Horn of Africa Risk Transfer for Adaptation
HARITA project report: November 2007—December 2009
## Contents

Acknowledgements ........................................................................................................... 2  
Abbreviations .................................................................................................................. 3  
Executive summary ......................................................................................................... 4  
Background ...................................................................................................................... 5  
Rationale .......................................................................................................................... 6  
The consequences of inadequate coping mechanisms ..................................................... 7  
The HARITA model of managing climate risk ................................................................. 10  
Risk reduction: Minimizing vulnerability ...................................................................... 11  
Risk transfer: Weather index insurance ....................................................................... 12  
Prudent risk-taking: Credit ............................................................................................. 14  
How HARITA complements other risk management efforts ....................................... 15  
Macro level. ...................................................................................................................... 15  
Community level. ........................................................................................................... 15  
Innovations: Laying the foundation for demand-driven index insurance ..................... 17  
How to integrate insurance with risk reduction .......................................................... 17  
How to engage farmers meaningfully in insurance design ........................................... 17  
How to overcome weather data barriers .................................................................... 18  
How to increase insurance take-up by farmers ............................................................ 18  
Pilot results ..................................................................................................................... 19  
Challenges ...................................................................................................................... 21  
Inefficient methods for gathering information ............................................................. 21  
Voluntary donation to farmers for feff yield loss in 2009 ........................................... 21  
Conclusion ..................................................................................................................... 22  
Appendix I: Major partners and institutional roles ....................................................... 24  
Appendix II: Summary of pilot activities ...................................................................... 26  
Appendix III: Summary of transacted index ................................................................ 29  
Appendix IV: HARITA publications, coverage, and media ......................................... 32  
Endnotes ......................................................................................................................... 35  
Bibliography .................................................................................................................... 36
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- Ethiopian National Meteorological Agency
- Goulston & Storrs
- Institute for Sustainable Development
- International Research Institute for Climate and Society at Columbia University
- Mekelle University
- Nyala Insurance Company
- Oxfam America
- Relief Society of Tigray
- Swiss Re
- The Index Insurance Innovation Initiative at the University of California, Davis (UC Davis)
- Tigray Cooperative Promotion Office
- Tigray Regional Food Security Coordination Office
- Weil, Gotshal & Manges

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We extend our sincere apologies and thanks to anyone we inadvertently missed.

Abbreviations

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<tr>
<th>Abbreviation</th>
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<tr>
<td>DECSI</td>
<td>Dedebit Credit and Savings Institution</td>
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<td>GGLM</td>
<td>Group guarantee lending model</td>
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<td>HARITA</td>
<td>Horn of Africa Risk Transfer for Adaptation</td>
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<td>I4</td>
<td>Index Insurance Innovation Initiative</td>
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<td>IFW</td>
<td>Insurance for work</td>
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<td>IRI</td>
<td>International Research Institute for Climate and Society</td>
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<td>ISD</td>
<td>Institute for Sustainable Development</td>
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<td>MFI</td>
<td>Microfinance institution</td>
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<td>NMA</td>
<td>National Meteorological Agency</td>
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<td>PSNP</td>
<td>Productive Safety Net Program</td>
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<td>REST</td>
<td>Relief Society of Tigray</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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Executive summary

The Horn of Africa Risk Transfer for Adaptation (HARITA) project is an initiative involving poor farmers, Oxfam America, Swiss Re, the Relief Society of Tigray, Columbia University’s International Research Institute for Climate and Society (IRI), Nyala Insurance, Dedebit and Credit Savings Institution, various agencies of the Ethiopian government, and other partner organizations. Between November 2007 and December 2009, the HARITA partners designed a climate risk management package for farmers in the village of Adi Ha, located in Ethiopia’s northernmost state of Tigray. The project has broken new ground in the field of climate change resiliency and microinsurance by addressing the needs of smallholder producers through an unusual mix of risk reduction, drought insurance, and credit. Under the HARITA risk management package, insurance complements disaster risk reduction and long-term, sustainable investments in agriculture.

Although we saw great promise in a handful of prior weather insurance pilots for subsistence farmers, it was unclear how this new tool could be used at scale in very poor communities that are far removed from the world of formal financial services and weather measurement infrastructure. Uptake of weather insurance in prior pilots has been disappointing, partly due to the unfamiliarity of insurance concepts in poor communities and partly due to underinvestment in demand-driven (as opposed to supply-driven) products. HARITA’s project partners felt the weather insurance community needed (and still needs) to bring this new class of financial products closer to the core interests of their clients and to develop educational tools to increase farmer understanding.

Our model aims to respond to these concerns by taking a farmer-centric approach to product development. The project adopted an innovative, holistic approach to risk management, examining ways to integrate risk transfer (e.g., insurance) with risk reduction (e.g., improved agricultural practices and conservation activities) and prudent risk-taking (e.g., credit). The project found ways to overcome technical product design barriers, engage clients meaningfully in product development, and create a scalable in-kind premium payment model whereby farmers obtain insurance through their labor.

Our work has been recognized for its innovation in various international fora, journals, and media, including the Clinton Global Initiative, Global Risk Forum Davos, the UN Framework Convention on Climate Change, Nairobi Work Programme, the New York Times, BBC, Nature, New Scientist, The Guardian, and the Boston Globe.

Before embarking on such a new model of risk management, it was vital to test a transaction in one area with the full range of institutional players. The first season of results in Adi Ha demonstrated that the HARITA model can effectively reach vulnerable families, most of whom had once been viewed as uninsurable.

This report discusses general highlights of the pilot. A detailed technical report by IRI, “Designing Index-Based Weather Insurance for Farmers in Adi Ha, Ethiopia,” can be accessed on the IRI website.¹
Background

The Relief Society of Tigray (REST), Dedebit Credit and Savings Institution, and Oxfam America have been working with farmers in Adi Ha for more than a decade. HARITA began in the fall of 2007 with visits to Adi Ha by Oxfam America, International Research Institute for Climate and Society (IRI) and REST to explore the potential for microinsurance and gauge the community’s interest in a pilot. The following winter, Oxfam America commissioned an independent demand study, conducted with support from the Micro Insurance Association of the Netherlands and by representatives of the Development of Humane Action Foundation, the Center for Research on Environmental Decisions, and Addis Ababa University. In spring 2008, with farmers’ backing, Oxfam America contracted IRI to draft a prototype weather index insurance contract. In July 2008, Oxfam America and Swiss Re consolidated their collaboration and project implementation began.
Rationale

Risks of climate change

One of the most biodiverse nations on the planet, Ethiopia counts itself as the birthplace of many animals and crops, including coffee and teff, a staple cereal for the Horn of Africa and an important source of amino acids, minerals, and iron. Although rich in contributions to the world’s flora and fauna, Ethiopia is poor in development and food security. According to the 2009 Human Development Report of the UN Development Program (UNDP), Ethiopia ranked 171 out of 182 countries in the annual human development index ranking (UNDP, 2009).

