DECEMBER 2010

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Participatory Impact Assessment:

Africa Community Resilience Programme Tsaeda Amba Woreda, Eastern Tigray, Ethiopia

Research Program on Livelihoods Change Over Time — Final Report

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Cover Photos:

An agriculturalist inspects maize growing in highly eroded field in Irob Mountains, on the escarpment between Eastern Tigray and the Dalul Depression. Maize crops here fail three years out of five.

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Acknowledgements

The research team consisted of individuals from World Vision (Girum Tadesse, Eyasu Shishigu and Shimelis Hailu), Mekelle University (Wolde Gebreal Zewold), Tigray Agricultural Research Institute (Kinfe Mezgebe) and Tufts University (Dan Maxwell and Fayera Abdissa). The team would like to thank many other individuals and organizations for their support of the study. These include, first and foremost, Francis Dube of the World Vision Africa Regional Office; members of the World Vision Ethiopia National Office—Shimelis Abate, Dedebe Taye, Taye Yadessa and Saba Yosef; staff of the Mekelle Program Office—Endale Eshete and Haile Selassie Desta. We would especially like to thank the Tsaeda Amba ADP staff—Melesse Worku (ADP manager), Alemu Tolera (project coordinator), and other members of the staff as well as the whole ADP team at Tsaeda Amba.

Many members of the Tsaeda Amba staff were also members of the field team. This included Samuel Getachew, Tesfay Gebrekristos Hagos, Teame Kahsay Teklehalmanot, and Yirgalem Negash Asu. The authors constituted the other members of the field team.

We would especially like to thank Mekonnen Tesfay and Mulu Gebremedhin—members of staff from Government Departments of the *woreda* headquarters in Freweini. They joined the fieldwork team for the duration of the study and organized community to fully participate in the research assessment. We would also like to thank various members of staff of *woreda* offices: the *woreda* chairman and vice chairman and other members of *woreda* staff interviewed.

We would like to thank the Dean of the College of Dryland Agriculture and Natural Resources at Mekelle University, Dr. Girmay Tesfay, who lent enormous support to the study and helped us identify two able members of the team as research assistants. We would also like to thank the President of Mekelle University, Dr. Mitiku Haile, for his support and for making the connection with the College of Dryland Agriculture. We would also like to thank staff at REST who have been supportive of the study throughout.

At the Feinstein International Center office in Addis Ababa we would like to thank Andy Catley, John Burns, Yacob Aklilu, Berhanu Admassu, Hirut Demissie, and Fasil Yemane. At the home office in Medford, we would like to thank Peter Walker, Anita Robbins, Rosa Pendenza, Ann O'Brien and Beth O'Leary for their support to the study. Lastly, we would like to thank our families and the many people in Tsaeda Amba who shared with generously their knowledge, their time, and their hospitality.

The Research Team
September 2010

Acronyms

ACRP . . . . . Africa Community Resilience Project
ADP . . . . . Area Development Program (World Vision)
CDPC . . . . . Community Disaster Preparedness Committee
CFW . . . . . Cash for work
CMAM . . . . Community management of acute malnutrition
DPPA . . . . . Disaster Preparedness and Prevention Agency (Government of Ethiopia)
DRM . . . . . Disaster risk management
DRR . . . . . Disaster risk reduction
EPRDF . . . . Ethiopian People's Revolutionary Democratic Front
ETB . . . . . Ethiopian birr—national unit of currency
EW . . . . . Early warning
FFW . . . . . Food for work
GOE . . . . . Government of Ethiopia
HARITA . . . Horn of Africa Risk Transfer for Adaptation
HH . . . . . Household
HHH . . . . . Head of Household
HIV/AIDS . Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IRB . . . . . Institutional Review Board
KDPC . . . . . *Kebele* Disaster Preparedness Committee
LCOT . . . . . Livelihoods Change over Time (research program)
LEAP . . . . . Livelihoods Early Assistance Program
LIU . . . . . Livelihoods Integration Unit (DPPA)
NGO . . . . . Non-governmental organization
PRA . . . . . Participatory rural appraisal or participatory rapid Appraisal
PSNP . . . . . Productive Safety Net Program
REST . . . . . Relief Society of Tigray
SMART . . . . Specific, measurable, attainable, relevant and time-bound
UN . . . . . United Nations
WFP . . . . . World Food Programme
WVI . . . . . World Vision International

Terminology

Several terms related to local administration are used throughout this report. *These include:*

Kebele . . . The smallest administrative unit in Ethiopia, equivalent to a ward or township

Kushet . . A subdivision of a *kebele*, equivalent to a village

Woreda . . The next larger administrative unit, equivalent to a district

Timad . . . One fourth of a hectare, literally a day's (eight hours') plowing activities done with a pair of oxen

Uqub . . . . A group of people that come together and contribute equal amounts of money within in a defined time (e.g., month) and give the total sum to one member to use. This will continue turn by turn until it enriches all.

Idir . . . . . Idir is a social gathering to contribute money monthly and help members during funerals. In recent times, the self-help nature of *Idir* has sometimes extended beyond the cost of funerals.

Executive Summary

Disaster Risk Reduction (DRR) programs encompass many different kinds of activities, but share the fundamental objective of enhancing the capacity of vulnerable communities to identify, reduce and manage risk, whether it be at the local, regional or national level. Generally outlined in the International Strategy for Disaster Reduction and in the Hyogo Framework of Action (UNISDR 2005), DRR includes improving governance and early warning, building a culture of resilience, reducing underlying risk factors and strengthening disaster preparedness.

Ethiopia is one of the most food-insecure countries in the world, but only recently has the food security problem begun to be understood in terms of a complete analysis of livelihoods, rather than simply a food supply problem. Food insecurity has long been dealt with as an issue of humanitarian response, but it clearly is an underlying developmental issue. Beginning in 2005, the Productive Safety Net Program has been implemented to address the issue of chronic food insecurity on a programmatic basis (i.e., not on the basis of annual assessments, humanitarian appeals, and emergency response). Concurrently, the issue of evolving away from a disaster-response approach towards a disaster risk management approach has been the policy of the government of Ethiopia.

The Africa Community Resilience Project (ACRP) was designed by World Vision International in line with the Hyogo Framework for Action as a blueprint to creating resilient communities. The project is research-based and will build capacity for improving resilience through disaster risk management programming and mainstreaming. The project will also define key indicators of resilience, and seek to influence policies and programming aimed at supporting disaster risk reduction. Tsaeda Amba *woreda* in Eastern Tigray was selected as the site for ACRP, and Tufts University was engaged to conduct the research side of the program. This study sought to understand baseline conditions related to both the implementation of the ACRP program, and to the broader question of livelihood change in response to repeated hazards or protracted crises. This study was based on participatory approaches to research. A household survey within the ACRP project area was conducted earlier in 2009, and its statistical results offer some triangulation of the findings of this study.

This serves as the final report of this study. This report has four main objectives. The first is to update the participatory livelihoods assessment, the first round of which was conducted in July 2009. This report compares results for 2009 and 2010, both in the participatory assessment and in the household survey. The attempt is to understand trends, and in particular to assess the impact of the drought and high food price inflation in 2008–09 in comparison with a relatively more normal year in 2010. The second was to use indicators suggested by the first assessment to consider the impact of ACRP—bearing in mind that the time between the two rounds of the assessment was only one year, which is a very short time frame to be looking for impact in a DRR program. The third objective is to briefly summarize the results of other reports that were part of the study, particularly the January 2010 report on institutional and policy enabling and constraining factors. On the basis of these, the last objective is to suggest recommendations on future disaster risk reduction interventions in Tsaeda Amba or more broadly.

The 2010 participatory assessment relied on a retrospective baseline, so that income sources, sources of food, expenditure and household demographics and assets could be compared for the same households. These results demonstrate the impact of the drought and other shocks including the high price of food that affected households in Tsaeda Amba

in 2009. The participatory assessment results show a generally smaller proportion of food and income in Tsaeda Amba coming from the Productive Safety Net Programme (PSNP). Results also demonstrate a substantial loss of livestock assets between 2009 and 2010, although the baseline comparison for these results—it was determined through focus group discussions—was really the beginning of 2009, not July 2009 when the baseline assessment took place. Much of the loss of animals took place during the dry season of 2009, between January and April. These losses were heavier in higher-income households and male-headed households that had larger herds to begin with—implying that smaller herd sizes are easier to manage in a drought. While people realize this, there is still a tendency to stock up during good years, and a reluctance to de-stock, even if drought conditions appear to be imminent. This problem remains a significant challenge to disaster risk management in Tsaeda Amba. Survey results show that in 2010, food security indicators are generally improved, and household income has shifted towards the sales of agricultural produce. In comparison, in 2009, household income heavily relied on livestock sales and various forms of external support—predominantly the PSNP, but also some smaller NGO programs that offered food for work or cash for work forms of support.

A number of institutional factors constrain efforts to reduce risk and overcome food insecurity, including land access, credit, traditional practices, and access to the Productive Safety Net Programme. Significant changes in the Productive Safety Net Programme were evident in the 2010 research, but it was too soon to gauge their impact. Ethiopia has a new Disaster Risk Management policy. While still in draft format, the new policy is already the basis for much of the activity on the ground.

The major impact of ACRP has been in the area of capacity building—at both the *woreda* and *kebele* level, particularly in analytical skills. *Kebele* Disaster Preparedness Committees (KDPCs) have been formed in all cooperating *kebeles*, most of which also have disaster preparedness plans. The project was well integrated with government planning and programs, and the approach is being integrated into other World Vision projects in Tsaeda Amba.

The participatory assessment also assessed the question of the level of assets a household would require to be able to withstand a bad year and be able to recover without substantial public support. The results of this analysis, while far from a consensus, imply levels of assets that are so high (in excess of the levels of even the wealthiest groups currently) as to imply environmental degradation problems that future DRR and development interventions must do more than simply increase household asset holdings under current technological constraints

The report concludes with a series of recommendations to ACRP managers. These include gradually shifting the focus of ACRP focus from awareness-raising to more specific interventions; enhancing the focus on capacity building; incorporating ACRP objectives into integrated development programs; enhancing the geographic focus of interventions to achieve impact; matching staff time allocation to the requirements of programming; and treating ACRP as a learning laboratory. ■

Section 1: Introduction

Disaster Reduction in Ethiopia

Ethiopia is one of the most food-insecure countries in the world, but only recently has the food security problem begun to be understood in terms of a complete analysis of livelihoods, rather than simply a food supply problem. Ethiopia has long had standing national capacity for disaster response as well as the support of the international donor community in responding to famines or livelihood crises. In recent times there has been much more emphasis on the prevention, mitigation and reducing the risk of disasters (Coates et al. 2010). Several major programs and policies now underpin this approach to disaster risk management.

