laos, and China have a major influence on flooding. Substantial increases in rain and river flow usually do not begin until mid- to late July. Problems occur when the river flow increases significantly during the later part of June and early July. Farmers plant the spring-summer rice crop in time to allow for harvesting before the normal floods occur. If the floods come early, before the rice harvest, a considerable amount of the rice crop can be lost. This was the case with the flood of 2000.

Development of the Product Concept: Construction of the Index
Flooding in the Mekong Delta is a function of several variables. One of the most important variables is the amount of water coming across the border from Cambodia. Substantial flooding of Dong Thap Province from the mainstream of the Mekong River (the Tien Giang River) starts when the river water level exceeds 250 centimeters at the Tan Chau hydrological station. The

Tan Chau station measures the level of the river before it enters an extensive system of dikes and canals. The project team analyzed 30 years of Tan Chau data in order to identify a suitable index. They determined the index to be the water level at Tan Chau between the dates of June 15 to July 5. The trigger point was determined to be a depth of 250 centimeters. This index satisfies the requirement for an objective event that can be reliably and securely measured. This index also satisfies the requirement that the objective event be related to yield outcomes at the farm level. Flooding occurs when the river rises higher than 250 centimeters. In order for an insurance product to be viable, the insured event cannot occur too frequently. A good rule of thumb is that the event should not occur more than once in every 7 years. Analysis of the data indicated that the river water reached excessive levels (over 250 centimeters) during the June 15 to July 5 period, infrequently enough to satisfy the 1-in-7 year rule.

The next step for the project team was to determine the relative amount of risk flooding posed to the farmers of Dong Thap. This risk assessment information was used to determine the structure and pricing of the insurance. It also supports the loss assessment work when floods occur. Using meteorological and other data, the project team modeled the pricing and coverage of the insurance by developing flood risk maps. These maps identify areas in Dong Thap Province that are at risk from the early June/July flooding. Dikes or other natural landscape features protect some areas in Dong Thap from the flooding. As a result, two areas with the same elevation do not necessarily share the same flood risk profile. Areas within Dong Thap were each assigned one of two risk classifications based on the average depth of floodwaters. The first risk classification was for areas where floodwaters do not exceed 0.5 meters; the second risk classification was for areas where flood waters can be equal to or greater than 0.5 meters. The project team chose the critical value of 0.5 meters of flooding because at this depth the water damage to the rice plants affects the ability to harvest the crop. By examining the flood risk maps, insurers can evaluate individual farmers based on their exposure to the risk of flood. Once farmers buy the insurance, insurers can use a combination of satellite imagery and the mapped zones to assess the amount of rice underwater when floods occur.

The operation of the insurance requires that participating farmers be located within the different homogenous flood risk zones. These zones will form the basis for both pricing the premium and flood loss assessment. Insurers will continuously capture and analyze satellite images of the insured areas to determine if a flood event that triggers an insurance payout has occurred. The insurers will use these satellite images to categorize payout levels in the event that flooding happens.

The Index-based Flood Insurance Product Concept

In order to deliver cost-effectively this insurance product to farmers, the team proposed linking the sales of index-based flood insurance to loans issued by VBARD. Farmers who borrow prior to planting the spring-summer crop are eligible to purchase this insurance. The purpose of the insurance is to compensate sufficiently farmers who lose their rice crop, so that they are able to repay VBARD and still have a little income left. The insurance contract would cover floods that occur between June 20 and July 10 (note the lag time between when the river water reaches excessive levels and when Dong Thap fields become flooded). The insurance will provide

indemnity payments for losses suffered from floods if, and only if, the water level at the Tan Chau Station exceeds 250 centimeters between June 15 and July 5.

The project team left the premium amount of the insurance product concept undetermined in order to obtain feedback from farmers about their willingness to pay for the product. Farmers can choose the amount of level of coverage that they prefer: 100% or 150% of the amount borrowed from VBARD. The indemnity payment structure corresponds roughly to an expected value of crop loss for each payment category. It consisted of two payout levels: 50% of the insured amount and 100% of the insured amount.