Roughly 85 percent of all Ethiopians are engaged in smallholder, rainfed agriculture, and climate change poses an especially grave threat. Arguably, drought is the number one risk, not only for rural Ethiopians, but also for the country overall, as evidenced by the fact that the country’s macro-economic growth closely mirrors increases and decreases in precipitation (see Figure 1).

According to a variety of scientific studies, climate change could lead to extreme temperatures, extraordinary rainfall events, and more intense and prolonged droughts and floods in Ethiopia (IGAD and ICPAC, 2008). These projections come as particularly bad news when considering that Ethiopia already finds itself under significant climate stress, with more than 90 districts (in excess of 2 million households) already drought-prone. Climate change could greatly exacerbate this already difficult situation and have numerous effects on economic growth, livelihoods, and health, as well as the rate and intensity of disasters. Without concerted and substantial investments by public and private actors, the impact of these changes will fall disproportionately and tragically on people living in poverty, potentially erasing decades of human development and stretching the humanitarian response system beyond capacity.
The consequences of inadequate coping mechanisms

Climate change entails both shifts in average climate conditions (e.g., mean annual temperature, cumulative precipitation levels, and onset and cessation of the rainy season) as well as increased weather variability (e.g., more frequent dry spells and flash flooding). Given enough time and resources, farmers can adapt to new, average conditions. For instance, in the face of rising average temperatures, they can select more heat-tolerant crops, improve their management of water resources, and move planting dates. Such interventions can substantially reduce the risks posed by the relatively predictable (albeit new) gradual trends.

However, when it comes to unpredictable and extreme weather, effectively reducing risk is a more complicated process. For these types of threats, the combination of risk reduction and risk transfer (e.g., insurance) is key. Insurance can play a critical and complementary role to risk reduction in facilitating rapid recovery from low-frequency but severe climatic shocks, like prolonged droughts. Unfortunately, the Ethiopian insurance industry is woefully unprepared to help. Almost exclusively serving large, urban industry, formal Ethiopian insurers count fewer than 300,000 clients out of the country’s 79 million inhabitants (Chamberlain and Smith, 2009). While insurers recognize their risks are overly concentrated in urban centers, they struggle to identify cost-effective means to reach the majority of Ethiopians, who are predominantly poor and financially illiterate.

The lack of formal insurance not only leaves a gap in farmers’ risk management strategies, it also undermines prudent risk-taking. In general, Ethiopia receives average to above-average rainfall in 60 percent of all years (Hess et al., 2006). If farmers were able to take “smart risks,” the gains resulting from credit-based investments made during wet years could be much larger than the losses resulting from failure during occasional dry years. Without the ability to transfer risk and given the extreme levels of impoverishment in Ethiopia, it is perhaps unsurprising that a 2007 study by the International Food Policy Research Institute showed that more than 50 percent of Ethiopian farmers were “severely or extremely risk averse” in contrast to their counterparts in Asia and other parts of Africa, who exhibited a moderate-to-intermediate risk aversion (Yesuf and Bluffstone, 2007).

“Without insurance, poor farmers who experience drought might run through all their savings, fall into debt, or sell their livestock and other valuables—often to ruinous results. In contrast, insured farmers will be more resilient to those shocks. They’ll be in a better position to take out small loans that could help them make big improvements in their next harvest—loans for things like high-yield seeds.”

—Mengesha Gebremichael, microinsurance officer at the Relief Society of Tigray
Risk aversion affects both the supply and demand for credit:

**Demand**—Farmers in Tigray:
- Fear loan default for reasons beyond their control (e.g., drought).
- Face legal and social penalties associated with loan default.

**Supply**—Moneylenders (formal and informal) are aware of the risks of lending to smallholder producers and may extend loans on unattractive terms, although often they refuse to lend at all (Stiglitz & Weiss, 1981; Adams et al., 1984; Boucher, 2002).

These credit constraints may seriously hinder climate change adaptation. Based on data collected in Ethiopia, one recent study "confirms a positive relationship between the level of adaptation and the availability of credit" (Deressa et al., 2008). According to the study, "In particular, access to credit increases the likelihood that farmers will employ soil conservation methods, change planting dates, and irrigate".

Given credit’s enormous value as a financial service, Ethiopia has included it in its national Poverty Reduction Strategy Paper (IMF, 2007), making it one of the few countries in the world to do so (Microned, 2008). The Ethiopian government established a role for microfinance institutions (MFIs) with a legal and policy framework in 1996 (Amha, 2000), designating them as key institutions in the country’s development strategy. The establishment of the MFI industry helped many poor households—both rural and urban—access credit that had been virtually unavailable before their establishment.
While the Ethiopian government has admirably pushed its microfinance sector to serve agricultural portfolios, the threat of climate change could make it much more difficult to meet this goal sustainably unless robust risk management is put into place. Microinsurance will therefore likely constitute a critical element in overcoming farmers’ and lenders’ reluctance to enter into fully fledged relationships based on credit.

“Our season is changing. We don’t know when there will be a bad year and when there will be a good year. I believe, after taking the training, this insurance will be helpful during the bad season. This will pay me.”

—Selas Samson Biru
The HARITA model of managing climate risk

Since HARITA’s inception in 2008, we have broken important ground in finding ways to integrate risk transfer with risk reduction, and, gradually, credit. Our approach aims to be flexible enough to adjust to differing risk conditions at the village-to-village level, while at the same time helping very poor families overcome cash constraints in purchasing insurance.

The model consists of three main components:

- Risk reduction
- Risk transfer
- Prudent risk-taking

Working in conjunction with government policies, accessible input and output markets, and agricultural research geared to benefit smallholders, we believe these three components can help promote livelihoods at the household level and greater resiliency to evolving threats, especially climate change (see Figure 2).
Risk reduction: Minimizing vulnerability

HARITA considers risk reduction the foundation of any holistic risk management approach. Risk reduction entails actions meant to promote resiliency by minimizing vulnerability to and enhancing capacities vis-à-vis disaster risks. Farmers in Adi Ha participating in a community-wide Participatory Capacity and Vulnerability Assessment listed drought as the current, primary threat to their livelihoods and wellbeing. To limit the adverse impacts of drought and other important hazards, risk reduction in Adi Ha will require sustained use of locally appropriate farm, water, and soil management techniques, as well as increased social awareness of adaptation for the climatic challenges ahead.