The first of these policies is the linkage between the Productive Safety Net Program (PSNP) and DRR. The PSNP, introduced in 2005, addresses the predictable needs of chronically vulnerable groups who require assistance during the hunger gap season even in good years. It provides support to vulnerable households through an employment guarantee (food and/or cash—either through food/cash for work or by direct transfer, depending on circumstances). Labor-deficit households qualify for free transfers. Early evaluations of the PSNP focus on targeting and linkages to other programs (such as the "household package program") that promote the development of sustainable livelihoods (Devereux et al. 2006). Linkages with these other food security programs have yet to be fully realized (Gilligan et al. 2008).

Since 2004 the Government of Ethiopia and a set of donors and UN, led by WFP, have been designing a drought risk-transfer scheme as one component of the PSNP. "Weather index insurance" is linked to the underlying systemic risk, in this case low rainfall. Rainfall levels are indexed and recorded at a regional level such as a local weather station. When rainfall is received below a certain level within a certain region, the insurance plan provides payment to individuals living within that area. The key innovation of this approach is that insurance payments are not linked to the extent of the loss or damage to livelihoods resulting from poor rainfall, but are tied instead to amount of rainfall received. Once the existence of a sufficient degree of correlation between rainfall and yield is established, contracts can be developed under which payments would be made if rainfall levels fall below the selected levels. Advantages of such a program include that it is inexpensive to administer since it allows for standardization and avoids the need to draw up individual insurance policies. This approach is being tried at the national level in Ethiopia (the LEAP project) and at a much more localized (*kebele*) level (the HARITA project). The HARITA project is piloted by REST and Oxfam America, partnering with a local insurance company to provide similar insurance coverage, to individuals who sign up at the beginning of each season (Oxfam America 2009).

Boudreau (2009) highlights the new approach to integrating disaster risk assessment into the management of and response to humanitarian crises in Ethiopia. For most of the past thirty years, crises in Ethiopia have been responded to after the fact, with significant time lost to the predictable cycle of post-crisis assessment, appeals, and response. While the Productive Safety Net Program has been critical in responding to predictable need (i.e., the so called "chronically vulnerable" groups that require assistance to make it through the hungry season even in good years), the same approach to proactive management of risk will now be incorporated into an overall national disaster preparedness and management strategy. This has culminated in a new national disaster-risk-management policy (described in detail below and in Coates et al. 2010).

The Africa Community Resilience Project

The Africa Community Resilience Project (ACRP) was designed as a DRR project by World Vision International in line with the Hyogo Framework for Action as a blueprint to creating resilient communities. The project is research-based and will build capacity for improving resilience through disaster risk management programming and mainstreaming. The project also defines key indicators of resilience, and seeks to influence policies and programming aimed at supporting disaster risk reduction. Ethiopia is one of three countries involved in the program, and the Tsaeda Amba project in Tigray is one of four Area Development Programs involved.

Update on the ACRP Program in Tsaeda Amba

Since the first round of fieldwork completed in July 2009, ACRP has been engaged in a number of activities. These include identifying partner organizations, including Government of Ethiopia offices, other NGOs, and universities; running training workshops with government office staff, *kebele* chairpersons and managers from each of the eleven targeted *kebeles* of the woreda on 2009 implementation and 2010 planning; and forming of a task force to oversee operations. Other activities are detailed in Section 3 below.

Several factors constrained ACRP activities. Challenges included high staff turnover and the limited level of staffing at the ADP level, with all staff having multiple commitments and limited time for project activities; late approval of annual plans by the National Office; limited community resource mobilization (World Vision 2009). The research field team also noted limited staff time, multiple obligations, and long working hours by program staff. ACRP activities in 2010 and further discussion of constraints are discussed below in Section 3.[1]

The LCOT program

The Livelihoods Change over Time (LCOT) program was proposed to capture major livelihood adaptations in situations of protracted or repeated humanitarian emergencies, taking into consideration both the interventions of humanitarian agencies and the institutional, environmental and policy constraints that define livelihoods. The purpose of LCOT is to capture livelihood dynamics longitudinally over time, including the impact of shocks or crises in real time when they occur.

The Tsaeda Amba study is one of three planned studies under LCOT, capturing the elements of protracted vulnerability to slow onset crises, with major causal factors being drought and other climatic factors, chronic poverty, resource degradation, and increasingly, inflation and other economic hazards. In reality, of course, Tsaeda Amba residents face multiple hazards but the case study intended to capture these as the main hazards.

Objectives of the study

Undertaken in collaboration with World Vision, the Tsaeda Amba study intends to capture the dynamics of livelihood change over time in a given location, and to capture the impact of the DRR interventions that World Vision is implementing through ACRP. Insofar as ACRP is a pilot program, it is intended to develop a risk management strategy that can be scaled up to apply to other areas of Ethiopian and Africa more broadly. Thus strategy development is also part of the objective. Specific objectives include efforts to

- assess the impact of a specific, community-driven Disaster Risk Reduction program in Northern Ethiopia;
- assess change in livelihoods over time, including an understanding of the dynamics of changes in livelihood assets, strategies and outcomes in response to repeated shocks;
- understand the major factors driving these changes—all causal factors including but not limited to interventions of ACRP;
- understand community perceptions of hazards and risk;
- develop the means to measure the impact of DRR intervention in chronically risk prone areas; and
- provide feedback to project management in the development of a risk management strategy.

Research questions

Two sets of research questions guide this study:

1. In northern Ethiopia, what is the evidence that a set of community-driven interventions to reduce or mitigate the risk of specific hazards will enable people to anticipate, prepare for, mitigate, cope with, and recover from the impact of a shock and become more resilient to future shocks? Are people less at risk after the program? Are their assets better maintained? Do livelihood outcomes (food security, nutrition, health) deteriorate less in the face of shocks?
2. How do communities perceive risk and what do they perceive is necessary to overcome the risk of repeated humanitarian emergencies? What do communities consider to be the appropriate mix and threshold of assets necessary for overcoming the risk of repeated crisis at the household level? What are the main institutional constraints to risk reduction irrespective of household strategies and assets?

Objectives of the 2010 Participatory Impact Assessment

This assessment was the second round of annual data collection, comparing changes in livelihood status in

1 For a complete description of the ACRP project, see the first report in the study (Maxwell et al. 2009) https://wikis.uit.tufts.edu/confluence/display/FIC/Baseline+Report+-+Africa+Community+Resilience+Project. This report is an impact assessment, but also a measure of changes in livelihoods—whether these changes were brought about by the project or by other causes.

Tsaeda Amba woreda with 2009. Specific objectives were to

- assess livelihood conditions in 2010
- compare livelihood conditions and resilience in 2010 with 2009
- assess local understandings of thresholds required to overcome chronic vulnerability
- assess the capacity of Kebele Disaster Preparedness Committees (KDPCs) and the contribution of ACRP to KDPC capacity and preparedness

Field methods

As in 2009, two different data collection activities took place—a participatory impact assessment led by the Tufts team (this report), and a household survey undertaken directly by World Vision. The results of the household survey are in Annex 2. This report is based on participatory, qualitative data; but, where comparisons with the household survey data are possible, they are presented to greater understand the phenomena being discussed.

The field team was comprised of researchers from Tufts University, Mekelle University, Tigray Agricultural Research Institute, World Vision staff (the national office, the Mekelle program office, and the Tsaeda Amba Area Development Program office), and Government staff.

The participatory impact assessment was based on recent methodologies (Catley et al. 2008), including a participatory assessment of current livelihoods status, but also included a retrospective baseline, asking respondents to compare 2010 with 2009 status. Key informant interviews were conducted with *kebele, kushet,* and *woreda* leaders to assess changes in capacity and to understand better the thresholds of livelihood assets and diversification needed to constitute resiliency in the face of hazards faced in Tsaeda Amba. Focus group discussion were held with a wide range of community participants, and included a specifically designed livelihoods analysis (the results of which are depicted in Section 3). Members of the team also reviewed community plans with the KDPC leadership. The team spent one day in each *kebele*. Two teams worked on focus group interviews for the livelihoods assessment, interviewing groups of six households (separate groups for men and women).[2] A third team interviewed key informants. Informed voluntary consent was obtained from all groups interviewed using IRB-approved consent forms. Other government officials and ADP staff were interviewed separately. At the end of each day of data collection, team members typed or hand-wrote their notes and submitted them to the Principal Investigator along with all completed consent forms. Debriefing sessions conducted with the full team were helpful to dig more deeply into the enumerators' impressions of the focus group results. The Ethiopian team members were able to assist in interpreting the data based on their own in-depth knowledge of the local context.

Sampling

The team utilized a purposive sampling approach to site selection for this phase of the research. The same *kebeles* and *kushets* visited during the baseline in 2009 were revisited, enabling a direct comparison of results. The number of *kushets* sampled in each livelihood zone was roughly proportionate to the geographic coverage of the ACRP program in that area. See Table 1. *Kebeles* visited for the participatory assessment included Hawile, Raele (Atsbi-Wonberta), Marwa (Irob Mountains), Geblen and Tahtay Ziban (Eastern Plateau). Two *kushets* were sampled in Geblen and Tahtay Ziban, only one *kushet* was visited in the others. The study was limited to the *kebeles* included in the ACRP program, which is not all the kebeles in the *woreda*. Figure 1 is a map of the *woreda*, depicting the different livelihood zones. Table 1 shows the *kebeles* included in the ACRP program, and the purposive sample selected for the study, and gives an indication of the levels of chronic vulnerability by showing the proportion of the population included in the PSNP. The purposive selection was based on maximizing the diversity of livelihoods, livelihood systems, hazards, and management practices from *kebeles* within the ACRP area. The Participatory Impact Assessment team visited the same *kebeles* and *kushets* in 2010 as in 2009.

