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BUILDING RESILIENCE

Ethiopia: Using a Social Safety Net to Deliver Disaster Insurance to the Poor

CASE STUDY

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Summary

Ethiopia's Horn of Africa Risk Transfer for Adaptation (HARITA) program – recently renamed the R4 Rural Resilience Initiative (R4) – is an innovative model of how demand-based disaster micro-insurance for the poor can be integrated into a social safety net (SSN) program, enhancing both its climate-related and social protection benefits. HARITA/R4 offers weather-based insurance to a chronically poor, highly climate-vulnerable population in the Tigray region of Ethiopia; most are already participants in the country's national Productive Safety Net Programme (PSNP). They pay for the insurance through the provision of additional labor on community-based disaster risk reduction activities that complement the PSNP's public works activities.

HARITA/R4 contributes to the PSNP's food security objectives by supporting public works that increase resilience to climate-related shocks, as well as protecting its beneficiaries' assets and income from low frequency but severe recurrent disaster impacts (mainly droughts). The insurance scheme made its first payouts to clients following a major drought in 2011 and, based on promising results to date, it is currently being scaled up in Ethiopia and expanded into Senegal under the direction of Oxfam America and the World Food Programme (WFP).

Natural Disaster/Climate Change Context

With over 80 percent of its population dependent on rain fed agriculture, Ethiopia is particularly vulnerable to weather-related shocks. Rainfall levels vary greatly by region and can be difficult to predict (World Bank/United Nations, 2010). Although the Intergovernmental Panel on Climate Change (IPCC) predicts only a modest change in Ethiopia's rainfall patterns in future (Christensen et al, 2007), this can still adversely affect very poor small farmers – especially if any decreases are concentrated in the growing season (Oxfam International, 2010).

Over the past six decades, Ethiopia has been particularly susceptible to drought. Droughts have occurred every three to five years, with some lasting over several years. Serious droughts and famine, either widespread or localized, have occurred several times and affected millions of people. The impacts of the droughts have been exacerbated by high population growth, conflict, governance and institutional capacity issues. All of these factors have contributed to the erosion of the productive assets and coping capacities of households and communities. Food insecurity is widespread[1] and food aid needs have been sizable, fluctuating between 0.4 - 2.5 percent of GDP between 1996 and 2001 (World Bank/United Nations, 2010).

[1] Ethiopia's population was over 80 million in 2009, 14 million of whom were food-insecure (Doh et al, 2012).

Program Description

The R4 initiative began in 2007 as an agricultural risk management program, HARITA. The program's purpose was to enable poor smallholder farmers in the drought-prone region of Tigray to strengthen their food and income security through a combination of improved resource management, affordable disaster insurance, and microcredit. It was initiated by an international NGO, Oxfam America; Ethiopia's largest NGO, the Relief Society of Tigray (REST); the International Research Institute for Climate and Society (IRI), a member of Columbia University's Earth Institute; Ethiopia's second largest micro-bank, the Dedebit Credit and Savings Institution (DECSI); and an Ethiopian insurance company, the Nyala Insurance Share Company. The project was undertaken in partnership with a global reinsurance company, Swiss Re, the Government of Ethiopia (GoE) and local farmers. The Rockefeller Foundation, together with Swiss Re, has financially supported HARITA/R4 since its inception.

Existing approaches to providing drought insurance to the poorest in Ethiopia had not been effective owing to high administrative costs and the inability of cash-poor smallholders to afford premiums. REST was a PSNP implementing partner in six districts of Tigray (expanded to 12 districts in 2012) and, together with Oxfam America, identified the PSNP's potential as a vehicle to promote disaster micro- insurance.

The PSNP is a donor-supported government SSN program that reaches over eight million chronically food-insecure households in Ethiopia, providing them with employment opportunities on public works projects to assist them to get through the annual "lean period" of food insecurity from January to June. Oxfam America/REST envisaged that the social protection offered by the PSNP's regular cash transfers, combined with an affordable mechanism to receive predictable insurance transfers for weather-related losses through HARITA, would help to create the pre-conditions for poor farmers to feel safer to make investments in increasing their productivity.

Oxfam America and REST worked closely with the GoE to build an "insurance-for-work" (IFW) scheme into the PSNP's Tigray operations. The IFW gives poor farmers the option to work to pay for insurance cover through the PSNP on small-scale community-identified projects that build climate resilience and agricultural productivity, such as improved irrigation or soil management. These projects complement an existing PSNP public works focus in these areas.