The risk reduction activities undertaken in the 2009 phase of the pilot in Adi Ha were based on thorough consultations with the community and newly commissioned research on teff productivity in Tigray. These activities consisted of:

- **Making and using compost**—Critical for rebuilding soil nutrients and improving soil moisture retention.
- **Constructing small scale water harvesting and planting nitrogen-fixing trees and grasses**—Promoting soil regeneration, water conservation, and reducing the risk of flooding.
- **Cleaning teff seeds**—Boosting productivity and controlling weeds.

These risk-reducing interventions are key to reducing exposure to natural hazards, boosting income over time, and promoting quicker recovery from disaster. While further study is required, we expect the majority of the benefits of clean seeds, for example, to accrue to women, who are usually saddled with the labor-intensive task of weeding. Seed cleaning requires relatively little time to conduct and can be completed close to the home while minding children.

Most significantly, HARITA is exploring ways to build its risk reduction approach on Ethiopia’s Productive Safety Net Program (PSNP), a well-established, government social protection program serving eight million chronically food-insecure households.3

In 2005, acknowledging that the current food aid system was broken, the Ethiopian Food Security Office established the PSNP as a system of transferring cash and food to vulnerable households before they reach a crisis point. Assistance is coordinated through government and financial channels in exchange for the labor of beneficiaries for building community assets, such as water-harvesting structures, or reclaiming environmentally degraded areas.

As of 2008, the PSNP had grown into one of the largest social protection programs in Africa. Early impact studies suggest that the PSNP is superior to traditional, emergency food aid programs in significantly increasing household welfare. For example:

- In 2006, three out of five beneficiaries avoided having to sell productive assets, such as livestock and land, to buy food—a common “distress” response—with over 90 percent attributing this directly to the PSNP (UNDP 2007) (Sharp et al. 2006).
- Nearly 50 percent of program participants claimed they used healthcare facilities more than in the prior year (UNDP 2007).
- Over a third of beneficiaries enrolled more of their children in school, and nearly 50 percent kept children in school longer (UNDP 2007).

HARITA applauds the many successes of the PSNP and seeks to build upon them.
Risk transfer: Weather index insurance

HARITA could strengthen the PSNP by addressing the non-chronic needs not covered under the program. Through HARITA, Adi Ha's farmers enrolled in the PSNP had the option to work extra days beyond those required for their normal payments, but instead of earning cash or grain for this additional labor, they earned an insurance certificate protecting them against deficit rainfall. In other words, through this insurance-for-work (IFW) arrangement, farmers received “predictable transfers for unpredictable needs.”

The IFW model requires an independent source of financing, most likely from large, governmental and multilateral donors (though at the moment, Oxfam America is playing this role). Once scaled up, a HARITA-type risk management program could potentially tap funds from the following sources:

- Multilateral donors
- Foreign aid
- Carbon markets
- Emerging sources of climate change adaptation funds at the international level (See Appendix III for more information)

From the perspective of donors, the HARITA approach multiplies the value of money by two: While a certain amount of aid could be used for either paying an insurance premium or for hiring labor to carry out risk reduction measures, with HARITA, the same amount of money simultaneously results in both insurance and risk reduction.

Weather index insurance differs from traditional insurance, in which compensation to a policyholder is based on the estimated value of what was actually lost. Index insurance can be more effective than traditional crop insurance because it:

- Limits “moral hazard”—an index is not influenced by farmers’ behavior.
- Limits “adverse selection.”
- Can have lower administrative costs—no individual visits are required to assess damages as in traditional crop insurance. (However start-up costs can be large.)
- Increases affordability—administrative costs are lower.
- Allows for faster payout—farmers gain resources and time to manage shortages in food production.

Thus weather index insurance could help smallholder farmers by allowing them to stabilize their incomes and recover more quickly from climate-related shocks.
Over the course of the project, the allied project partners cooperated on designing an affordable, drought insurance prototype package for teff. With International Research Institute for Climate and Society and Swiss Re in the lead at the international level, and Nyala Insurance Company and Dedebit Credit & Savings Institution (DECSI) at the regional level, the team developed a weather index insurance product for Adi Ha. Weather index insurance entails risk transfer against events that cause loss. If a pre-defined weather event occurs during a pre-defined time, such as a shortage of rain during a crucial period in a crop’s growth, this event triggers predetermined payments to farmers who buy the policy. “Index” refers to the fact that the insurance is based on a proxy for loss and an objectively verifiable measure of weather.

Insurance can also allow poor producers to make potentially optimal production decisions, even in the face of uncertainty, meaning they can afford to plant high-yield seeds purchased on credit despite the uncertainty of future precipitation levels. Because the insurance contracts are priced from year to year, the premium charged can also reflect changing risks over time, including not only climate change trends but also seasonal rainfall predictions (see Osgood et al., 2008). In this way, the market signals to farmers what production strategies are likely to succeed given the current conditions.

Finally, insurance serves as a partial guarantee for banks and microfinance institutions that are reluctant to make substantial unsecured loans for inherently risky agricultural activities. In this way, formal risk transfer has the potential to reduce the interest rate on lending as well.
Prudent risk-taking: Credit

The final component of the HARITA model involves prudent risk-taking, primarily in the form of credit for:

- Purposes of livelihood diversification—such as honey production.
- Technology adoption—such as high-yield seed varieties and irrigation.
- Entrance into more value-added economic activities—such as producing high-value horticultural crops, like spices and vegetables.

As noted earlier, risk aversion can exacerbate farmers’ vulnerability by making them less likely to make such investments, even when affordable loans are available. Yet, credit for productive purposes can often lead to a better livelihood and gradual accumulation of wealth. In fact, an independent study commissioned by the Association of Ethiopian Microfinance Institutions found that 70 percent of the extremely needy clients of DECSI cited access to its lending programs as the reason for positive changes in their living conditions (Borchgrevink et al., 2005).

More than ever, insurance-based collateral is crucial, because of the increasing climate risks associated with agricultural lending and because of the current phase-out of Ethiopia’s farmer loan guarantee fund, which had made agriculture lending more viable.

Without government backing, most asset-poor farmers will only have access to their neighbors as collateral. Ethiopian microfinance institutions heavily favor the group guarantee lending model (GGLM) (Borchgrevink et al., 2005), where borrowers vouch for each other and cover defaults in the group. The GGLM is widely criticized by poor clients for stimulating conflict among borrowers, yet lenders will struggle to find an acceptable alternative once the loan guarantee fund is entirely eliminated. In this way, insurance could have a secondary benefit in providing an alternative to the GGLM. For all these reasons, credit is an integral piece of our aspirational model for HARITA.
How HARITA complements other risk management efforts

Macro level

The Ethiopian government is developing a variety of policies to address major regional and national weather-related risks. In 2006, for example, the government, the World Food Program, and reinsurer AXA RE developed a macro-level, index insurance policy to help the government deal with catastrophic drought across the country.