The household survey, summarized in Annex 1, was conducted by World Vision staff (with assistance from the Tufts team in 2009; on their own in 2010). It was a based on a sample of 400 households in the ACRP operational *kebeles* selected through a two-stage sampling process, with *kushets* as the primary sampling unit. The same questionnaire was used in both rounds of the survey, but different households were selected.

Limitations of the study

The selection of informants and some of the actual interviewing was done collaboratively with the *kebele* administrator. Inevitably, this makes for a certain amount of "administrator bias" in both the selection of participants and in some of the information provided. The request was for a purposively selected sample that rep-

2 The focus groups were intended to be male household heads and female household heads. It subsequently became apparent that a small handful of female respondents were not household heads, but results are interpreted in terms of the sex of the household head.

TABLE 1. The Study Area (2009)					
Kebele	Population	ACRP	Study	Livelihood Zone	% in PSNP
Geblen	2,920	X	X	Eastern Plateau	66.2
Marwa	3,130	X	X	Irob Mountains	63.1
Taltay Ziban	3,261	X	X	Eastern Plateau	51.6
Saesie	8,299	X		Eastern Plateau	58.9
Korma Sebha	5,723	X		Eastern Plateau	71.0
Mesihul	1,186	X		Irob Mountains	65.3
Sewene	3,059	X		Eastern Plateau	62.3
Wolwalo	4,205	X		Eastern Plateau	67.3
Emba Simena	5,795			Eastern Plateau	66.1
Hadish Hiwot	8,879			Eastern Plateau	48.9
Edaga Hamus	9,675			Eastern Plateau	23.0
Beleso	3,059			Eastern Plateau	62.3
Hadish Adi	5,482			Eastern Plateau	61.5
Raele	4,581	X	X	Atsbi-Wonberta Highlands	77.5
Hawile	6,064	X	X	Atsbi-Wonberta Highlands	73.1
Mai-Megelt	8,291			Eastern Plateau	42.6
Hangoda	3,790			Eastern Plateau	51.0
Agazi	8,574			Eastern Plateau	39.2
Sinkata	5,173			Eastern Plateau	38.3
Freweni	11,392			Eastern Plateau	19.5
Guila Abena	7,673			Eastern Plateau	35.9
Gemse Agamet	8,353			Eastern Plateau	42.6
Sendada	9,358	X		Eastern Plateau	48.1
Saze	7,979			Eastern Plateau	42.4
Tsenkanet	4,497			Eastern Plateau	52.1
	150,398				48.8%

Source: *Woreda* administration

resented a cross section of the community, but consisting of male and female heads of households.[3] The team did its best to ensure the independence of the research by assuring all informants of complete confidentiality of their answers, and attempted to deal with this potential bias by asking questions from various different angles to compare responses. Nevertheless it is not possible to conduct research completely independently of local administration. For this reason, there is some comparison of results found from the (purposively sampled) participatory results with the (randomly sampled) household survey (See Annex 2).

Team members believed that respondents were routinely underestimating the extent of their assets. Respondents—particularly key informants—tended to answer questions as if the study was a needs assessment—hence the tendency to understate assets. Also, when trying to rank hazards, "needs" would often be the answers to questions (as in 2009, lack of potable water would routinely be mentioned as one of the top "hazards," but of course potable water isn't a hazard—it is a need, and obviously a very serious one). But this tendency introduced a second form of bias to answers. This was generally easy to recognize and mitigate.

3 It subsequently emerged that a small number of the women interviewed were not heads of household.

The kebeles selected for the study (and the project) are not representative of the whole *woreda*. They were selected for the project because they are the most drought-prone in the *woreda,* and therefore they are likely to present a generally less well-off picture in terms of livelihoods compared to the rest of the *woreda*—no attempt was made to assess conditions elsewhere. (This is the case for both the Participatory Impact Assessment and the household survey).

Although numeric or semi-quantitative results are presented from the current study and particularly from the proportional piling responses to the livelihoods baseline, this report (with the exception of Annex 2) is not intended to be statistically representative of the eleven *kebeles* of the ACRP, and there is no attempt to extrapolate any of the findings on the basis of statistics. Rather, the results of the participatory assessment have logical inference—that is the logic of the findings can be used more broadly than presented here. The household survey interviewed different households in 2010 from 2009, so the statistical results in the annex are not a panel study but rather two cross sectional snapshots using the same methodology.

The impact of a program like ACRP may take a long time to be fully manifested in the livelihoods of people in the communities served. There was only one year between the baseline and this assessment—far too short a period to observe major changes in livelihoods. And there are many *other* factors influencing people's livelihoods beyond this particular project. These factors are noted and discussed in Section 2. In many ways, this assessment, as well as the original baseline in 2009, should be seen as a combined baseline that captures the general beginning of a focused effort in DRR by World Vision, not a "before" and "after" assessment related to one specific short-term project. ■

Section 2: Livelihoods Change in Tsaeda Amba, 2009–2010

Livelihoods in Tsaeda Amba woreda

Tsaeda Amba *woreda* is a chronically vulnerable district, located between the Irob Mountains on the border with Eritrea, the escarpment dividing Tigray and Afar regions, and other chronically drought-prone highland areas of Eastern Tigray. It consists of three different livelihood zones, each with a different agro-ecology and topography but similar kinds of livelihoods. It is one of the chronically food insecure *woredas* identified by the Government of Ethiopia. In 2009, over 73,000 of the roughly 150,000 residents are included in the Productive Safety Net Program. In addition to the chronically vulnerable caseload, an additional 25,000 people were identified as urgently requiring food assistance in 2008–09, meaning nearly two thirds of the people living in the *woreda* needed food assistance to survive without serious asset depletion at the outset of the study. This situation improved by 2010, with better rains and an improved agricultural season, but the impacts of bad years in 2008–09 were still being felt.

Basic livelihoods are built around the farming of highland crops (wheat, barley, and some maize) and livestock keeping (particularly small ruminants and poultry, although some household have cattle for milk and meat as well as animal traction, and bee-keeping is increasingly the only production option open to landless households). Labor migration is also an important part of livelihood strategies, as there are only limited possibilities for off-farm diversification of livelihoods within Tsaeda Amba.

Even well-off households are only able to produce about 60 percent of their food needs from farming, so have to rely on food purchase for the remainder; poor households rely on the market for up to 60 percent of their food needs, with 20 percent coming from food aid (mostly through the Productive Safety Net Program). While better-off households get much of the income they need for purchases from the sale of livestock products, poorer households must rely on labor-based strategies. More detailed information can be found in the report by the Livelihoods Integration Unit (LIU 2008).

Livelihood hazards in Tsaeda Amba

The major livelihoods hazards in Tsaeda Amba *woreda* identified prior to the study are briefly noted below. These can be broadly classified as "natural" and human-made hazards. A more comprehensive listing is presented in Table 2.

Weather-related hazards. Drought is by far the most common weather-related hazard in Tsaeda Amba. The *kebeles* prioritized by ACRP are those characterized as chronically drought prone. Other weather-related hazards include flooding, hail and frost.

Natural resource-related hazards. Environmental degradation is widespread in the *woreda*, including, in particular, soil erosion, deforestation, and loss of ground cover. This has resulted in increased loss of soil and ground water, making access to water a significant problem for both humans and livestock.

Disease-related hazards. Three main categories of disease hazards are found in Tsaeda Amba: human diseases (including HIV/AIDS), livestock disease, and crop pests.

Economic hazards. The rapid inflation in price of basic food commodities hit Tsaeda Amba—as well as the rest of Ethiopia—very hard in 2008. Inflation had perhaps not previously been as significant a problem, but it confounds previously existing high levels of indebtedness. Other economic hazards include a low level of base-line asset holdings—especially land but also livestock (these two categories, in addition to labor, make up the bulk of household productive assets). A high level of unemployment, particularly of landless youth, is the other frequently mentioned economic hazard.

Population-related hazards. The Tsaeda Amba population has continued to grow, putting pressure on existing natural resources. This includes some reverse migration back to Tsaeda Amba of groups that had previously left to seek their fortunes elsewhere. It also includes some people displaced into the *woreda* in the aftermath of the border conflict with Eritrea.

Conflict-related hazards. The least mentioned category of hazards was localized resource conflicts. There is

also the memory of the conflict with Eritrea—now ten years in the past—and the displacement of people from border area, or people from Tsaeda Amba who were expelled from Eritrea. The area has not been directly affected by conflict since the war against the Derg regime that ended in 1991.

Ranking main hazards and changes in perception, 2009–2010

Table 2 depicts the cumulative results of the hazard ranking exercises done in 2009. Table 2 was constructed by allocating "points" according the rank given each hazard in each exercise and then totaling up the points. Some hazards were mentioned in all five *kebeles*, others less frequently. If a hazard was not mentioned in a given exercise, it was accorded zero "points."

it probably would not have been on anyone's list prior to 2007, and the rate of inflation had cooled considerably by July 2010 but remained a real fear in many communities (and it is entirely possible that another round of food price inflation is in store, given current assessments of the expected 2010 northern hemisphere harvest). Human disease, livestock disease and crop pests often show up, but are somewhat lower in priority.

While the ranking of the threat of hazards was not expected to change in the short term, actual conditions on the ground were improved significantly in 2010 compared to 2009, particularly in terms of the major hazards. Table 3 outlines perceived changes in the level of threat from various hazards in 2010 compared to 2009 from the participatory impact assessment. While the agricultural season was late in some of the most marginal areas (Hawile is in the Atsbi-Wonberta highlands and Marwa

TABLE 2. 2009 Cumulative Hazard Ranking

Hazard	Cumulative Score ("points")	Overall Rank	Number of Times Mentioned
Drought	58	1	5
Environmental degradation	40	2	5
Potable water	39	3	5
Unemployment	35	4	5
Food price inflation	32	5	5
Population pressure	31	6	3
Isolation/inaccessibility	30	7	5
Livestock disease	29	8	4
Human disease	28	9	5
Flooding	22	10	4
Crop pest	11	11	5
Local conflict	7	12	3
Indebtedness	5	13=	2
"Cold wind"/frost	5	13=	2
Hail	3	15=	1
HIV/AIDS	3	15=	1

Source: 2009 fieldwork (= indicates a tie in ranking between two hazards)

Drought is without exception the highest priority hazard, to no one's surprise. Population pressure and environmental degradation—two clearly linked issues—are close behind. In the cumulative ranking, "potable water" is ranked as the third highest priority hazard. Though not a hazard *per se*, this points out the priority of water access in many communities, and points out the difficulty in distinguishing between a hazard, and a poor outcome. Food price inflation was ranked high in 2009; is a lowland area in the Irob mountains), both had received significantly more rain by the end of July than in 2009. Food price inflation was lower across the boards, and there were slow but perceptible changes in environmental degradation conditions in some locations.