In the event of a seasonal drought, automatic insurance payouts by HARITA/R4's implementing partners to the client farmers are triggered if rainfall drops below a predetermined threshold.[2] This enables farmers to afford the seeds and inputs necessary to plant in the following season and protects them from having to sell off productive assets to survive. The model also facilitates farmers' access to credit for the purchase of productive assets through HARITA/R4's partnership with a micro-finance institution, using the insurance as collateral, i.e., there is a decreased risk of defaulting on loan repayments due to crop losses (Oxfam America, 2010b).

[2] This is known as index-based or parametric disaster insurance, rather than traditional indemnity-based insurance. Index insurance differs from indemnity insurance as compensation to a policyholder is based on the estimated value of what was actually lost, rather than a process of verifying and paying out individual claims. It is generally easier and cheaper to verify weather in a given region than to visit individual farms to assess damage (Oxfam, 2009 Overview).

HARITA was initially implemented as a small pilot project in 2009, with 200 farming households in one Tigray village, Adi Ha. Over 2010-11, the pilot grew to include nearly 13,200 households in 43 villages across nine districts of Tigray. Under R4 (2012-16), program coverage will continue to expand across Ethiopia and will be introduced into three other countries through a new partnership with the WFP (WFP/Oxfam America, 2012).

HARITA's two pilot phases were funded by Swiss Re, the Rockefeller Foundation and Oxfam America's internal funding. Swiss Re has dedicated a further US$ 1.25 million over five years for R4 program activities. The United States Agency for International Development (USAID) also has committed US$ 8 million for the expansion of R4, initially into Senegal, and the broader global development of the program. USAID funds WFP in the R4 collaboration, while Swiss Re supports Oxfam America. R4 has also been receiving continued support from the Rockefeller Foundation through Oxfam America. R4 aims to attract a total of US$ 29.5 million in external investment in order to implement its five year program.

Key Design Features

Institutional Partnerships

In order to succeed, HARITA/R4 has had to invest significantly in building partnerships between the public sector, private sector and community institutions. When the program was first launched, Ethiopian insurers served almost exclusively large companies and wealthy households in urban areas, with fewer than 300,000 clients in a country of over 80 million people; the regulatory and institutional environment to support micro-insurance was also weak (Doh et al, 2012). At present, R4 has nine national partners, including two national insurance companies, and each brings its own critical set of resources and expertise to the initiative.

Public sector/PSNP partnerships

HARITA/R4 has made effective use of the PSNP's district- and village-level implementation structure to support delivery of the IFW program, contributing to the capacity development of PSNP staff in return. The PSNP's village level database is used to identify HARITA/R4 participants and the GoE's District Administrators and village level field agents for natural resource development, rural agriculture development, and food security play key roles in both programs. These officials, along with some other PSNP staff, are involved in HARITA/R4's community mobilization and planning of public works activities. Some joint monitoring of the IFW is done by HARITA/R4's disaster risk reduction expert, district-level natural resources team and micro-insurance assistants in collaboration with PSNP staff. HARITA/R4 district level capacity building activities on micro-insurance and disaster risk reduction also include PSNP participants, and senior PSNP regional bureau experts participate in HARITA/R4 meetings.

The GoE provides technical support to HARITA/R4's weather and climate data analysis through the National Meteorological Agency (NMA). The program also works with Tigray's Regional Food Security Coordination Office, which is responsible for oversight of the PSNP, and the Tigray Cooperative Promotion Office, which helps to organize village level farmers.

Private Sector Partnerships

HARITA/R4 has attracted a number of key private sector partners over the past five years; these partners are sharing the costs and risks of starting up the insurance market until it becomes commercially viable. Swiss Re has worked with Oxfam America from the outset, assisting the NGO and its partners (IRI, Nyala Insurance and REST) to develop workable weather-based insurance models, in addition to acting as the program's reinsurer. Swiss Re underwrites between 80 to 90 percent of the total amount insured by the Ethiopian insurance companies which issue insurance policies to the farmers.

The two Ethiopian insurance providers are Nyala Insurance and the Africa Insurance Company, the latter which joined HARITA/R4 in 2011. The DECSI has provided credit to several participating households, as well as educating local farmers about insurance. DECSI also acts as an intermediary for the insurance companies, working with local farmers' cooperatives that are responsible for collecting premiums and announcing and making insurance payouts.