Community level

Communities are adept at managing minor, idiosyncratic shocks among households through informal community-based arrangements, such as helping each other after the death of a draft animal. HARITA is positioned to take on community-level mass risks, such as localized droughts that are not severe enough to trigger outside assistance but that nonetheless overwhelm farmers’ coping capacity. This layer of risk management was missing during the infamous famine of 1984, during which up to a million people perished. New research suggests the tragedy did not grow out of a massive drought as previously thought. Rather, a number of scholars argue that the famine was, in part, the result of many small droughts in prior years that eroded the capacity of communities to...
the point that they could no longer cope with the relatively modest drop in rainfall in 1984 (Fraser, 2007). The main implication then is that helping farming villages deal with small shocks along the way is just as important as helping them deal with catastrophic regional and national emergencies (which are often a reflection of weaknesses in the mechanisms to deal with minor shocks).
Innovations: Laying the foundation for demand-driven index insurance

Because this project breaks ground at a number of levels, we believe HARITA holds important lessons for promoting climate resilience in Ethiopia and beyond. Given that development practitioners have relatively deep experience with risk reduction and credit, HARITA has focused on exploring the potential and limits of the little understood tool of agricultural microinsurance. Although numerous successful examples of weather index insurance exist in highly developed countries like the United States and Canada, to date agricultural insurance has enjoyed limited application in developing countries.

As such, few existing index insurance projects have reached the stage of actual financial transaction, and most are small-scale pilot projects or one-year test-period projects. While these projects prove index insurance can work at a technical level, it remains to be seen how they can be scaled up and used effectively as an “industrial strength” tool for development that better serves the needs of the poor. Uptake of weather insurance in prior pilots has often been disappointing, partly due to the relative unfamiliarity of insurance concepts in poor communities and partly due to underinvestment in demand-driven (as opposed to supply-driven) products. HARITA is working to develop educational tools around this new class of financial products and to bring insurance closer to the core interests of farmers.

For all these reasons, we have prioritized research on index insurance, but only to the degree that it constitutes the experimental tool in a bigger toolbox. HARITA seeks to tackle four key barriers to using weather insurance at scale:

- How to integrate insurance with risk reduction
- How to engage farmers meaningfully in insurance design
- How to overcome weather data barriers
- How to increase insurance take-up by farmers

How to integrate insurance with risk reduction

As described above, the HARITA model of risk management integrates insurance with risk reduction and an optional component in credit as well. Most weather index pilots have bundled insurance only with credit. HARITA’s model is different in that it thoroughly integrates all three elements, with risk reduction being the most significant. By allowing very vulnerable farmers to pay their premiums through risk-reducing labor, farmers benefit even when there is no payout—the risk reduction measures taken in their communities pay dividends, even during the wet years. This insurance-for-work model allows farmers the option to bundle insurance and credit without being required to do so. Many farmers have told us that they are eager for more flexibility in managing their relationship to financial providers; this innovation helps respond to their concern.

How to engage farmers meaningfully in insurance design

Farmers in Adi Ha have been central participants in the design of the weather index insurance package by contributing ideas, feedback, and advice. HARITA’s emphasis on farmers’ interests differs from the dominant model of product design, which revolves primarily around the interests of lenders and insurers. The community helped the project partner organizations identify farmers’ vulner-
abilities to specific hazards and their capacity to adapt through a series of microinsurance demand assessment surveys, focus groups, and a community-wide Participatory Capacity and Vulnerability Assessment. Five community members were elected by their peers to join the “Pilot Design Team” to manage the initiative. A focus group of 21 farmers participated in a number of test workshops on climate change, financial literacy, and insurance. In addition, Columbia University’s International Research Institute for Climate and Society (IRI) conducted experimental economic risk simulations and focus group discussions with farmers to understand their preferences for key parts of the insurance contract, such as coverage levels and frequency of payout. This process of engagement resulted in a markedly more attractive product and improved the financial service providers’ ability to educate farmers effectively. In fact, a central innovation of the pilot—to enable the poorest farmers to pay for insurance in forms other than cash—was suggested by the farmers themselves during a focus group. Without the urging of farmers to make insurance affordable in creative ways, this innovation would never have been realized.

How to overcome weather data barriers

Designing rainfall index insurance normally requires at least 30 years of reliable, daily precipitation data. In most developing countries, rain gauges are sparsely distributed and limited in quality and duration. Not surprisingly, most weather index pilot project locations to date have been pre-selected for the quality of local rainfall records. These data-supply-driven pilots have demonstrated that weather insurance products are viable at the pilot level; however, the general lack of weather data is a serious barrier to extending weather insurance to the vast majority of poor communities, which are often located very far from existing weather stations with long and reliable records. Adi Ha is no different and had only seven years of rainfall data (deemed unreliable) at the beginning of the pilot. For this reason, we worked with IRI to explore new techniques to enhance sparse local datasets through a combination of satellite imagery, rainfall simulators, and statistical tools that incorporate information from the closest stations.

IRI carefully studied the time series in Adi Ha and surrounding areas. Based on its experiences in developing index products in Central America, Ethiopia, Malawi, and elsewhere, IRI developed a viable index based on satellite data and an open-source methodology for handling data gaps. While continued refinement will be necessary, IRI’s approach was examined and accepted by the insurance and reinsurance providers, Nyala Insurance Company, and Swiss Re. Also, as a complement to IRI’s work, a group of 21 farmers in Adi Ha were trained in weather data collection and have been helping the team better understand the rainfall patterns in the area to better manage basis risk.

How to increase insurance take-up by farmers

While some index insurance pilots have attracted solid demand from farmers, it is unclear why take-up has not been automatic or stronger given the many theoretical benefits of risk transfer.

Academic research and index insurance pioneers have found that farmers struggle to understand complex financial products, much less afford them. HARITA took the following steps to overcome these two barriers:

- Employed culturally appropriate popular education methods developed in conjunction with farmers (e.g., storytelling and participatory games).
- Offered in-kind premium payments that allow poor clients to “purchase” much more coverage than they could afford otherwise.

We are monitoring farmers’ experience with and without the HARITA package to better understand whether it is contributing to increased resiliency. Answering this question will require multiple seasons of research, but project partners are committed to sustaining our efforts in Ethiopia.
Pilot results

Over the course of two days, May 28-29, 2009, approximately 600 farmers attended project enrollment activities in Adi Ha, including financial literacy training, drama, music, and dancing, and enrollment and evaluative surveys. The rollout constituted a major milestone in the life cycle of the project.

As a result of the late-May outreach, 200 households signed up for the HARITA-affiliated risk management package offered by Ethiopia’s Nyala Insurance Company (known as the Wahisna package). Based on uptake rates in prior pilots, we had set our enrollment goal at an ambitious 100 households and were pleased to double that goal. Taking into account the number of households who purchased insurance versus the number of households who knew about the Wahisna product and understood it, the take-up rate in the first year of the pilot was 34 percent.