Insurers calculate losses due to floods using a combination of satellite images and the flood risk maps. If no flooding occurs, the farmer receives no payment. If there is little flood damage, defined as less than 10% crop loss, then the farmer receives no payment. If there is moderate flood damage, between 10% and 50% crop loss, the farmer receives 50% of the insurance payout. If flood damage is severe and more than 50% of the crop is lost, the insurance payment is 100% of the insured amount. For example, if a farmer buys coverage of 100% of the loan amount and they incur more than 50% crop loss, they will receive a payout enabling them to pay 100% of their loan to VBARD. If the same farmer bought coverage for 150% of the loan, they would be able to pay off the VBARD loan and have some cash left. A summary of the main features of the index-based flood insurance product concept is shown below.

Table 21. Description of the Index-Based Flood Insurance Product Concept

PRODUCT COMPONENTS	INDEX-BASED FLOOD INSURANCE CONCEPT
Coverage	Farmers who take working capital loans from VBARD can access this insurance. There are three potential outcomes: • no early flooding: zero payment on the insurance; • early flooding occurs with minimal damage (less than 10 percent): zero payment on the insurance; • early flooding with moderate damage (greater than 10% but less than 50%): 50% of payment on the insured amount; • early flooding with severe damage (greater than 50%): 100% of payment on the insured amount.
Premium/Frequency of Payment	Premium is included in the loan amount borrowed from VBARD. (Farmers pay the loan back at harvest time.)
Benefits	The benefit range from 100%-150% of the amount borrowed.
Claims Process/Procedures	TBD

Product Concept Test Results

During the Product Concept Test Survey, the second market research survey, the research team interviewed farmers in the Phu Cuong and Phu Hiep communes, in Tam Nông District, and in

the Tan My and Phu Loi communes in Thanh Binh District, located in Dong Thap Province. (The Tam Nông communes were also included in the Demand Assessment Survey.)

Rice cultivation is the main source of household income in these areas. Researchers interviewed eight groups of farmer, (10-12 per group) about their opinions of an index-based flood insurance product. The farmers had access to 4-15 hectares of rice fields and the study team selected them at random.

Opinions of the Index-Based Flood Insurance Product Concept

Farmers were generally supportive of index-based flood insurance and the idea of basing compensation on floodwater levels rather than actual damage to their fields. While they found this criterion for compensation objective and simple, it is new and requires further explanation. They had questions about how insurers would measure the floodwaters and wondered how they would learn what the level was. They also wanted to know what water level would trigger a claims payout and what percentage of their loss the insurance would cover.

In their responses to this new product, the farmers interviewed fell into two roughly equal groups—farmers interested and supportive of the index-based flood insurance and farmers skeptical and anxious about the insurance product.

Interestingly, the differences of opinion on the value of flood insurance divided across income and gender lines. Male farmers, the better-off, village leader, and staff from the agricultural extension service and the agriculture cooperative tended to be the most supportive of the insurance product idea. Women farmers and the less well-off were skeptical of the insurance and not very interested.

The interested group believed that agricultural insurance would benefit them. This belief reflected their calculation of what the benefits of owning flood insurance would have been if it had been available before the 2000 flood. The consensus was that with flood insurance, they would not have had to mortgage or sell off as much land. They recounted that many farm households have taken years to recover from the 2000 flood. In their opinion, flood insurance would have prevented people from suffering such severe losses and would have helped them recover more quickly from this shock. These farmers agreed that households outside the dike system would benefit most from this insurance.

The skeptical group believed that the boundary dike system would protect their fields. In the Phu Cuong Commune, the farmers are already contributing 2 kilograms of rice per field unit for dike maintenance. They note that if they also had to buy flood insurance, their expenditure for rice cultivation would increase.

Specific Feedback on Flood Insurance Attributes

Interviews with potential policyholders shed light on selected attributes of a new insurance product including premium payments and coverage. Regarding premiums, farmers suggested that insurance providers should collect premiums in several installments throughout the year, possibly monthly. Regarding coverage, the skeptical farmers thought that the period of time (June 20-July 10) that the insurance is effective is too short. In their opinion, the timing of floods is broader than the 20 days allowed for in the coverage and peaks from August to September. They do not believe they can benefit from the insurance because the coverage is temporally limited.