A number of national and international research institutes also provide technical support to the program, such as Ethiopia's Mekelle University and IRI (WFP/Oxfam America, 2012).

Community Partnerships

Educating poor and largely illiterate farmers about the benefits of insurance, ensuring the insurance product meets their needs, and building trust between the insurance providers and farmers, has been a critical element of HARITA/R4's success to date in attracting increasing numbers of farmers to the program.

The communities have actively participated in the development of the products, resulting in what many consider to be an attractive micro-insurance package, as well as a substantially increased ability to educate farmers about it (Suarez and Linnerooth-Bayer, 2011). Farmer design teams are formed in each village and they work with REST and IRI experts to develop product options that are identified as meeting their needs. These teams also play a key role in the design, monitoring, and evaluation of HARITA/R4's climate resilience-building public works. Each design team consists of six to seven community members, including two women representatives, all elected by their peers (Oxfam America, 2011c).

Oxfam Ethiopia has contributed to community education on insurance by the insurance companies and DECSI, using tools such as participatory games, theater, and storytelling. These events have both built trust and increased farmers' financial literacy (Satterthwaite, 2012).

Weather Indexing System

The development of an accurate system to assess the likely damage caused by poor rainfall and trigger insurance payouts (weather indexing) has been essential to the credibility of the IFW scheme. This was a challenge during the early stages of HARITA, as poor and remote communities in Ethiopia tended not to have sufficient reliable longer-term rainfall data[3]. A technical implementing partner, IRI, designed new techniques to enhance its sparse datasets

[3] This is partly due to their distance from weather stations, which can be costly and difficult to establish and maintain

but had to go through a process of trial-and-error. For instance, in the pilot year of 2009, the weather index did not trigger a payout to the insurance clients in Adi Ha village even though the farmers experienced significant weather-related crop loss (Doh et al, 2012), because of the high insurance deductible and crops covered. Oxfam made a one-time donation to the IFW participants to maintain confidence while the indexing system was being fine-tuned.

Over the course of the pilot projects, IRI came up with an indexing system that combines modern technology with local knowledge. Due to a lack of reliable rainfall data collected over time, IRI incorporated satellite imagery, rainfall simulators and statistical tools to develop weather indices. For each village, the weather indices are calibrated to the local crop calendar and rainfall amounts, and set by local experts in consultation with the village farmer design team. Payments are triggered by satellite image estimates of cloud cover (as a proxy for rainfall levels), with automated meteorological stations installed to evaluate the performance of the satellites. For validation and educational purposes, farmers are also trained to monitor rainfall using manual rain gauges in each village (Oxfam America 2011a). Additional validation and design information includes satellite vegetation observations, Ethiopian government rainfall measurements, and available yield data. IRI's approach and data have been evaluated and accepted by the partner re/insurance companies (Doh et al, 2012).

At present, farmers can choose from two different indexing options or a combination of both:

- *Early Index*: targets weak or late onset of rainfall, which impacts sowing and the establishment of long-cycle crops, like sorghum and maize.
- *Late Index*: targets weak or early end of rainfall, which impacts flowering and grain filling of all crops.

For each index, there is a *dry* and *extra dry* option, roughly analogous to the low and high deductibles[4] used in indemnity-based insurance products. The *dry* option is designed to yield a meaningful payout about once in four or five years for each index, and the *extra dry* option about once in every nine or ten years. In 2010, 93 percent of farmers purchased the more costly dry option, as it offered them more frequent payouts (Doh et al, 2012). The premiums are updated from year to year; the flexibility of this approach allows for the capture of changing climate trends, seasonal forecasts, and longer-term risk (Oxfam America, 2009).

Insurance Premiums and Payouts

HARITA/R4's systems for setting and processing insurance premiums and post-disaster payouts are sensitive to the different needs and circumstances of clients. These clients fall roughly into two groups: 1) the PSNP participants, who comprised nearly 91 percent of the 13,195 clients in 2011, and are among the poorest farmers in their respective districts (Oxfam America, 2010b); and 2) poor, but relatively better-off, farmers, who constituted 9 percent of the 2011 clients.

Adjusted for landholding, all participating farmers have paid an average of around US$ 12 in premiums per year[5] (Suarez and Linnerooth-Bayer, 2011). The better-off farmers pay in cash.

[4] An insurance deductible is a pre-determined amount which the insured person will be required to contribute themselves in the event of making a claim (e.g., US$ 500 towards a hospital bill).