By way of comparison, consider that in a sample of studies asking whether a household has ever borrowed from any microcredit provider, the take-up rates of microcredit around the world vary from 38 percent to 76 percent, with most rates less than 50 percent (Karlan et al. 2010). These figures measure the percentage of households that have ever borrowed over a period of 3 or more years, with the highest number (76 percent) covering more than 10 years.
The fact that HARITA's first-year take-up rate has already reached a level close to the microcredit take-up rates reported for longer borrowing periods is surprising and encouraging. Microcredit products have been offered much longer and have had more time to evolve to meet households' needs.

Another exceptional aspect of the take-up rate in the HARITA program is that 65 percent of the households buying insurance are chronically food insecure, as defined by being participants in the Productive Safety Net Program (PSNP). Additionally, roughly 38 percent of enrollees were female-headed households. By definition, these two groups constitute the most vulnerable farmers in Adi Ha. Overall, 22 percent of all female-headed households purchased the package versus 18 percent of all male-headed households.

At the outset of the pilot, the received wisdom in the microinsurance industry was that farmers this poor were uninsurable, but our insurance-for-work model is a direct challenge to conventional thinking. Under the Wahisna package, very poor farmers can purchase insurance with their labor. Over time, as livelihoods improve and farmers graduate from the PSNP, they become candidates for the commercial insurance market where they can choose to pay for insurance in cash. Already, 35 percent of the enrollees (ones who are better off and not members of the PSNP) have paid in cash, using disposable assets they had built over time. Adjusted for landholding, farmers paid (in cash or labor) an average of 138 Ethiopian Birr in premiums (roughly US $12.22), approximately 1.8 times the minimum option.

The minimum purchase was 76 Birr (US $6.73), and the maximum was 229 Birr (US $20.28). Wahisna's charge was 22 percent of premium, plus a two percent administrative fee. Based on historical rainfall records, expected payout is just over one in five. To put these numbers into perspective, consider that there was no price subsidy, and that in 2008 the International Monetary Fund estimated Ethiopia's nominal, annual gross domestic product per capita at US $324.8

In most other index insurance pilots similar to HARITA, households that buy insurance have not been poor or very poor. We believe HARITA's demand-driven product development process has contributed strongly to these exciting results.

Figure 3. Selected enrollment results of the Wahisna package (HARITA policy), May 2009
Source: Columbia University Institute for Social and Economic Research and Policy
Challenges

Inefficient methods for gathering information

As this was our first experience with microinsurance and the development of a holistic approach to risk management, we recognized early in the pilot that our information-gathering process would be iterative, fragmented, and sometimes duplicative. While our different methodologies for the pilot (e.g., risk transfer and risk reduction) have unique strengths, they also overlap in the information they gather. We are seeking to integrate these methodologies into our monitoring, impact evaluation, and learning process in 2010.

In a similar vein, we worked with a wide range of researchers in 2009 to address specific research questions; in 2010 we aim to consolidate a smaller group of multidisciplinary researchers who will share a broader institutional knowledge of the project.

Voluntary donation to farmers for teff yield loss in 2009

HARITA is a program in its experimental stage. In the first cycle the index was not triggered, thus Nyala Insurance Company was not required to make an insurance payout. However, there was significant crop loss, in part due to lack of sufficient rain. Next year, we plan to expand the program to provide more coverage options and community support. Given the crop loss and that the insurance product is still under development, Oxfam America decided to make a one-time, voluntary donation to the farmers who participated in HARITA. (Oxfam America was under no legal obligation to make the voluntary donation and may decide not to make such donations in the future, even under similar circumstances.) The donation amount--46,000 Birr (approximately US $4,000)--was calculated by applying a hypothetical model of an index that could have addressed the risk encountered in 2009.9

We anticipate that the planned community saving component of the 2010 package could be utilized to provide payouts below the level of the deductible and address basis risk (losses not reflected by rainfall deficit calculations).
Conclusion

In June and August of 2009, two related studies of farmers were conducted in Adi Ha to measure insurance comprehension and factors affecting uptake. The studies were designed by a researcher at the Center for Responsible Environmental Decisions at Columbia University, in close collaboration with a field team at the Relief Society of Tigray.

The first study—to develop and test a means for evaluating the impact of the index insurance on the farmers of Adi Ha—included a randomized survey of 200 farmers in Adi Ha in June 2009, both buyers and non-buyers of the *Wahisna* financial package. The second study—to gain qualitative data about farming issues and coping strategies—included 21 interviews with farmers in Adi Ha, from August 2 to 6, 2009. A number of key findings emerged from these studies:

- **Insurance clients were more likely to be female, younger, and Productive Safety Net Program participants,** compared with non-buyers and the general population. They were also more likely to have less land and grow less *teff*. **These results demonstrate that the HARITA approach successfully targeted poorer farmers.**

- **Community trainings on insurance were key** to farmers being able to answer questions about insurance correctly—especially the training conducted through popular theatre.
• Farmers said the most common reason for non-purchase was being unaware of the opportunity (41 percent), while 13 percent said they did not understand the product. Just over 30 percent said they had no reason not to buy. These findings suggest areas for improvement in outreach and education.

• Survey participants were satisfied with the product’s current price (93 percent), period of coverage (96 percent), crop used (83 percent), satellite data use (90 percent), and complaint process (92 percent).

• Farmers stated they are more likely to buy insurance if it is connected to loans and improved loan terms. In the pilot’s first year, the insurance product was not tied to a custom loan package, although this is envisioned in future years. The study revealed that farmers who plan to take loans next year expect a higher average loan amount than this year (US $122 versus US $115). Plans for next year also show a greater interest in loans for agricultural inputs (20 percent higher) and investing in other businesses (68 percent higher, albeit from a low initial basis). (Peterson, 2009).

Selected HARITA Publicity


For further detail on other HARITA publicity, see Appendix IV.

This research also suggested specific ways to improve monitoring and assessment. Building on the findings, the HARITA team is now implementing a more robust monitoring and impact evaluation plan for our expansion phase in 2010 to understand the effectiveness and scalability of our model.

In short, the consensus is that HARITA has identified work areas of great promise. We are planning another round of innovation in 2010 in our search to develop an integrated set of tools that will reduce vulnerability to climate-related risk. This toolbox must prove useful and effective in a variety of regions and over a variety of risks. HARITA’s quest is urgent, and we appreciate the support of our funders in our search for answers.
Appendix I: Major partners and institutional roles

From the project’s inception, we have engaged a full range of stakeholders, including farmers, local partners, local financial service providers, international reinsurance companies, and academics with expertise in microinsurance, climatology, and participatory development. In May 2008, we launched a “HARITA Design Team,” consisting of representatives from the community, local stakeholder organizations, and Oxfam America. To promote a participatory design process, the HARITA Design Team was charged with designing and implementing the HARITA pilot, with support and feedback from international technical advisors, such as International Research Institute for Climate and Society and Swiss Re. For a detailed discussion of major partners and institutional roles, see below.
### HARITA partners

**Local**

- **The Adi Ha Community.** Central participants in the design of the pilot.
- **The Adi Ha Farmers Cooperative.** Primary organizing body for farmers in the community.