Likewise, data from the household survey on the level of perceived threat of various hazards in 2010 was generally lower, although the ranking of such hazards changed somewhat in 2010 compared to 2009 (Table 4).

TABLE 3. Perceived Change in Hazards Condition, 2010–2009			
Hazard	**Perceived change of conditions by location**		
	Hawile	**Marwa**	**Tahtay Ziban**
Drought	same	improved	improved
Environmental degradation	same	improved	improved
Food price inflation	improved	improved	improved
Population pressure	same	increased	increased
Isolation/inaccessibility	improved	same	improved
Livestock disease	improved	increased	improved
Human disease	improved	improved	improved
Flooding	improved	same	same
Crop pests	same	same	same
Unemployment	same	increased	increased
Indebtedness	same	increased	same
HIV	same	same	Same

Source: 2010 fieldwork

Livelihood zones and characteristics of livelihood systems

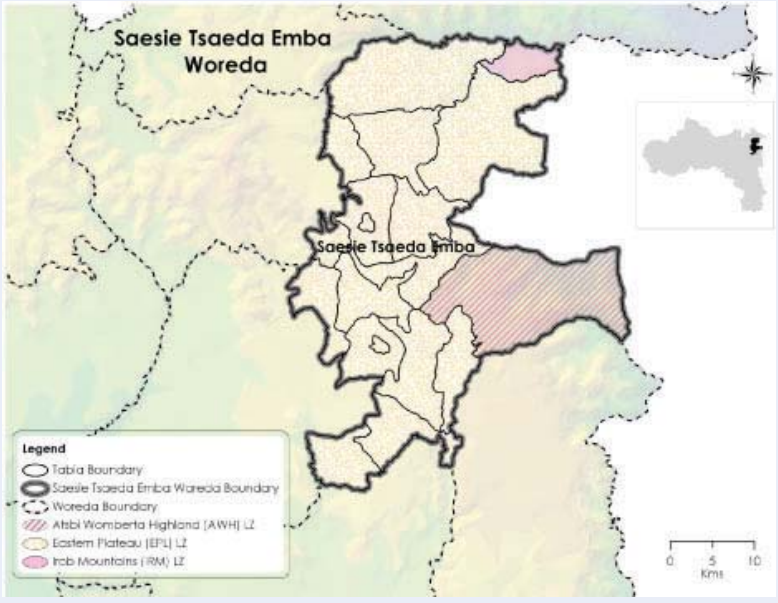
The 2009 Livelihoods Information Unit report on Tsaeda Amba (DPPA 2008) describes three different livelihood zones in Tsaeda Amba *woreda*, and all of them are represented in the ACRP program area. By far the largest, in terms of both land area and population is the Eastern Plateau livelihood zone with a population of almost 107,000. The Atsbi-Wonberta Highlands livelihood zone has a population of about 6,500—with most of the rest of the zone falling into a neighboring *woreda*). And the Irob Mountains livelihood zone has a population of about 19,500—again most of this livelihood zone falls into a different *woreda* (Figure 1). See the previous section for further information on the kebeles selected.

Although the physical characteristics of these livelihood zones are different and the size of land holdings is very different, the primary crops grown are the same. Barley and wheat predominate, with chickpeas and fava beans being grown in the Atsbi-Wonberta Highlands, maize and hanfets (a barley and wheat mixture) in the Eastern Plateau, and maize and lentils in the Irob Mountains. Gathering of cactus is a supplementary food source in July and August across the entire *woreda*—an extremely important food source during the hungry season. Rainfall is uni-modal, falling mainly in July and August, but with some rainfall in the months leading up to July/August (DPPA 2008). Labor migration plays a significant part of livelihoods in Tsaeda Amba, particularly at certain times of the year.

TABLE 4. Ranking Current Hazard Levels, 2009–2010				
Hazard	**2009**		**2010**	
	Mean	**Rank**	**Mean**	**Rank**
Drought	3.53	2	2.70	1
Agricultural Pests and Diseases	1.38	6	1.39	6=
Livestock Pests and Diseases	1.63	3=	1.43	5
Flooding	1.16	9	1.27	9
Hail	1.43	5	1.39	6=
Frost	1.63	3=	1.66	3
Food Price Inflation	3.56	1	2.44	2
Human Illness	1.36	7	1.47	4
HIV/AIDS	1.07	10	1.19	10
Other	1.33	8	1.00	8

Source: 2010 fieldwork (= indicates a tie in ranking between two hazards)

FIGURE 1. Map Depicting Livelihood Zones in Tsaeda Amba Woreda



Source: DPPA 2008

Assessment of livelihood conditions 2009–2010

Wealth groups and changes in wealth groups

The Livelihoods Integration Unit (DPPA 2008) categorized livelihood activities and assets by wealth in Tsaeda Amba in 2008. Table 5 summarizes the main characteristics of wealth groups in the livelihood systems and livelihood zones and shows the proportion of the estimated population in each wealth group in 2008. Results for the proportions of the population in different wealth groups from the 2010 assessment (both for current status, and for the retrospective baseline) are de-

TABLE 5. Characteristics of Livelihood Zones

Wealth Group	Household Size	Land Area (Timads)	Average Livestock Holding	Proportion of Population
Atsbi-Wonberta Livelihood Zone				
Very Poor	6–7	0–2	2–3 shoats, 3–5 chickens	25
Poor	5–7	1.5–2	0–1 cows, 4–6 shoats, 0–1 donkey, 3–5 chickens	35
Middle	5–7	2.5–3	1 cow, 1 ox, 8–10 shoats, 0–2 donkeys, 3–5 chickens	30
Better off	4–6	4–6	1–3 cows, 1–3 oxen, 12 shoats, 1–2 donkeys, 7 chickens	10
Eastern Plateau Zone				
Very Poor	5–7	0–1	0–3 shoats	20%
Poor	5–7	0–2	1–3 cattle, 0–1 oxen, 3–5 shoats	35
Middle	6–8	2–4	2–4 cattle, 1 ox, 6–12 shoats, 2 beehives	30
Better off	7–8	3–5	3–7 cattle, 2 oxen, 10–15 shoats, 1–3 beehives	15
Irob Mountain Livelihood Zone				
Very Poor	5	0–0.4	4 chickens	20
Poor	7	0.4–0.8	4 chickens, 0–1 oxen, 1–2 cows, 0–8 shoats	35
Middle	7	0.4–0.8	5 chickens, 0–2 oxen, 2–4 cows, 15 shoats, 2 beehives	35
Better off	7	0.6–1.0	5 chickens, 1–2 oxen, 4–8 cows, 30 shoats, 3–4 beehives	10

Source: DPPA (2008)

TABLE 6. Proportional Size of Wealth Groups: 2010, 2009, and 2008

Wealth Categories 2009			Wealth Categories 2010			Wealth Categories 2008 (DPPA-LIU)*	
Group	Frequency	Percent	Group	Frequency	Percent	Group	Percent
Well Off	6	7	Well Off	3	4	Well Off	15
Middle	16	19	Middle	9	11	Middle	30
Poor	36	43	Poor	37	44	Poor	35
Very Poor	26	31	Very Poor	35	41	Very Poor	20

Source: DPPA 2008 and field work in 2009 and 2010
* Note: These results are for the Eastern Plateau livelihood zone—the most populous zone.

TABLE 7. Leaders Perceptions of Wealth Groups in 2010, by Kebele

Wealth Status	Raile (%)	Hawile (%)	Marwa (%)	Geblen (%)
Well Off	1.5	10.0	2.5	0.4
Middle	15.0	15.0	26.0	13.7
Poor	56.5	55.0	57.5	58.5
Very poor	27.0	20.0	14.0	27.4

Source: 2010 fieldwork

TABLE 8. Wealth Categories According to KDPCs

Wealth Group	Raile	Hawile	Marwa	Geblen	Tahtay Ziban
Well Off	2 timad of land 2 oxen 1 cow 5 shoats healthy	2 oxen 1 cow 10 shoats 1 donkey 1 bee colony healthy remittances	0.5 timad of land 1 oxen 1 cow 5 shoats 2 bee colonies healthy	2 timad of land 2 oxen 1 cow 10 shoats 3 bee colonies healthy	2 timad of land 2 oxen 2 cows 10–15 shoats 2–5 bee colonies healthy remittances
Middle	1 timad of land no oxen no cows 5 shoats healthy	1 oxen 1 cow 5 shoats 1 donkey 0 bee colonies healthy remittances	0.25 timad of land 0 oxen 0 cow 5 shoats 1 bee colony healthy	1 timad of land 1 oxen 1 cow 5 shoats 0 bee colonies healthy	0.5–1 timad of land 1 oxen 1 cow 5–10 shoats 1 bee colony healthy remittances
Poor	no land no oxen no cows no shoats healthy	0 oxen 0 cows 0 shoats 0 donkeys 0 bee colonies healthy no remittances	0 timad of land 0 oxen 0 cows 0 shoats 0 bee colonies healthy	0 timad of land 0 oxen 0 cows 1–2 shoats 0 bee colonies healthy	0.25 timad of land 0 oxen 0 cows 0 shoats 0 bee colonies healthy no remittances
Very Poor	no land no oxen no cows no shoats unhealthy	0 oxen 0 cows 0 shoats 0 donkeys 0 bee colonies unhealthy no remittances	0 timad of land 0 oxen 0 cows 0 shoats 0 bee colonies unhealthy	0 timad of land 0 oxen 0 cows 0 shoats 0 bee colonies unhealthy	0 timad of land 0 oxen 0 cows 0 shoats 0 bee colonies unhealthy no remittances

Source: 2010 fieldwork

picted in Table 6. Note that these wealth groups were constructed using the DPPA characteristics (particularly in terms of assets held). Both the DPPA results and the 2010 assessment results were obtained from purposively selected samples, intended to represent the community. The proportion of people in the higher wealth groups is considerably lower in the 2010 assessment than in the DPPA report, and the proportions in the lower groups is considerably higher. This is probably for two major reasons. First, the sample selected for the baseline and the 2010 assessment were from the eleven most drought-prone kebeles in the woreda, so are likely to be somewhat worse off in general livelihood terms. But second and more importantly, the impact of the 2008–09 drought and the food price crisis are reflected in the 2010 findings, whereas the 2008 DPPA report was based on data collected before either of these—data collection was in 2007 and early 2008. Actual livelihood conditions have worsened as a result of both these shocks.