Linkage of Insurance to VBARD Loan

Although earlier research indicated that some farmers thought that VBARD was an inappropriate provider for insurance, the research team considered VBARD the most efficient of potential delivery channels for the proposed product. The Vietnam Bank for Agriculture and Rural Development would deliver this proposed index-based flood insurance product and bundle it with a working capital loan. Farmers supported the idea of insurance linked to a VBARD loan but not as strongly as they supported the other product attributes. Generally, farmers were afraid of the administrative procedures of different or unknown organizations. However, they felt comfortable with the idea of working with VBARD loan officers to obtain insurance. They recognize that having the flood insurance bundled with their loan could save them time and money. Some respondents expressed concern about how farmers who do not borrow from VBARD can access this insurance.

Image of Insurance in General

The successful adoption of insurance products relies on the client's value-for-price assessment, an understanding of the proposed insurance product, and their trust in insurers. As noted earlier, farmers' have had mixed experience with previous exposure to insurance products and insurers. Farmers in the Tam Nông and Thanh Binh districts are suspicious about insurance in general and are particularly dissatisfied with life insurance products. Farmers' unfavorable experience with insurance products—long waits for claims payouts, complicated procedures, and poor sales service—have sullied their view of insurance. These negative experiences have had an impact, and farmers may be nervous about taking on a pilot index-based flood insurance product.

The client's understanding of the insurance product will also influence their desire to purchase it. The testing of the insurance product concept showed that it is difficult for farmers to understand this product. The idea is complex. The concept of basing the insurable event upon an index rather than upon actual damage is new in Vietnam.

Marketing Index-based Flood Insurance and Conclusions

To overcome these constraints, the marketing of the prototype index-based flood insurance product will be very important to a successful pilot test. The pilot project will have to have a certain level of participation to achieve meaningful results. The research also suggests that the financial education of potential customers on insurance is critical. In addition, the opinions of village and commune leaders are important in rural areas. These opinion leaders should be first to receive marketing information and financial education. Therefore, VBARD should not be responsible for the marketing and education efforts. The project should consider working with local institutions that the farmers know and trust, such as the Commune People's Committee (CPC), the Farmer's Union, the Women's Union, and agricultural cooperatives. These institutions can inform and mobilize interested farm households.

The development of an agricultural insurance product for the low-income market requires a formal process that includes an assessment of the supply side, research of the target market, and the synthesis of both studies into the design of a product concept. This report has summarized the results of the research on the target market including the testing of the proposed product concept. The results suggest that there is enough support, although some skepticism remains, to move forward with a pilot test of an index-based flood insurance product in Dong Thap Province of Vietnam.

ANNEX 1: SAMPLE FRAMES IN EACH LOCATION

Table A. 1. Sample Frame in Two Communes of Dong Thap Province

SURVEY TOOLS	RESPONDENTS	COMMUNE		SEX		TOTAL
		PHU HIEP	PHU CUONG	MALE	FEMALE	
FGDs	Number of groups	4	4			
	Number of people	33	29	42	20	**62**
PRA	Number of groups	6	6			
	Number of people	50	45	42	53	**95**
Individual Interview	Number of people	7	7	10	4	**14**
Total		**90**	**81**	**94**	**77**	**171**

ANNEX 2: CASE STUDIES

Case Study 1: Impacts of the 2000 Flood on a Rural Household in Dong Thap Province

In 2000, as result of the large flood during the summer-autumn rice season, Mr. NVC lost 40% of his rice harvest. The family had borrowed 4 million VND ($251.57) at an interest rate of 10% per month to pay for their agricultural inputs (fertilizer, pesticide, seeds, etc.) and other family expenses, but due to the losses they suffered, they were unable to repay the loan.

The family mortgaged 0.74 hectares of land and with the proceeds partially paid off the debt from the flood. With the remaining proceeds, and with funds borrowed from a moneylender, they invested in a fish farm. However, the high levels of acidity in the water prevented the fish from breeding. At the same time, fish prices fell, decreasing the family's potential profits. It cost the family about 7 million VND ($440.25) to invest in the fish farm, but they could only raise 2-3 million VND ($125.78-$188.68) from their sales.

In March 2004, the NVC family borrowed 20 million VND ($1,258) from the Industrial and Commercial Bank of Vietnam (INCOMBANK). They used 7.5 million ($471.70) to purchase a tractor. The family invested the remaining amount, plus the amount borrowed from a moneylender, in planting soybeans. The total amount of money spent on cultivating land (fertilizer, pesticide, seeding, etc.) was about 19 million VND ($1,195). Unfortunately, the entire investment was lost after an insect infestation.