**Regional / National**

- **Relief Society of Tigray (REST).** Local project manager for HARITA, responsible for operating the Productive Safety Net Program (PSNP) in six districts of Tigray and overseeing all regional coordination. Established in 1978. Working with Oxfam since 1984 on development issues. Largest nongovernmental organization in Ethiopia (and one of the largest in Africa).
- **Nyala Insurance Company.** Private insurer in Ethiopia with a strong track record of interest in agricultural insurance.
- **Dedebit Credit and Savings Institution (DECSI).** Second largest microfinance institution (MFI) in Ethiopia with nearly comprehensive coverage of Tigray. Named by *Forbes* magazine as one of the top 50 MFIs in the world.
- **Mekelle University.** Member of National Agricultural Research System providing agronomic expertise and research.
- **Ethiopian National Meteorological Agency (NMA).** Technical support in weather and climate data analysis.
- **Tigray Regional Food Security Coordination Office.** Oversight of the PSNP in the pilot area.
- **Tigray Cooperative Promotion Office.** Responsible for helping organize farmers at the village level.
- **Institute for Sustainable Development (ISD).** Research organization dedicated to sustainable farming practices.

**Global**

- **Oxfam America.** International relief and development organization that creates lasting solutions to poverty, hunger, and injustice. Lead project manager for HARITA.
- **Swiss Re.** Global re-insurer and leader on climate change advocacy. Funding and technical expertise.
- **International Research Institute for Climate and Society (IRI).** Member of Columbia University’s Earth Institute. Research and technical expertise in climate data and weather index design for rural farmers.
- **The Rockefeller Foundation.** The Rockefeller Foundation supports strategies and services that help communities cope with the impacts of current and imminent climate change.
- **Index Insurance Innovation Initiative (I4) at University of California, Davis (UC Davis).** Research partnership on index insurance between academia and development organizations, with UC Davis, the Food & Agriculture Organization, International Labour Organization, and US Agency for International Development.
Appendix II: Summary of pilot activities

The goal of the HARITA pilot was to develop a scalable, rights-based model for empowering communities in Ethiopia to adapt to climate variability and change by piloting an insurance instrument and integrated risk-reduction measures as part of a holistic approach to risk management.


Goal: Assess the viability of launching a microinsurance pilot in Adi Ha.

- Commissioned a study of risks, coping mechanisms, opportunities, and demand for microinsurance among farmers in Adi Ha to assess the viability of launching a pilot.

Goal: Assess the viability of pursuing weather insurance for the microinsurance pilot, enable local stakeholders to participate in further development, and design a prototype contract for further engagement.

In collaboration with the Micro Insurance Association of the Netherlands, conducted a regional workshop to orient stakeholders to microinsurance concepts and discuss results from the demand assessment in Adi Ha so stakeholders can participate in further development of the pilot.

Commissioned International Research Institute for Climate and Society (IRI) to study the weather data available in Adi Ha and develop a prototype weather insurance contract to assess the viability of pursuing weather insurance for the microinsurance pilot.

Facilitated a community decision for the HARITA pilot to pursue weather insurance for teff farmers, informed by inputs from the demand assessment, regional workshop, consultation with technical advisors, and community focus groups.

Stage 3: Capacity Building for Participatory Design (July 2008–October 2008)

Goal: Establish a rights-based process for participatory design and orient the HARITA Design Team and pilot participants to the process and content of the pilot.

- Established a formal “HARITA Design Team” to coordinate the design and implementation of the HARITA pilot so the community and local stakeholders may be fully engaged in a rights-based process for participatory design.
- Recruited 21 “Pilot Participants” to engage farmers for feedback and mutual learning.
- Conducted a climate change workshop with the Pilot Participants.
- Installed an automatic weather station in Adi Ha and provided rain gauges for each Pilot Participant.
- Conducted a financial literacy workshop with the Pilot Participants.
- Conducted a weather insurance orientation with the HARITA Design Team for active participation in the design and implementation of the pilot.
- Commissioned experimental research on teff production strategies in Adi Ha to explore opportunities to boost teff productivity and reduce farmers’ dependence on expensive and sometimes problematic inputs, such as mineral fertilizer.


Goal: Design the financial package and establish a process for launching the package, and design risk-reduction measures to complement the weather insurance.

- Conducted a Participatory Capacity and Vulnerability Assessment (PCVA) in Adi Ha to understand which risk-reduction activities would be most appropriate to integrate with the weather insurance.
• Commissioned IRI to refine the prototype insurance contract; conduct research on rainfall simulations, remote sensing, and climate trends; and provide technical support to prepare for the launch of the financial package.

• Commissioned IRI and the University of California, Davis to conduct surveys and experimental economic risk simulations (game play) in Adi Ha to elicit farmers' preferences for different characteristics of drought insurance contracts and examine farmers' understanding of drought insurance.

• Conducted field research on the scalability of HARITA in seven other villages in Tigray.

• Negotiated with the community, partners and advisors to design a distribution model and develop the financial package.

• Consulted the community, partners, and advisors to understand which risk-reduction strategies could be tightly integrated and scaled with the weather index insurance.


Goal: Provide education and outreach necessary to launch the financial package.

• Conducted workshops with local partner staff, the HARITA Design Team, and Pilot Participants to educate them about the financial package, rehearse for enrollment days, and enable peer-to-peer outreach.

• Prepared pictorial handouts and posters about weather index insurance, designed with images appropriate to illiterate farmers.

• Commissioned a financial literacy drama that was performed for farmers on enrollment days--accompanied by music and dancing--so farmers could make an informed decision about whether or not to pay for the product.


Goal: Launch the financial package and risk reduction measures, and understand farmers' willingness to pay for the product.

• Coordinated with local partners and financial service providers to launch the risk management package via two enrollment days in the community, May 28-29, 2009.

• Enabled farmers in the PSNP to earn their premiums through a menu of different risk reduction activities, such as composting, constructing small-scale water-harvesting structures, planting nitrogen-fixing trees and grasses, and cleaning teff seeds.

Stage 7: Monitoring, Evaluation, & Learning (May 2009–May 2010)

Goal: Evaluate the pilot's outcomes and potential for scale.