Tables 7 and 8 depict the proportions of populations falling into various wealth groups according to either the records of the kebele manager or Development Agents, or simply according to the perceptions of the Kebele Disaster Preparedness Committee (KDPC).

The determination of wealth groups was according to the leaders or DA's own criteria, making these data somewhat non-comparable with the DPPA findings. These are presented below in Table 8. The criteria are in the form of household asset holdings: land, livestock and labor—as well as access to alternative types of income, such as remittances from family members living and working elsewhere.

The results of all this wealth group analysis are important for two reasons. First, they give a sense of the perceived loss of wealth in the past two years—a finding strongly corroborated by other results. Second, they give a strong impression of the relative proportion falling into the better-off groups—a finding with significance for the discussion about thresholds for overcoming chronic vulnerability to shocks and hazards.

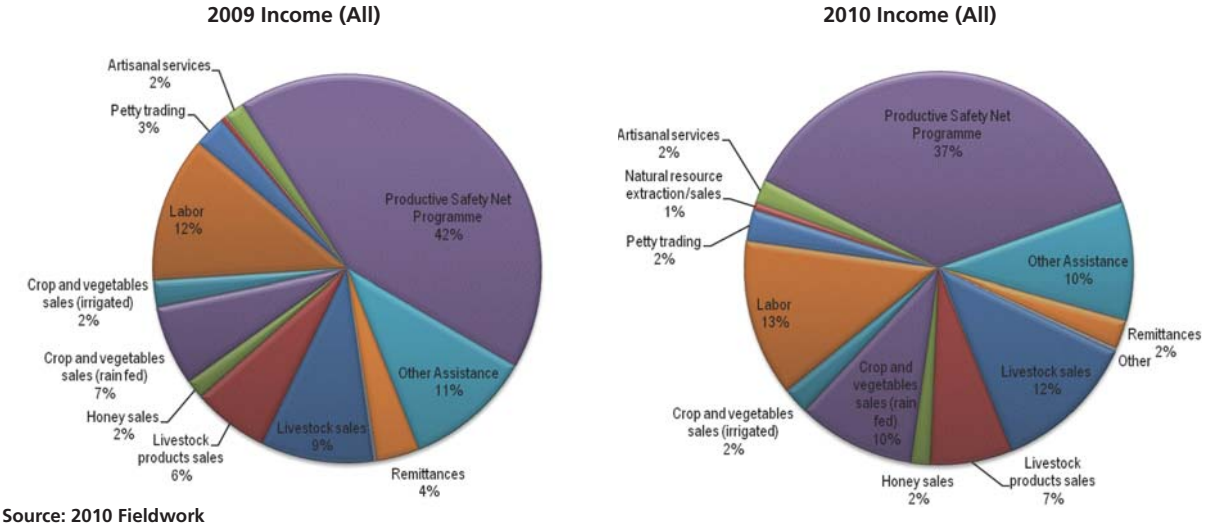
Sources of income. Figure 2 depicts the results for income sources of one focus group involving six

FIGURE 2.
Marwa Women's Group Income Sources, 2009–2010

	HH1		HH2		HH3		HH4		HH5		HH6	
Sources of Income	**Counters (proportional piling)**											
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Livestock sales					•••	••		•				••••
Livestock products sales						•						
Honey sales												
Crop sales												
Labor	••••• ••	•••••	••••• •••	••••• ••	••••• ••	••••• •	••••• •••	••••• •••	••••• ••••	••••• ••••	••	
Petty trading							•••	••				
Natural resource extraction/sales												
Artisanal services												
Productive Safety Net Program	••••• ••••• •••	••••• ••••• •••••	••••• ••••• ••	••••• ••••• •••	••••• •••••	••••• ••••• •	••••• ••••	••••• •••••	••••• ••••• •	••••• ••••• •	••••• ••••	••••• ••
Other assistance											••••• ••••	••••• ••••
Remittances												
Credit												
Other												

Source: 2010 fieldwork

FIGURE 3. Sources of Income, Tsaeda Amba, 2009–2010



Source: 2010 Fieldwork

households, relying on proportional piling methodology (Catley et al. 2008). Figure 3 depicts the cumulative results of the Participatory Assessment for income sources and the changes in proportions of income in 2009 and 2010. This is a measure of livelihood diversification, and the changes over the year. There were notable changes in income sources between 2009 and 2010. The biggest is a decline in income from the PSNP. This was an expected outcome: First, 2010 had been a better year, meaning that there were fewer requirements for PSNP support; and second, there were changes in targeting practices that were intended to reduce the number of households receiving support, but provide greater levels of support to those households. Livestock sales and livestock products sales were both slightly increased in 2010—again a function of improved rainfall, grazing access to water. Crop sales were up, although it was too early in the season to see much difference in this. Labor income remained about the same, which was somewhat unexpected—it might have been expected that reliance on labor was higher in a bad year, such as 2009. In fact it is an indication of the degree to which labor is a permanent part of livelihoods, not just a coping strategy for a bad year.

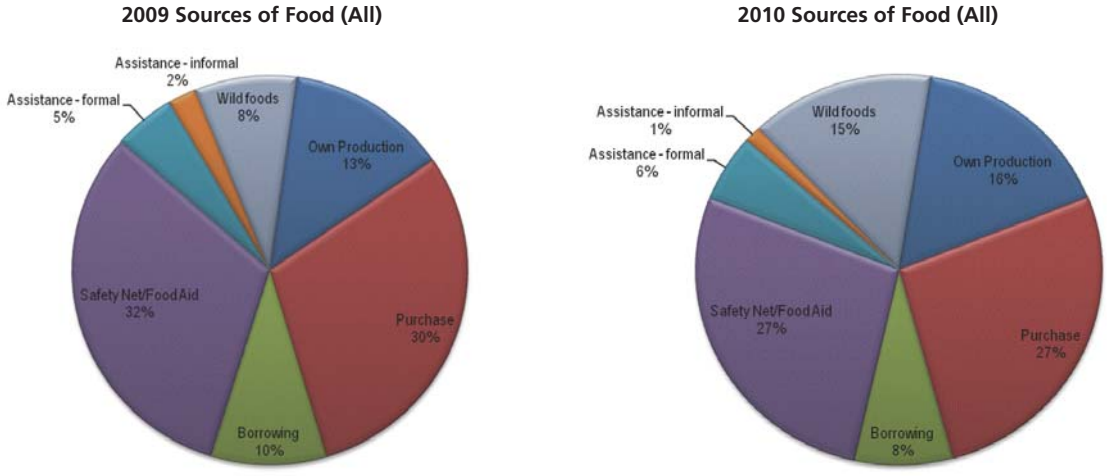
Remittance income, on the other hand, is lower in 2010, implying that remittances may be tied to how good or bad other sources of income are for a given year.

FIGURE 4.
Marwa Women's Group Food Sources, 2009–2010

	HH1		HH2		HH3		HH4		HH5		HH6	
Sources of Food	**Counters**											
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Own production	••	••	••	•••	••	•••				••		••
Purchase	••••• ••••	••••• •	••••• •	••••• •	••••• •••	•••••	••••• •••••	••••• •	••••• ••••	••••• •••••	••••• ••••• ••	••••• ••••
Borrowing	••	••	••	••	••••• •	••••	•••••	•••				
Safety net/food aid	••••• ••	••••• •	••••• •••••	•••••	••••	•••••	•••••	••••• •	••••• ••••• •	••••• •	••••• •••	••••• •
Assistance (formal)		••		••								
Assistance (informal)								••				
Wild foods		••		••		•••		•••		••		•••
Other												

Source: 2010 Fieldwork

FIGURE 5. Sources of Food, Tsaeda Amba, 2009–2010



Source: 2010 Fieldwork

Sources of food. Figure 4 depicts the results for sources of food for one focus group involving six households, relying on proportional piling methodology. Figure 5 depicts the cumulative results of the Participatory Assessment for sources of food and the changes in proportions of food sources between 2009 and 2010. Purchase of food in the market is the biggest single source of food, but the PSNP is a close second. The amount of food coming from the PSNP dipped slightly in 2010 compared to 2009, for the same reasons mentioned above regarding income from PSNP. Consumption of wild food (mainly *beles* or prickly pears from cactus) is significantly up. The drought and an insect infestation in 2009 limited the availability of *beles*, the prickly pear from cactus that grows throughout Tsaeda Amba. This fruit becomes available as early as June in many parts of the *woreda,* and constitutes a significant part of food intake during the rainy (hungry) season. A new hazard to *beles* was noted during the course of the research (see section below on livelihoods constraints and new hazards).