Due to these business losses, the family is facing many difficulties and now owes the bank 20 million VND ($1,258). The family's current income is just enough to cover daily living costs and pay for the monthly loan interest—1,250,000 VND ($78.62). The family plans to pay off the balance of their 20 million VND ($1,258) loan through profits from selling pigs. If that profit does not cover the full cost of the loan, the family will borrow from a moneylender to cover the bank debt. Once they have paid off the bank loan, the family plans to continue borrowing from the bank to pay off their greater debt of 25 million VND ($1,572).

(Source: Mr. NVC, Phu Cuong Commune, Dong Thap Province)

Case Study 2: Impacts of Multiple Economic Shocks on a Rural Household in Dong Thap Province

When they married in 1988, Mr. LVD and his wife had 3.5 hectares of land. At that time, the family grew melaleuca trees to sell. From 1990-1995 they planted rice one season a year, but the soil was very acidic, so the crops only produced 30% of the expected harvest, and Mr. and Mrs. LVD lost money.

During the rice seasons from 1993 to 1997, the family borrowed money several times from VBARD. When the loan repayment date arrived, the family often had to borrow from a moneylender to repay the loan so they could continue to borrow from VBARD.

In 1996, a flood caused serious damage, rendering the land unharvestable in the summer/autumn season. In 1997-1998, the family borrowed from a moneylender at a rate of 7%-8% per month to invest in watermelon planting. However, after consecutive seasons of loss, the family had to sell land to compensate for their growing debt. The LVD family sold more than two-thirds of their land (2.5 hectares), but this was not enough to cover the debt they owed to the moneylender.

In 1999, the LVD house burned down. In order to earn a living, the family worked as casual laborers and fished. Still, their income was only enough to cover basic living costs, and they were unable to pay their debts.

In the 2000 flood, the water level was so high it reached roof level. The family suffered serious losses, and the high water level made fishing difficult. During that time, the family relied on money from working as hired employees. To settle their debt, in 2004 the family sold their remaining hectare of land. This sale paid off all former loans and allowed the family to continue borrowing.

Presently family life is relatively difficult. The family has no land to cultivate and mainly relies on working as casual laborers. The older children dropped out of school to help the family earn a living by working as laborers.

The family continues to be in debt. They owe a moneylender 8 million VND ($503.15), and they owe 3 million VND ($188.7) to VBSP. The family is unsure how to raise the money to repay the loan to the moneylender. They can only afford to pay the monthly interest.

Now the land prices are higher, and the family regrets selling their land. However, the pressure of paying off debt limited Mr. LVD's options, and he did not know how else to manage the situation.

(Source: Mr. LVD, Phu Cuong Commune, Dong Thap Province)

Case Study 3: Diversifying Production: Household Risk Management Strategy in Thai Binh Province

Ms. NTS's family has six members spread among three generations. Her family runs a successful farm, with a large amount of agricultural land. Her family owns 2 hectares of agricultural land for two rice crops. She uses 0.14 hectares for high-value secondary crops such as cucumbers, turnips, potatoes, peanuts, and soybeans.

In a good year, she can earn 8 million VND ($503.15)—6 million VND ($377.38) from 3 tonnes (3000 kilograms) of rice and 2 million VND ($125.78) from secondary crops. In addition, she earns 2 million VND ($125.78) from raising livestock, 4 million VND ($251.57) from plucking rice and her plow service, and 3 million VND ($188.68) from other sources. After accounting for input and labor costs, her total family income is 15 million VND ($943.34). Her family is one of the better-off households in the village.

Still, heavy flooding ruined Ms. NTS's agricultural crops in 2003. During heavy rains in 2004 and 2005, she lost half of her rice crop. She could only harvest 3 million VND ($188.68) worth of crops in 2005. Once she accounted for input costs (seeds, fertilizer, labor, etc.), her family made no profit in 2005. She has earned less than 3 million VND ($188.68) every year for the last 3 years from agricultural activities.

In the winter-spring season of 2005, her family decided to diversify their 1-hectare rice and secondary crop field and convert it to the fish-rice model. They decided not to grow cucumbers or potatoes because they could not produce a significant net income. She has borrowed 20 million VND ($1,258) for the new model. She noted that few households in her village have the flexibility to restructure their activities as her family has done.