• Collaborated with advisors and local partners to prepare a voluntary donation of 46,000 Birr (approximately US $4,000) to support farmers who bought the insurance in 2009 and suffered a substantial yield loss.

• Conducted quantitative surveys and qualitative interviews with farmers in Adi Ha to measure insurance comprehension and factors affecting uptake. An impact evaluation is currently under development.

• Sent a writer and photographer to Adi Ha to gain an in-depth qualitative understanding of the daily life of farmers in Adi Ha and their perceptions of the HARITA risk management package.
Appendix III: Summary of transacted index

The following technical summary of the index used for the Wahisna insurance in Adi Ha in 2009 is excerpted from a detailed technical report by the International Research Institute for Climate and Society (IRI), “Designing Index-Based Weather Insurance for Farmers in Adi Ha, Ethiopia,” which can be accessed on the IRI website.10

The index is designed to proxy an early end to the rainfall season, determined by consensus to be the primary risk for teff. If the cumulative rainfall as reported by the National Oceanic and Atmospheric Administration (NOAA) ARC satellite rainfall remote sensing product for the months of August and September (11 August - 09 October, European calendar, 5 Nahase – 29 Maskaram, Ethiopian calendar) does not surpass the trigger value of 105 millimeters, the insurance policy will
pay out. The direct source for ARC data is from NOAA\(^1\), and IRI has made ARC data and background information available through the IRI data library\(^1\). Payout is calculated according to the following formula, decreasing linearly between 105 millimeters to 60 millimeters (no rain):

\[
Payout = (1 - \frac{(\text{Rainfall Sum} - \text{Exit})}{(\text{Trigger} - \text{Exit})}) \times \text{Max Payout}
\]

\[
Payout = (1 - \frac{(\text{Rainfall Sum} - 60)}{(105 - 60)}) \times 1000
\]

This formula is in terms of a unit-less currency, with a maximum liability scaled to 1000 units, so it can be adjusted for any maximum liability desired.

Historically, in the 14 years of ARC satellite rainfall records we have available for analysis (since this particular satellite was launched), this index would have produced payouts in 1997, 2000, and 2004 in Adi Ha.

The year 2000 was identified independently by numerous groups of farmers in Adi Ha as the last major dry cropping season for teff. The contract has been designed for broad agreement between rainfall simulations, surrounding stations, and other satellite rainfall estimates. Table 1 reports the payouts, rainfall, and comparison with a model of crop water stress presented as a proxy for yield losses.

For this contract, the mean payout is approximately eight percent of the maximum liability using the raw historical rainfall data, and 11 percent when applied to rainfall simulations. Much of the price of this contract is driven by the observed downward trend in the rainfall data, and the exits of this contract have been reduced to keep pricing workable when the climate trend is included. The trend is not represented in the raw data in the table below, although the contract has been modified in response to the trend.

To make the contract workable given the climate trend, the exit was reduced from 80 millimeters to 60 millimeters. With the original exit, which does not account for the downward trend (80 millimeters), the contract has a full payout of approximately one out of 12 years. With the exit reduced in response to the trend, the contract would be expected to have a full payout of approximately one out of 27 years.

The mean payout using either detrended historical data or simulated rainfall is approximately 15 percent\(^{13}\).
### Table 1. Historical burn payouts for transacted index

<table>
<thead>
<tr>
<th>Harvest Year</th>
<th>Crop Water Stress Index— a proxy for losses</th>
<th>Satellite estimated Rainfall (in mm over contract window)</th>
<th>Losses (calculated from Crop Water Index - % of max liability)</th>
<th>Payout (% of max liability) 105mm trigger and 60mm exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0.5691</td>
<td>127.01</td>
<td>4.87</td>
<td>0</td>
</tr>
<tr>
<td>1996</td>
<td>0.6071</td>
<td>197.94</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1997</td>
<td>0.5687</td>
<td>85.60</td>
<td>5.35</td>
<td>43.11</td>
</tr>
<tr>
<td>1998</td>
<td>0.6626</td>
<td>195.55</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1999</td>
<td>0.6539</td>
<td>177.37</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>0.4469</td>
<td>99.17</td>
<td>127.12</td>
<td>12.95</td>
</tr>
<tr>
<td>2001</td>
<td>0.5151</td>
<td>125.72</td>
<td>58.91</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>0.5254</td>
<td>113.51</td>
<td>48.59</td>
<td>0</td>
</tr>
<tr>
<td>2003</td>
<td>0.6325</td>
<td>188.94</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2004</td>
<td>0.4461</td>
<td>80.92</td>
<td>127.94</td>
<td>53.51</td>
</tr>
<tr>
<td>2005</td>
<td>0.6116</td>
<td>118.63</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2006</td>
<td>0.5646</td>
<td>173.71</td>
<td>9.41</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>0.6499</td>
<td>138.88</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>0.5789</td>
<td>112.91</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Correlation (teff health vs. rainfall):** 0.7104

**Correlation (losses vs. payouts):** 0.5388

### Table 2. Insurance packages offered to farmers

<table>
<thead>
<tr>
<th>Max Payout</th>
<th>Approximate Premium (Birr)</th>
<th>Premium in days of PSNP Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>288</td>
<td>24</td>
</tr>
<tr>
<td>1000</td>
<td>240</td>
<td>20</td>
</tr>
<tr>
<td>800</td>
<td>192</td>
<td>16</td>
</tr>
<tr>
<td>600</td>
<td>144</td>
<td>12</td>
</tr>
<tr>
<td>400</td>
<td>96</td>
<td>8</td>
</tr>
</tbody>
</table>

The climate trend is included in the pricing, leading to a premium with loaning and fees of approximately 24 percent of maximum liability. It is likely that strategies can attenuate the impacts of this apparent trend on the pricing.

The contract options for the Adi Ha project were chosen to match likely farmer needs and outcomes during the season. The minimum contract option that farmers were allowed to purchase would completely cover their inputs for the teff growing season (400 Birr maximum liability). The maximum contract option would completely cover the average expected loss for the teff growing season (1,200 Birr max liability). This was calculated as a difference of the average yield in a “good season” and the average yield in a “bad season,” per farmer surveys.