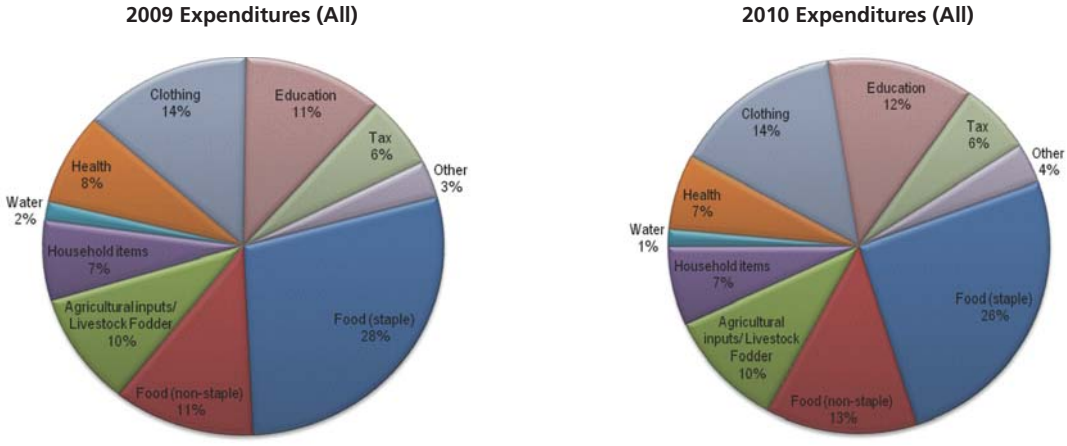
Otherwise, own-production of food is slightly up and purchase is slightly down. But overall, there isn't much change in sources of food. Some of the quantitative indicators of food security suggest much improved overall

FIGURE 6. Marwa Women's Group Expenditures, 2009–2010

	HH1		HH2		HH3		HH4		HH5		HH6	
Expenditures	**Counters**											
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010
Food (staple)	•••••	••••• •	•••	•••••	••••• •••••	••••• ••	••••• •••••	••••• •	••••• ••	•••••	•••••	•••••
Food (non-staple)	••••	•••••	••••	••••	••	••••	•••	••••	•••	•••	•••	•••••
Agricultural inputs/ fodder										•••		
Household items						••		•••				
Water					•	•			•	•	•	•
Health	••	•	•	••	••		••	•			•••	••
Clothing	••••	••••	••••• •	••••	•	••	••	•••	•••••	•••	••••	••••
Education	•••	••	••••	•••	••	••	••	••	•••	••••	•••	••
Tax	•	•	•	•	•	•			•	•	•	•
Other	•	•	•	•	•	•	•	•				

Source: 2010 Fieldwork

FIGURE 7. Expenditures, Tsaeda Amba, 2009–2010



Source: 2010 Fieldwork

food security in 2010; one indicator suggests more marginal improvement (see Annex 2).

Expenditure. Figure 6 depicts the results for household expenditure for one focus group involving six households, relying on proportional piling methodology. Figure 7 depicts the cumulative results of the Participatory Assessment for household expenditure, and the changes in proportions of in expenditure between 2009 and 2010. Not surprisingly, given the above, food is the biggest single expense listed by household informants, accounting for 40 percent of the total. The proportion of household budgets devoted to food did not change much between 2009 and 2010—slightly less was spent in 2010 on staple foods—reflecting a somewhat lower price. This enabled slightly more expenditure on non-staple foods. The total was about the same. There is little appreciable difference in other expenditures. A relatively high proportion of the household budget is devoted to the purchase of clothing. It was not clear entirely why this is the case. When asked, the typical response was, "you have to clothe your children!"

TABLE 9. Demographics and Assets
(Entire Sample)

Category	Mean	
	2009	2010
Working adults	1.85	1.90
Children and dependents	4.23	4.14
Timads of cultivable land*	1.61	1.62
Oxen/cows*	3.20	2.59
Shoats*	10.30	6.16
Donkeys*	1.79	1.43
Chickens*	3.58	3.71
Beehives*	3.17	2.05

Source: 2009 and 2010 fieldwork
*Assets listed are only for households reporting owning some of those assets

A Baseline Livelihood Assessment Focus Group Discussion

TABLE 10. Comparative Analysis of Livelihoods Assessment by Category, 2010

		By LH Zone			By Gender		By Wealth Group		
	Total	EP	AWH	IM	M	W	VP	P	M/BO
N	84	48	24	12	42	42	26	36	22
Proportion		57%	29%	14%	50%	50%	31%	43%	26%
Sources of Income									
Livestock sales (%)	12	12	15	5	13	11	11	11	16
Livestock products sales (%)	7	8	8	2	5	8	7	7	4
Honey sales (%)	2	1	4	1	3	0	1	1	7
Crop sales (rain fed) (%)	10	7	19	3	9	11	10	8	15
Crop sales (irrigated) (%)	2	3	1	0	3	1	2	2	5
Labor (%)	13	14	6	21	12	14	14	15	4
Petty trading (%)	3	3	3	1	2	3	2	3	5
Natural resource extraction (%)	1	1	1	0	1	0	0	1	1
Artisanal services (%)	2	2	3	0	2	2	3	2	0
PSNP (%)	37	35	32	56	35	39	42	36	26
Other assistance (formal) (%)	10	12	5	11	13	6	7	12	13
Remittances (%)	2	3	1	0	2	2	2	2	4
Other (%)	0	0	1	0	0	0	1	0	0
Sources of Food									
Own Production (%)	16	15	23	9	19	13	12	18	24
Purchase (%)	27	26	25	33	24	29	31	24	21
Borrowing (%)	8	8	7	10	6	10	10	6	5
Safety net/food aid (%)	27	26	30	29	25	30	29	28	22
Assistance (formal) (%)	6	7	4	5	8	3	4	6	7
Assistance (informal) (%)	1	2	1	1	2	1	1	1	3
Wild foods (%)	15	18	10	13	17	13	13	16	18
Expenditures									
Food (staple) (%)	26	27	21	30	25	26	28	24	23
Food (non-staple) (%)	13	13	11	15	10	16	13	13	11
Ag. inputs/fodder (%)	10	10	14	5	12	9	10	9	14
Household items (%)	7	6	9	5	8	6	6	8	6
Water (%)	1	0	4	1	1	2	2	1	1
Health (%)	7	6	7	8	8	5	6	7	7
Clothing (%)	14	15	14	15	15	14	13	14	19
Education (%)	12	13	10	13	13	12	12	13	12
Tax (%)	6	6	7	5	7	5	5	7	6
Other (%)	3	4	3	3	2	5	4	4	1
Assets*									
Working Adults	1.90	2.04	1.70	1.67	2.40	1.40	1.51	2.03	2.67
Children and dependents	4.14	3.96	3.92	5.33	4.71	4.57	3.71	4.24	5.08
Timads of cultivable land	1.39	1.30	1.79	1.02	1.89	0.88	0.76	1.55	2.71
Cattle	1.79	1.91	1.17	2.50	2.74	0.83	0.74	2.05	4.00
Shoats	4.11	3.79	6.04	1.67	6.17	2.05	1.63	3.70	12.56
Donkeys	0.48	0.45	0.37	0.83	0.74	0.21	0.29	0.38	1.23
Chickens	3.18	3.47	2.67	3.00	4.10	2.26	2.03	3.84	2.93
Beehives	0.46	0.30	0.79	0,50	0.83	0.10	0.20	0.32	1.49

Source: 2010 fieldwork

* Assets reported are averages for all households, including household that have none

TABLE 11. Retrospective Livelihoods Baseline (2009 Recall) by Category

		By LH Zone			By Gender		By Wealth Group		
	Total	EP	AWH	IM	M	W	VP	P	M/BO
N	84	48	24	12	42	42	26	36	22
Proportion		57%	29%	14%	50%	50%	31%	43%	26%
Sources of Income									
Livestock sales (%)	9	11	10	1	9	10	6	10	12
Livestock products sales (%)	6	7	8	2	3	9	9	7	2
Honey sales (%)	2	1	4	0	3	0	0	0	6
Crop sales (rain fed) (%)	7	5	12	3	6	7	6	8	6
Crop sales (irrigated) (%)	2	3	1	0	3	1	2	1	5
Labor (%)	12	12	8	22	9	15	17	12	7
Petty trading (%)	3	3	4	1	2	3	2	2	4
Natural resource extraction (%)	0	0	1	0	1	0	0	1	0
Artisanal services (%)	2	1	3	0	1	2	3	2	0
PSNP (%)	42	40	40	55	44	41	49	41	38
Other assistance (formal) (%)	11	12	5	15	14	8	4	14	14
Remittances (%)	4	4	3	1	4	3	3	3	6
Other (%)	9	0	1	0	0	0	1	0	0
Sources of Food									
Own Production (%)	13	12	20	4	15	11	9	12	20
Purchase (%)	30	29	29	38	25	34	36	29	25
Borrowing (%)	9	9	10	12	8	11	12	9	7
Safety net/food aid (%)	32	32	28	39	32	31	33	33	29
Assistance (formal) (%)	5	6	3	5	7	3	3	5	7
Assistance (informal) (%)	2	3	2	1	4	1	1	2	4
Wild foods (%)	8	10	9	2	9	8	6	10	9
Expenditures									
Food (staple) (%)	28	29	24	37	28	29	32	29	23
Food (non-staple) (%)	11	12	10	11	8	14	11	12	11
Ag. inputs/ fodder (%)	10	10	13	3	12	8	8	9	13
Household items (%)	7	7	9	3	8	6	7	7	6
Water (%)	2	1	4	1	1	2	2	2	0
Health (%)	8	7	9	8	9	7	8	7	10
Clothing (%)	14	13	13	16	14	13	13	13	16
Education (%)	11	12	9	13	12	11	11	11	12
Tax (%)	6	6	7	5	8	5	5	6	8
Other (%)	3	3	3	3	2	5	4	3	1
Assets*									
Working Adults	1.85	2.02	1.62	1.58	2.31	1.38	1.42	1.78	2.45
Children and dependents	4.13	3.96	3.79	5.50	4.69	3.57	3.58	3.89	5.18
Timads of cultivable land	1.38	1.27	1.79	1.02	1.89	0.88	0.74	1.26	2.34
Cattle	2.29	2.33	1.88	2.92	3.40	1.17	0.77	2.08	4.44
Shoats	6.99	5.42	11.88	3.50	11.55	2.43	1.04	4.58	17.95
Donkeys	0.62	0.44	0.62	1.33	0.95	0.29	0.31	0.42	1.32
Chickens	3.02	3.40	2.88	1.83	4.00	2.05	1.62	3.17	4.45
Beehives	0.90	0.79	1.04	1.08	1.74	0.70	0.27	0.41	2.45

Source: 2010 fieldwork

* Assets reported are averages for all households, including household that have none

Thresholds for overcoming chronic vulnerability

Part of the objective of the second round of the assessment was to understand the threshold of self-reliance necessary to enable households to survive and recover from expected shocks, and maintain a sustainable livelihood. This is a complicated question, and it was only asked of the KDPCs and a limited number of other key informants. There was a surprising level of dissonance in the answers to this question, and at least some of the responses were clearly influenced by a similar discussion that has been going on for some time related to the question of graduation from the Productive Safety Net Programme (PSNP). In some ways, the two questions are similar, although the question asked in the 2010 assessment presumed that the PSNP (or a similar mechanism) would be available to help in times of extreme stress (i.e., it did not presume that once a certain threshold had been reached, public assistance would no longer be available).