[5] Ethiopia's nominal, annual GDP per capita is US$ 324 (Suarez and Linnerooth-Bayer, 2011).

The poorer PSNP participants are given the option of working a certain number of additional days per season on public works projects to pay for that year's index insurance (Oxfam America 2011a). In exchange, they receive an insurance voucher. The PSNP's attendance and payroll system is used to record and monitor HARITA/R4 clients, while DECSI issues the vouchers.

Regarding insurance payouts, the amount received by each farmer varies based on the risk exposure of the crops insured, the value of the crop insured, the farmer's choices of which options to purchase, and the degree to which the actual rainfall is below the trigger. The funds are transferred from the insurance company to DECSI, which in turn transfers the funds to the village level farmers' cooperatives, as DECSI does not have offices in each village.

HARITA's payment system was first put to the test during the 2011 growing season, when early rains failed in Tigray. Payouts were successfully made to 1,810 farmers (14 percent of 2011 clients) in seven villages who experienced drought conditions. The total payout to all farmers was around US$ 17,392 (295,662 ETB). IRI is currently conducting a survey to assess the satisfaction level of those clients who received payouts. IRI's 2011 rapid customer satisfaction survey in two villages that did not receive payouts (as their weather index was not triggered) found that 84 percent of respondents did not think they should have received a payout;[6] some also suggested ideas for further insurance products (WFP/Oxfam America, 2012).

In 2012, drought conditions in parts of the project region led to a second insurance payout to more than 12,200 farmers in 45 villages, totaling US$ 322,772. Because of variations in the regional severity of the drought, the farmers outside of drought regions did not receive payouts. Some other farmers in less severe locations had partial payouts, while many, in the most badly hit areas, received full payouts. This is the first time that a weather index insurance program in Ethiopia has delivered payouts at such a large scale directly to small farmers. The advanced satellite technology in use provided sufficient early warning for the payouts to be calculated and issued just as the crops were beginning to suffer. As a result, farmers were able to receive the funds when they needed them the most (Oxfam America, 6 December, 2012).

Complementarity of Public Works

HARITA/R4's public works activities are designed to be complementary to those of the PSNP, and are identified and planned in coordination with the PSNP program at the district and village levels. For example, in some areas where the PSNP has undertaken terracing work to stabilize slopes, HARITA/R4 projects have carried out supplementary activities such as the construction of percolation ponds/flood diversion structures and/or the planting of trees and grasses. The costs of some activities, like check-dam construction, are occasionally shared by both programs. Certain types of smaller-scale community and household level activities are carried out exclusively by HARITA/R4, such as soil composting and micro-gardening, as a highly localized approach to the public works is the most suitable.

HARITA/R4 communities are closely engaged in the identification and prioritization of these activities, based on the results of a participatory village-level vulnerability and capacity analysis. Around 91 percent of the farmers who took up insurance in 2011 worked on such projects

[6] These figures should be interpreted as indicative, rather than statistically representative, given the small sample size (n=95).

which included: construction of water run-off diversification structures in 42 villages; restoration of degraded communal catchments in nine districts; supply of a local variety of multi-purpose drought resistant plants (*bele*) to 7,574 farmers; and training of 3,004 farmers, extension agents and cooperative/administrative leaders on composting (Oxfam, 2011d).

Care has been taken to include gender strategies in the public works activities. Those that are less labor intensive and increase women's income-generating opportunities are particularly emphasized. For example, during the 2011 agricultural season, a total of 2,875 female- headed households in nine districts prepared small backyard land plots for micro-gardening to grow vegetables for household consumption or sale in local markets (Oxfam America, 2011d).

Program Results and Sustainability

The expansion of coverage is a key part of HARITA/R4's longer-term strategy, in order to gradually develop a sustainable insurance market for poor farmers in Ethiopia and elsewhere. A critical mass of clients, spread over different climatic zones, will be required to make poor farmers commercially attractive to insurance providers. Additionally, in order to make the insurance product commercially viable, it will be important to extend coverage to areas where farmers are capable of paying for their premiums in cash (Oxfam, 2011d).