Three additional contract options were offered as gradations between these two, as show in Table 2. There were options to purchase the contract using cash as well as days of labor; and in the case of a payout; payments could potentially be in grain or cash.
Appendix IV: HARITA publications, coverage, and media

HARITA reports available for public use (approved)

**Short-length reports (fewer than 2 pages)**
“HARITA Executive Summary 2010,” February 2010 (3 pages)

**Medium-length Reports (fewer than 10 pages)**
“HARITA Progress Report, January 2010 to June 2010,” June 2010 (final approval pending)

**Long-length reports (10 or more pages)**
- “Micro-Insurance Demand Study—Summary,” March 2010 (final approval pending)
- “Micro-Insurance Demand Assessment in Adi Ha,” February 2008
- “Index Insurance Games in Adi Ha, Tigray, Ethiopia,” July 2009

Photo: Eva-Lotta Jansson / Oxfam America
• “Livelihoods, Coping, and Micro-Insurance in Adi Ha, Tigray, Ethiopia,” August 2009
• “Designing Index-Based Weather Insurance for Farmers in Adi Ha, Ethiopia,” July 2009
• “HARITA Scale-Up Plans 2010 and Beyond,” March 2010 (final approval pending)
• “HARITA Project Report, November 2007 to December 2009,” June 2010
• “Pro-Poor Insurance: Principles and Paths Ahead,” June 2010 (final approval pending)

HARITA information on Oxfam America website
Stories about the microinsurance pilot are posted on the Oxfam America website:

“Weather Insurance Offers Ethiopian Farmers Hope — Despite Drought”
oxframamerica.org/articles/weather-insurance-offers-ethiopian-farmers-hope-despite-drought
oxframamerica.org/multimedia/slideshows/a-tiny-seed-and-a-big-idea

“Medhin Reda’s Best Asset Is Her Own Hard Work”
oxframamerica.org/articles/medhin-reda-looks-to-weather-insurance-to-solve-problems

“Gebru Kahsay Relies on Rain But Has the Security of Insurance”
oxframamerica.org/articles/gebru-kahsay-relies-on-rain-but-has-the-security-of-insurance

“Selas Samson Biru Faces Uncertainty With the Seasons”
oxframamerica.org/articles/with-insurance-selas-samson-biru-finds-help-in-the-bad-season

HARITA reports available for stakeholders (not general public)

Short-length reports (fewer than 2 pages)
• “HARITA Monthly Report Narrative Summary,” May 2010
• “HARITA Lessons Learned” brief developed with Swiss Re, February 2010

Medium-length reports (fewer than 10 pages)
• Presentation on HARITA from I4 Conference, Rome, January 2010
• Presentation on HARITA for Swiss Re, March 2010
• “2010 Clinton Global Initiative (CGI) Commitment Progress Report,” March 2010

Long-length reports (10 or more pages)
• “HARITA Swiss Re Report,” January 2010
• “HARITA Rockefeller Foundation Report,” February 2010
• “Economic Innovation & Incentives Fund Report,” March 2010
HARITA in the news

Media

• Anne Chetaille and Damien Lagrandré, “L’assurance indicielle, une réponse face aux risques climatiques?” Inter-réseaux Developpement Rural (Mar. 31, 2010).
• “Microinsurance to Mitigate Climate Change Impact,” Lloyd’s of London News Centre (June 4, 2010).
• Omer Redi, “Insurance Firm Sows Seeds,” Addis Fortune (June 14, 2009).
• “Coping With Climate,” Newsweek (Dec. 30, 2008).

Citations

• “Index Insurance and Climate Risk: Prospects for Development and Disaster Management,” International Research Institute for Climate and Society (IRI), Columbia University.
• “Index Insurance for Development and Disaster Management,” IRI, Columbia University.
• United Nations Framework Convention on Climate Change Nairobi Workshop, where HARITA was introduced to country delegates.
• Global Risk Forum Davos and International Development Research Centre, Microfinance and Disaster and Risk Reduction (forthcoming).
Endnotes

1 http://portal.iri.columbia.edu/portal/server.pt/gateway/PTARGS_0_4972_6332_0_0_18/rpt09-04%202009_ethiopiainsuranceReporttoOxfam.pdf

2 According to the International Monetary Fund, “Poverty Reduction Strategy Papers (PRSPs) are prepared by member countries through a participatory process involving domestic stakeholders as well as external development partners, including the World Bank and International Monetary Fund. Updated every three years with annual progress reports, PRSPs describe the country’s macroeconomic, structural, and social policies and programs over a three year or longer horizon to promote broad-based growth and reduce poverty, as well as associated external financing needs and major sources of financing.”

3 Program costs are approximately US $500 million annually. The PSNP is supported by a wide range of donors, including the World Bank, the World Food Program, the UK Department for International Development, and the US Agency for International Development.

4 Note that richer farmers who did not participate in the PSNP were able to purchase insurance with their own cash. As such, they constitute a potentially important subset of clients for the Ethiopian insurance industry.

5 Moral hazard is when an individual enters an agreement by providing misleading information about assets, liability, or credit capacity to earn a profit. For example, with traditional crop insurance a farmer would allow crop failure (e.g., by not working toward adequate crop production). Therefore, the farmer still benefits from an insurance payout even though the crop failure was intentional.

6 Adverse selection is when an individual’s demand for insurance increases as the level of risk-taking increases, and the insurer is unable to account for this characteristic in the price of the insurance.

7 These are percentages of households who have ever borrowed versus of households that are eligible for the program (not all households in the area served).

8 It is important to mention that while the product did not feature a price subsidy, it did require a source of financing to allow farmers to monetize their labor. In year one, Oxfam America provided these funds to the PSNP, and, in this sense, the insurance-for-work model is non-commercial.

9 For the avoidance of doubt, we used the hypothetical model solely for the purpose of determining the amount of the voluntary donation. The hypothetical model was not a part of the insurance farmers purchased last spring and may not be a part of any insurance product that farmers are offered in the future.

10 http://portal.iri.columbia.edu/portal/server.pt/gateway/PTARGS_0_4972_6332_0_0_18/rpt09-04%202009_ethiopiainsuranceReporttoOxfam.pdf


12 The ARC data is also directly available through the data library at http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.CPC/.FEWS/.Africa/.DAILY/.ARC/.daily/X/39.089/VALUE/Y/13.736/VALUE/est_prcp/T/(1%20Jan%202009)(30%20Oct%202009)RANGEEDGES/T+exch+table+text+text+skipanyNaN+-table+.html. By changing the latitude and longitude in the URL directly you can access the ARC for other sites. This link is set up for Adi Ha.

13 It is likely that the difference between simulated and historical rainfall is less for the detrended data because the detrending process changed many non-payout years to payouts. This is often the primary driver for differences between rainfall simulations and historical burn analysis. Fairly quantifying the potential for near payouts in historical data is one of the primary reasons that rainfall simulators are used.


Forty percent of the people on our planet—more than 2.5 billion—now live in poverty, struggling to survive on less than $2 a day. Oxfam America is an international relief and development organization working to change that. Together with individuals and local groups in more than 90 countries, Oxfam America saves lives, helps people overcome poverty, and fights for social justice. To join our efforts or learn more, go to oxfamamerica.org.

For more information about the Rural Resilience Series, please contact Oxfam America Senior Global Micro-Insurance Officer David Satterthwaite at (617) 728-2590 or dsatterthwaite@oxfamamerica.org.