Many of the responses revolved around a cash figure, and the figure was often close to ETB 35,000 in savings—which is the figure that has been suggested by the PSNP as threshold necessary for graduation. However, after detailed discussion, it became clear that a mix of assets—including but not limited to cash—was critical, and rather than putting a cash figure on the cumulative value of these assets, the assets themselves were listed. These correspond roughly to the assets noted in the livelihoods assessment above. The answers are compiled in Table 12.

A related question was about the general degree of food of food security. These are general answers from key informants—not aggregated answers from individual households. These responses are found in Table 13.

Several points should be noted with regard to these responses. First, in the case of every response from KDPCs, the "threshold" for overcoming chronic vulnerability is well above the asset levels of even the most well-off members of the community at the moment.

Second, almost all the responses involve some amount of land, and therefore don't deal with the issue of landlessness, or seem to rule out the possibility of landless members of the community being able to survive or overcome the threat of persistent hazards. This question was asked in various different ways, including a greater emphasis on labor or on sustainable natural resource-use possibilities such as bee keeping. But in the end, all the KDPCs insisted that a minimum amount of land was necessary for resilience to prevailing hazards in Tsaeda Amba.

Third, currently only the most well-off groups in the community have no "gap" in their access to food on an annual basis. Other groups all face a gap of some amount of time and the worst-off groups face a food gap the majority of the time. Insofar as food security is a critical component of the threshold question, the implication is the same—in order to overcome chronic vulnerability, households must reach the level of assets held by those currently the most well-off in the community.

Fourth, and following logically from the last point, there is an apparent "fallacy of aggregation" implicit in these responses: that is, while it makes sense at the level of the individual household to increase asset holdings, if all households were to achieve this, there would doubtless be an overall resource shortfall, particularly in terms of livestock grazing and water sources. Overgrazing and a distinct shortage of dry season grazing for animals is already a problem. If livestock numbers were to increase by the proportions suggested in these answers, the shortage of grazing and water would be greatly magnified. When this question was posed to the KDPC key informants, however, they acknowledged the problem but said it could be overcome by practices such as the "cut and carry" system of animal keeping and an improved water supply. Given the lack of evidence on such ideas (which are practiced, but only to a limited degree), it

TABLE 12. Thresholds for Overcoming Chronic Vulnerability (KDPC responses)

Indicators	Raele	Hawile	Marwa	Geblen	T/Ziban
Land	1.2 timad		1 timad	2 timad	3 timad
Oxen	3		2	2	2
Cows	2		2	3	2
Shoats	30		20	20	15
Chicken					10
Bee colonies	15		3	5	
Cash	ETB 500	ETB 18,000	ETB 10,000		
Remittances					√

Source: 2010 fieldwork

is difficult to ascertain whether such practices alone could address the shortfall. There is evidence, however, that managing smaller herds using such practices limited livestock losses during the drought in 2009, but the critical part of that observation is that smaller herd sizes can be managed with such practices. Whether such practices suffice with larger numbers of animals remains unlikely.

Discussion of participatory livelihoods assessment

There are relatively few changes in livelihoods over the short period of time this assessment covered, and as noted at the outset of this report, none that can be attributed directly to programmatic interventions in the short term. Levels of reliance on the PSNP—as both a source of income and a source of food—are lower in 2010 than in 2009. This outcome was expected, since 2010 has proven to be a better agricultural season, and the impact of which is already being felt. There is more income in 2010 from agricultural production, particular the sales of crops and livestock. Reliance on labor as a source of income is about the same in both years, and few differences were noted in other categories of income.

A major change was noted in the level of assets held, and the degree of losses between 2009 and 2010. Overall significant asset loss was noted, but when this is broken down by gender, if becomes clear that, while male-headed households had (and still have) greater levels of assets in nearly all categories, female headed households lost significantly fewer assets in the drought.

Table 14 breaks out the changes in assets by men and women. The reasons for the losses were primarily twofold. Most of the loss was attributed to animal mortality

TABLE 13. General Levels of Food Security by Wealth Group (KDPC responses)

Status	Indicators	Hawile	Marwa	Geblen	T/Ziban
Well off	Months of consumption from own production	6	3	3	4
	Months of food access	12	9	4	5
	Months of food gaps	0	3	5	4
	Proportion PSNP as a source of food	None	None	None	None
Middle	Months of consumption from own production	4	2	1	3
	Months of food access	9	8	4	3
	Months of food gaps	3	4	6	6
	Proportion PSNP as a source of food	None	1/6	1/3	1/4
Poor	Months of consumption from own production	2	0	0	2
	Months of food access	6	6	3	3
	Months of food gaps	6	6	9	9
	Proportion PSNP as a source of food	2/3	1/6	1/3	1/4
Very poor	Months of consumption from own production	1	0	0	0
	Months of food access	3	6	3	3
	Months of food gaps	9	6	9	9
	Proportion PSNP as a source of food	3/4	1/6	1/3	1/4

Source: 2010 fieldwork

TABLE 14. Changes in Assets 2009–2010, by Sex of HHH						
Assets	**Men 2009**			**Men 2010**		
	Minimum	**Maximum**	**Mean**	**Maximum**	**Mean**	**Ave. Loss**
Land (Timads)	1	10	2.09	10	2.09	0.00
Cattle	1	10	3.76	7	3.03	0.74
Shoats	2	80	13.47	40	7.40	6.07
Donkeys	1	5	2.00	4	1.63	0.37
Chickens	1	10	4.20	14	4.41	(0.21)
Beehives	1	9	3.32	5	2.06	1.26
Assets	**Women 2009**			**Women 2010**		
	Minimum	**Maximum**	**Mean**	**Maximum**	**Mean**	**Ave. Loss**
Land (Timads)	1	2	1.08	2	1.10	(0.01)
Cattle	1	6	2.23	3	1.75	0.48
Shoats	1	15	4.86	8	4.10	0.76
Donkeys	1	3	1.33	1	1.00	0.33
Chickens	1	7	2.77	5	2.88	(0.10)
Beehives	1	2	1.50	2	2.00	(0.50)

Source: 2010 fieldwork
*Assets listed are only for households reporting owning some of those assets in 2009

associated with the drought (which actually began in 2008, but losses were especially heavy in 2009 as the cumulative impact of the drought). The second most significant factor explaining the loss of livestock was livestock sales in order to repay loans taken out after the projects the loans financed failed (again—most frequently as a result of the drought). There was mention of deliberate destocking in the face of the drought, but only occasional anecdotal evidence of any actual destocking taking place. And when it did take place, prices were very low, discouraging widespread engagement. It was only on the basis of individual effort—there were no organized efforts at commercial destocking to reduce animal numbers on a significant scale.

As Table 14 depicts, male-headed households lost an average of 0.76 head of cattle and over six small ruminants between 2009 and 2010. Female-headed households on the other hand lost less than half a head of cattle and less than one small ruminant. Female-headed households actually reported an average gain in beehives, although this was a relatively small number of households.[4]

The results above all rely on the retrospective baseline conducted as part of the 2010 assessment, but using the 2009 assessment results as the baseline comparator reveals few significant differences. Reported reliance on the PSNP for both food and income was proportionally higher in the 2009 assessment than in the 2010 retrospective baseline, but it was clear that the 2009 sample was more highly skewed towards lower income groups. Information on expenditure and food sources was similar in the 2009 assessment and in the 2010 retrospective baseline.

Comparison with results of household survey

Annex 2 contains some of the results of the household survey in June 2010 in the ACRP-served *kebeles* of Tsaeda Amba, and compares these results with the same survey a year earlier. The tables include results of the household survey on

- basic descriptive statistics of household demographics,
- comparisons with participatory baseline (sources of food and income),
- water sources and distance,
- savings and indebtedness,

4 Note: Figures in Table 14 refer only to households that reported having any assets in these categories, and there were significant numbers of female-headed households that held no assets in many of these categories. Also note, as per the methodology that not all households interviewed in the women's focus groups were female-headed—a small handful turned out to be women members of male-headed households.

- current food security status (DD, CSI, and HFIAS),
- disaster management results, and
- impact of disasters.

There is little change in household demographics between 2009 and 2010, as would be expected. Many of the results of the participatory livelihoods assessment outlines above are echoed in the statistical results—although unlike the participatory assessment, the household survey interviewed totally different samples in 2009 and 2010. Income from the sales of agricultural production was already up in 2010, compared to 2009, even though it was still very early in the agricultural season; income from the sale of livestock was down. And income from the PSNP was down dramatically: first, many fewer households were targeted by the PSNP, and the average amount that each targeted household received was lower. Both of these results were expected—the targeting policy of the PSNP was changed significantly in 2010; and t2010 is not as bad a year, so the amount of support even to recipient households was expected to be somewhat lower. These results hold fairly constant across different livelihood zones, income groups and by sex of household head. But these results differ significantly from the participatory assessment, where most of the respondents were still receiving PSNP support in 2010—indicating that the sample of respondents we were provided with by village leaders was disproportionately skewed towards the lower income groups, or those known to be PSNP beneficiaries.

Overall, livelihoods were less diversified in 2010 than they were in 2009—but this probably indicates a greater requirement for more coping strategies in 2009 than it does a longer-term trend towards less diversification. This change was similar across all analytical groups. There was little difference in indicators such as home ownership, access to land, or amount of land owned—again all results that were expected. The statistical results for ownership of livestock paint a somewhat different picture from the participatory assessment, but one that is probably explicable. The survey results show almost no change in numbers of livestock between 2009 and 2010, whereas the participatory assessment results show a big loss of livestock. The difference is that, whereas the survey asked for livestock numbers at the precise date of the survey, the participatory assessment was clearly getting livestock numbers from "last year" rather than "one year ago." Participatory assessment respondent—when asked in follow up focus group discussions after the livelihood assessment was completed—noted that they were reporting their as-

The Importance of *Beles* to Food Consumption in Tsaeda Amba

Cochineal-infested *beles*

Cochineal insects on the *beles* plant

Fresh *beles* being sold for consumption

Beles growing (though called "wild" food, it is often grown near homesteads)

sets more or less at the beginning of 2009, not precisely one year ago on the date of the interviews. Hence the participatory assessment captured losses encountered in the 2009 dry season, which is when most of the livestock was reported being lost to the impact of the drought, or being sold in order to repay loans that had failed because of the impact of the drought.