HARITA has achieved promising growth in insurance coverage among poor rural farmers over its first six years of implementation. For example, by the end of the initial pilot project in late 2009, the insurance policy take-up rate attained in *Adi Ha* village was 34 percent,[7] which greatly exceeds most other micro-insurance products and compares favorably with the uptake of mobile phones and micro-credit in developing countries (Dinku et al, 2009, in Suarez, and Linnerooth-Bayer, 2011). The project expanded into four more participating villages during the 2010 agricultural season, with the take-up rates ranging from six to 36 percent, an average of 22.8 percent across all five villages; project capacity limitations constrained further desired expansion (Oxfam America, 2010a). The client base has further grown in four out of five of these villages in 2012 (WFP/Oxfam, forthcoming).

HARITA/R4 is also making modest, but encouraging, progress towards building a sustainable commercial insurance market in rural Ethiopia. In the 43 villages where the annual insurance premiums were offered for a second year in 2012, farmers purchased insurance with 10 percent payment in cash and the remaining in labor for the first time. In the 33 new villages to which insurance was extended, farmers purchased the insurance with 100 percent cash payment (Oxfam America, 2012). A few more instances of drought-triggered payouts in the years ahead will likely further stimulate interest, as farmers see the value of investing in disaster insurance.

The project has been carrying out a longitudinal impact evaluation since 2010, using "difference-in-difference" analysis to measure changes in farmers' production decisions and livelihoods that can be attributed to the project. The baseline and follow up surveys were conducted during and following the 2010 growing season, the first growing season for which

[7] Calculated according to the number of households who purchased insurance versus the number of households who knew about and understood the product.

IFW was offered in 4 out of 5 of the evaluated villages. Oxfam America found that impacts varied considerably from village to village and by type of household.

In 2010, the IFW scheme made a substantial impact on the crop yields of the participating farm households in one out of the five villages in which the program was evaluated. In the village of *Awet Bikalsi*, farmers who bought insurance realized teff yields that were 57 percent greater than the yields realized by farmers who did not buy insurance.[8] In all villages, farmers who purchased insurance planted more seeds and seemed to be switching to high-yielding-variety seeds at higher rates than did farmers who did not buy insurance. They were also using more compost than were farmers who did not purchase insurance. We are not yet seeing the effects of these changes in inputs on crop yields in most of the villages, possibly because the sample size for the evaluation is not large enough to distinguish the change from overall variation in yields after only one season. The signal may become stronger after several more growing seasons.

In addition, farmers who bought insurance tended to invest less family labor in agriculture and to diversify their sources of income relative to farmers who did not purchase insurance. They also experienced smaller losses of livestock than did farmers who did not buy insurance. More farmers who bought insurance for the second time reported that they expect to plant different crops, use more fertilizer, and obtain loans (Oxfam America, 2011b).

A second follow up survey of the 2012 growing season was taking place at the time of production of the case study. A comprehensive monitoring and evaluation framework has also been developed for the roll-out of R4 in Senegal with WFP support.

Replicability

HARITA/R4's potential as a broader model for agricultural micro-insurance has been assessed positively by Swiss Re, WFP, and USAID – based on performance to date. All have committed resources to its continuing expansion, alongside of Oxfam America.

So far, the R4 initiative has enrolled nearly 19,000 insurance clients across 76 villages in 11 districts/regions of Ethiopia during 2012. The program will continue to expand to other regions of Ethiopia, in line with its available resources and capacity, as part of its efforts to attract additional insurance and reinsurance companies to the agricultural market in Ethiopia. The planning process for the 2013 pilot rollout in Senegal is underway, commencing with a national-level analysis and the preliminary selection of potential pilot areas. Further replication in two other countries is intended in R4's later years (WFP/Oxfam America, 2012).

[8] The difference-in-difference approach reports impacts based on a comparison of households who purchase insurance and those who do not over time (from baseline to follow-up) and between program and control villages. The methodology is quite robust in providing impacts of the program only, eliminating the influence of other factors.

Lessons Learned

- The provision of disaster insurance to the chronically poor is feasible, provided it is designed to meet their self-assessed needs and circumstances. The positive response by cash-poor PSNP beneficiaries to the opportunity to purchase insurance with their labor indicates that the demand exists, if an appropriate mechanism is created and well-explained.
- SSN programs can provide an effective and likely cost-efficient vehicle to make disaster insurance accessible to the chronically poor. The security provided by the insurance, combined with regular cash transfers and/or other forms of asset protection against climate-related impacts, may further create an enabling environment for prudent risk-taking by poor households to increase and diversify their asset/income base. These mutually reinforcing measures may also contribute to reversing asset erosion, a key constraint to poverty graduation in places at high risk from recurrent disaster/climate impact.

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