(Source: Ms. NTS, 35 year-old, better-off household, Than Tan Commune, Thai Binh Province)

Case Study 4: Household Risk Management Strategies in Thai Binh Province

Ms. NTN is 54-years old with a family of four; three family members are laborers. Her main income comes from agricultural activities. Her family has 0.32 hectares of land used for rice cultivation. Approximately 0.12 hectares are in a low area; the family uses another 0.12 hectares for secondary crop cultivation. The cost for supplies averages 4.2 million VND ($264.15) per year, and income from cultivation in a good year is 6.5 million VND ($389.94). Ms. NTN's family also raises one cow and one sow. The cow could give birth once a year, bringing in about 2 million VND ($125.78) per calf. Last year the sow gave birth twice, bringing an income of 1.3 million VND ($81.76). The family's total income from livestock is 4.6 million VND ($289.31). Their net profit from livestock is 1.8 million VND ($113.21).

Recently the sow was sick and cost them 1 million VND ($62.27). Shortly before this, there was a heavy rain in October 2005, which destroyed the potato crop and ruined 1.5 sao (0.05 hectares) of rice. The total loss amounted to 1.2 million VND ($75.47). In order to replant the potato crop, Mrs. NTN had to sell the rice that she had saved from earlier harvests. She also borrowed 500,000 VND ($31) for replanting potatoes. She had borrowed 5 million VND ($314.46) from VBSP previously. She also bought health insurance for 2 years. From now on, she says, she will save more rice to offset the risk of floods.

(Source: Mrs. NTN, a middle-income household, Thanh Tan Commune, Thai Binh Province)

Case Study 5: Household Precautionary Risk Management Strategies in Thai Binh Province

Mr. TVT's family is a better-off household in the Thanh Tan Commune. Their main income activities are raising pigs, operating a fish farm, and selling dried fish in the commune market. His average annual income is 50 million VND ($3,145). His family has bought two life insurance contracts from the Bao Viet Insurance Company. One is for his wife and has a premium of 286,300 VND ($18.00) per quarter over 5 years; and one is for his son with a premium of 82,000 VND ($5.16) per month over 20 years. In addition, he has joined several ROSCAs including a rice ROSCA, contributing 100 kilogram per season; a cash ROSCA, contributing 500,000 VND ($31.45) twice a year; and a gold ROSCA, contributing one-tenth of a tael per rice season (3.76 grams of gold).

(Source: Mr. TVT, a better-off household, Thanh Tan Commune, Thai Binh Province)

Case Study 6: Formal Financial Services and Insurance Use in Thai Binh Province

Mr. PXT is a 50 year-old, successful farmer in the Thanh Tan Commune. His family has six members, four are laborers and two are dependents. His income comes from three sources: livestock, traditional work, and rice cultivation. Livestock is usually his most lucrative investment.

In 2004, he borrowed 4 million VND ($ 251.50) from VBARD. He combined this loan with his savings to buy 20 pigs, each weighing an average of 25 kilograms. After 2 months, he sold the pigs and earned a net income of 3 million VND ($188.68). He knows that if he raises a large number of livestock, he can earn 500,000 VND ($31) per month.

After selling the pigs, he bought life insurance for everyone in his household—80,000 VND ($5.03) per annum per person. The policy is for 12 years and policyholders do not have to pay in the final 2 years. He pays premiums quarterly. The family will receive 12 million VND ($754.72) in the final year of the policy. At first, Mr. TXT invested in the insurance as a future savings for his children. However, he now regrets that decision. He worries about inflation remarking, "If inflation is too high, the amount I receive in the future will be worth very little…"

(Source: Mr. PXT, a successful farmer, Thanh Tan Commune, Thai Binh Province)

Case Study 7: Impacts of Problems with the Onion Crop in Dong Thap Province

Mr. H and his wife have three small school-aged children. Originally, the H family had 2.05 hectares of land. From 2001-2002, the family collected funds from several sources to invest in onions. They invested their savings, borrowed 31 million VND ($1,992) from VBARD, borrowed from a moneylender, and bought agro-materials on credit. However, in the same year the family suffered a 15 million VND ($943.3) loss due to weather problems. In 2002-2003, the drought weakened the crops and over supply caused the price of onions to fall. The crops that survived did not sell well. The family was only able to earn 30 million VND ($1,887) that year—not enough to cover their debts. The moneylenders and VBARD added penalty rates to their existing loans.

In early 2005, the family sold all of their land for 102.5 million VND ($6,585) to pay their debts. Seven million VND ($440.3) from the proceeds was spent on house repairs; the remaining amount was used to partially repay the VBARD and moneylender loans. Mr. H had to borrow from his brother to clear the remaining debt.

Mr. H's mother gave him 0.4 hectares of land to grow rice on, but the income from this land is not enough to care for his family. Now, both he and his wife work as casual laborers. They make 30,000 VND ($1.89) and 20,000 VND ($1.26) per day respectively when there is work—about 5 months each year. His credit history makes it difficult for him to apply for loans from VBARD or even moneylenders.

(Source: Mr. H, Phu Hiep Commune, Dong Thap Province)

ANNEX 3: MAIN COPING STRATEGIES IN THAI BINH

Table A. 2. Summary of Farm Households' Main Coping Strategies for Agricultural and Daily Risks

TYPE OF RISK COPING STRATEGY	TYPE OF FARMERS APPLYING STRATEGY	HOUSEHOLDS APPLYING STRATEGY (%)
1. SELF-INSURANCE WITHIN HOUSEHOLDS		
Restructure crop production	Middle and better-off households	10%
Retransplant rice	All households	100%
Work as migrant laborers	Poor and middle households	70%
Rent pumps to deal with flood	Middle and better-off households	90%
Keep some seed in reserve to replant later	All households	100%
Use more fertilizers and pesticides	All households	100%
Reduce unnecessary input items (hired labor for plowing, transplanting, harvesting, etc.)	All households	100%
Vaccinate livestock	All households	100%
Carry out technical advice from commune extension service staff	All households	100%
Sell livestock before possible diseases	All households	100%
2. SUPPORT FROM OUTSIDERS		
Support from government	All households	100%
Exchange labor with neighbors	All households	100%
Support from relatives or friends	N.A.	N.A.
3. USE OF FINANCIAL SERVICES		
Borrow from friends, relatives, and moneylenders	All households	40%
Borrow from banks or PCF	Middle and better-off households; poor households borrow from VBSP	20-40%
Join ROSCA	All households	100%
Buy inputs and pay later	Poor and middle households	90%
Use Insurance Services	Middle and better-off households	50-60%

ANNEX 4: ROSCA VARIATIONS IN SURVEYED COMMUNITIES

In Thai Binh, there are several different types of ROSCAs including rice, cash, mourning, and building materials.

- Rice ROSCA: Middle-income and better-off farmers participate and contribute between 30 kilograms to 1 quintal (100 kilograms) of rice at harvest time.
- Cash ROSCA: Better-off households with businesses participate and contribute at harvest time. Contributions vary from 300,000-500,000 VND ($18.87-$31.45) per harvest. The ROSCA lasts 5 years and has about 10 members.
- Gold ROSCA: Better-off households participate and contribute in gold, protecting their investment against inflation.
- Building materials ROSCA: Primarily young households participate and contribute in-kind, for example 5 kilograms of iron or 5 quintal (500 kilograms) of cement per year.
- Mourning ROSCA: Households with elderly parents participate. Like a funeral society, participants contribute to a member when a parent dies. (The contribution is 10 kilograms of rice and 1 kilogram of meat.)

The higher a family's economic status, the less a household will participate in building materials or mourning ROSCAs. Households consider these types of ROSCAs as a form of mutual support from other households in times of emergency or difficulty.

Besides the ROSCA types described above, Vinh Phuc has developed additional ROSCAs based on shared experiences, with objectives similar to self-help associations. These ROSCAs include, but are not limited to:

- same age associations (people who are the same age);
- same subject associations (people who were in the same class or school);
- same unit associations (people who served in the army);
- girls' associations (young girls who are single);
- same roof associations (neighborhood members).

These groups have other activities such as supporting member families when a family member is sick or during weddings and funerals. Each member contributes about 20,000 VND ($1.26) at such times.

In another type of ROSCA, members may raise funds. When the fund is complete, the association distributes loans, with preference given to households in difficult financial situations. For big family events, the association provides a donation from the fund. These ROSCAs are significant not only for financial assistance but for emotional and spiritual support.