There was a modest improvement in access to clean sources of water reported between 2009 and 2010, although it is not clear that this is the direct result of any project. The number of households reporting savings increased in 2010, albeit very modestly. The number of households reported taking out loans dropped fairly substantially. Whether this was because there was less need to borrow, or because people were more concerned about the possibility of default is not possible to determine on the basis of the statistical results. The participatory assessment results certainly indicate some amount of the latter.

Food consumption and food security indicators improved in 2010 compared to 2009, although in some cases the improvement was not significant. Overall the HFIAS and CSI measures showed significant improvement in 2010. More in-depth analysis of the food security indicators will be forthcoming.

Finally, as expected, the number of household reporting having been affected by a shock in the previous 12 months dropped substantially—from nearly all households in 2009 to only about one quarter in 2010. Levels of coping dropped concomitantly. The general ranking of hazards in the survey did not change substantially.

New constraints or hazards

Several constraints or hazards were noted in the fieldwork. Some of these were also investigated in greater depth in the January 2010 report—including indebtedness. A new potential hazard noted during this fieldwork is the potential infestation of Cochineal insects (*Dactylopius coccus*). This is a species of insect valued for carmine dye, used for food coloring and cosmetics. It was introduced in Tigray for commercial production purposes, and feeds on cactus plants. While the insect was introduced under controlled circumstances, it has since been found outside of the controlled areas—notably in Entalo Wajerat woreda South East of Mekelle and around Mekelle town.

Because it feeds on cactus, it is a threat to the prickly pear cactus (*beles*) that is critical to rainy season diets in areas of Eastern Tigray, including Tsaeda Amba. It has not yet been found in Eastern Tigray, and attempts are being made to quarantine the outbreak of the insect in the locations where it is already found. But this is an example of a new and potentially serious risk to the food security of rural populations in Tsaeda Amba. *Beles* is a significant part of the diet during the period from May-June to September, depending on location. An infestation of cochineal insects renders the prickly pear inedible. At the same time, however, the insect itself is valuable—currently selling for ETB 12.00 per kilo—so one of the control strategies is educate people about both the dangers and the value of the insect, and the value of it, to encourage people to collect and sell the insects before they are able to destroy the *beles.* ■

Section 3. The Africa Community Resilience Project

Description of ACRP

The Africa Community Resilience Project (ACRP) was designed to be research-based and to build capacity for improving resilience through disaster risk management programming and mainstreaming. The project will define key indicators of resilience, and seek to influence policies and programming aimed at supporting disaster risk reduction. The six-step implementation process on which the project was based is laid out below.

Step 1. Community selection and profiling will ensure that an appropriate entry is made to the community, and essential general background information is collected.

Step 2. Hazard assessment will determine the different hazards that affect the community, the likelihood of experiencing a hazard, the principal characteristics of the hazard, and which groups of people are most likely to be affected.

Step 3. Vulnerability assessment will identify the conditions that are causing the vulnerability, including institutional and policy factors. The assessment will rely on various vulnerability frameworks (the Pelling Vulnerability Framework, the Pressure-Release model, and the livelihoods approach) to disaggregate the vulnerabilities and assets of communities and households.

Step 4. A capacity assessment will identify people's coping strategies and the resources and technologies that can be mobilised in the face of a particular hazard. Capacity assessment stresses the positive and seeks to identify how people usually deal with adverse circumstances.

Step 5. Prioritisation of risks and risk reduction strategies begins to highlight key areas for potential action. The livelihoods strategy priorities should be guided by need to diversify income and food production strategies, advocate for creation of a supportive environment for better options while activities are guided by a balance in provision of community services.

Step 6. Planning and implementation of activities prioritized by the vulnerability and capacity assessment will be incorporated into ADP plans through a number of processes. These include mainstreaming Disaster Risk Reduction through strategies like the promotion of conservation farming, the inclusion of a Risk Reduction and Emergency Management sector in the provisional plan, and drafting a provisional project to develop policy and processes to incorporate risk management as a transversal consideration in future infrastructure development.

ACRP Implementation

The activities of the ACRP in 2009 and the first six months of 2010 included the formation and development of a *woreda* Task Force, and the *Kebele* Disaster Preparedness Committees (KDPCs). The main intent of the project was to strengthen the capacity of this community level institution, and to strengthen its linkages with the *woreda* level committee. The other main activity was training and awareness creation about disaster risk reduction. The focus of the training was on analysis and planning, and specific training included how to conduct vulnerability and risk assessments, how to improve early warning, how to conduct livelihoods assessments, and the construction of seasonal livelihood calendars. Training was conducted at the *woreda* level for *woreda* staff and *kebele* leaders and at the *kebele* level in all eleven *kebeles* for community members. Overall, the approach was one of: a) awareness creation, and b) mainstreaming DRR into ongoing Area Development Program (ADP) work. The working hypothesis of the project is that the Area Development Program will have much greater impact if the capacity to manage it on the ground at the local level has been enhanced.

Strengths and constraints to implementation

The ACRP faced several significant strengths and constraints. Strengths included the following:

1. **Integration.** The project is well integrated with *woreda* government planning and programs, and works closely with *woreda* staff.
2. **Approach.** The project's approach is being mainstreamed into other ADP activities.
3. **Commitment.** The approach is an on-going priority of WVI.

Constraints included the following:

1. **Duration**. The project was three years long, but the actual implementation period captured was about one and a half years, given that the first year was devoted to preparatory activities, and the impact assessment was carried out in the middle of the final year. Thus the period under assessment is far too short to capture impact at the level of livelihoods. This has implications for further monitoring.
2. **Staff turnover and multiple duties of project staff.** There was high turnover in management staff at the ADP and Program Office levels, and at the project level. At the project level, there was some discontinuity in staff coverage after the transfer of one member of staff. Project management staff had multiple responsibilities—ACRP was only one of several responsibilities of the manager.
3. **Turnover of *kebele* leadership.** In at least some of the *kebeles* studied, there was also a high turnover of both kebele leadership and government expertise seconded to the *kebele*—meaning that some of those who were trained were no longer in the *kebele*, and those who were there in 2010 had not participated in the training.

Outcomes analyzed

As noted at the outset of the report, it is unrealistic to look for impact of the ACRP program at the level of individuals or household livelihoods after a brief period of implementation. Given this constraint, and given that the main effort of the first phase was on building the capacity of the Kebele Disaster Preparedness Committees (KDPCs), this is the focus of this section of the report.[5]

The Kebele Disaster Preparedness Committees (KDPCs)

The *Kebele* Disaster Preparedness Committee (KDPC) is the body at the local administrative unit with which the ACRP works. The committee is made up of a mix of locally elected officials (the *kebele* chairperson and sub-*kebele* chairs, and the elected heads of the local farmer's association, women's association, and youth association) and appointed local government officials (the Development Agents from the Ministries of Agriculture, Health, and Water as well as the government-appointed *kebele* manager). Other individuals may be members as well.

5 More detailed feedback was provided to project management staff.

The KDPCs are not a new body—they were renamed in 2009 to reflect a broader mandate. Previously they were called EW committees. ACRP led to name change, but not a new entity.

KDPC roles and responsibilities

The responsibilities of KDPCs are several-fold, including early warning, informing *woreda* government of localized shocks and their impact, and resolving the problems that they can. Often this requires outside help to solve problems that arise from hazards and disasters. Responsibilities outlines in 2009 included the following:

1. **Risk assessment and analysis**. Assessing the risks to the community and their causes is a major task, and a major component of training.
2. **Planning and preparedness.** Risk assessment and early warning are components of disaster preparedness, but other things are included as well: pre-arranged mitigation planning, the identification of vulnerable groups (those most likely to be adversely affected first by a shock), and the pre-identification of internal (community) and external (government or NGO) resources to assist.
3. **Early warning**. This rainfall monitoring, market price monitoring and monitoring human and livestock health.
4. **Reporting.** If there is an impending shock or disaster, the first activity is to report it to the *woreda*. The flow of information is set up to be from the local level to the *woreda* level, not the other way around.
5. **Response.** To the extent that a shock or disaster can be managed locally, it is the committee's responsibility to do so. Minor shocks (localized flooding for example) can be handled locally. Managing assistance from outside includes targeting, management of labor-based safety nets (PSNP), oversight of supplementary feeding (increasingly on a CMAM or community-based management of acute malnutrition approach), and other responses.
6. **Public awareness-raising.** This is one of the most often-mentioned activities of the project and the KDPCs, but the most difficult to clearly define. It includes efforts to highlight awareness of disaster hazards generally; to decrease traditional ceremonies and their apparently wasteful usage of scarce food resources; to highlight the hazards of migration; and to promote specific interventions such as destocking in the fact of an imminent drought or other threat to livestock assets.

7. **Integration of DRR and longer-term objectives.** The committee is also responsible for planning and overseeing other activities that address some hazards or risk factors, but these would not necessarily be considered DRR activities *per se.* This has led to some confusion about what are specifically DRR activities, and what are general development activities (see below).

KDPC capacity

The 2009 report suggested several areas for impact assessment regarding the KDPCs. These included the following:

1. KDPC perceptions of ACRP contribution to change
2. Improvements/changes in KDPC analysis and planning:
   a. KDPC ability to differentiate between "needs," "hazards," and "outcomes"
   b. KDPC ability to articulate an analysis of hazards and risk
   c. Organization of KDPC plans and ability of KDPC to link analysis to activities in the plan
   d. KDPC ability to implement plans, based on activities actually happening or already happened and demonstrated
   e. *New* activities undertaken in 2010 as a result of new capacities or improved planning
   f. Extent to which KDPC plans meet SMART criteria
1. Increased identification and tracking of early warning indicators at KDPC level
2. Improved knowledge of national policies, plans and priorities, and ability to articulate how they influence local plans
3. Improved reporting and two-way communication between *kebele* and *woreda*
4. Livelihoods impacts

A *Kebele* Disaster-Preparedness Committee

Actual outcomes included the following:

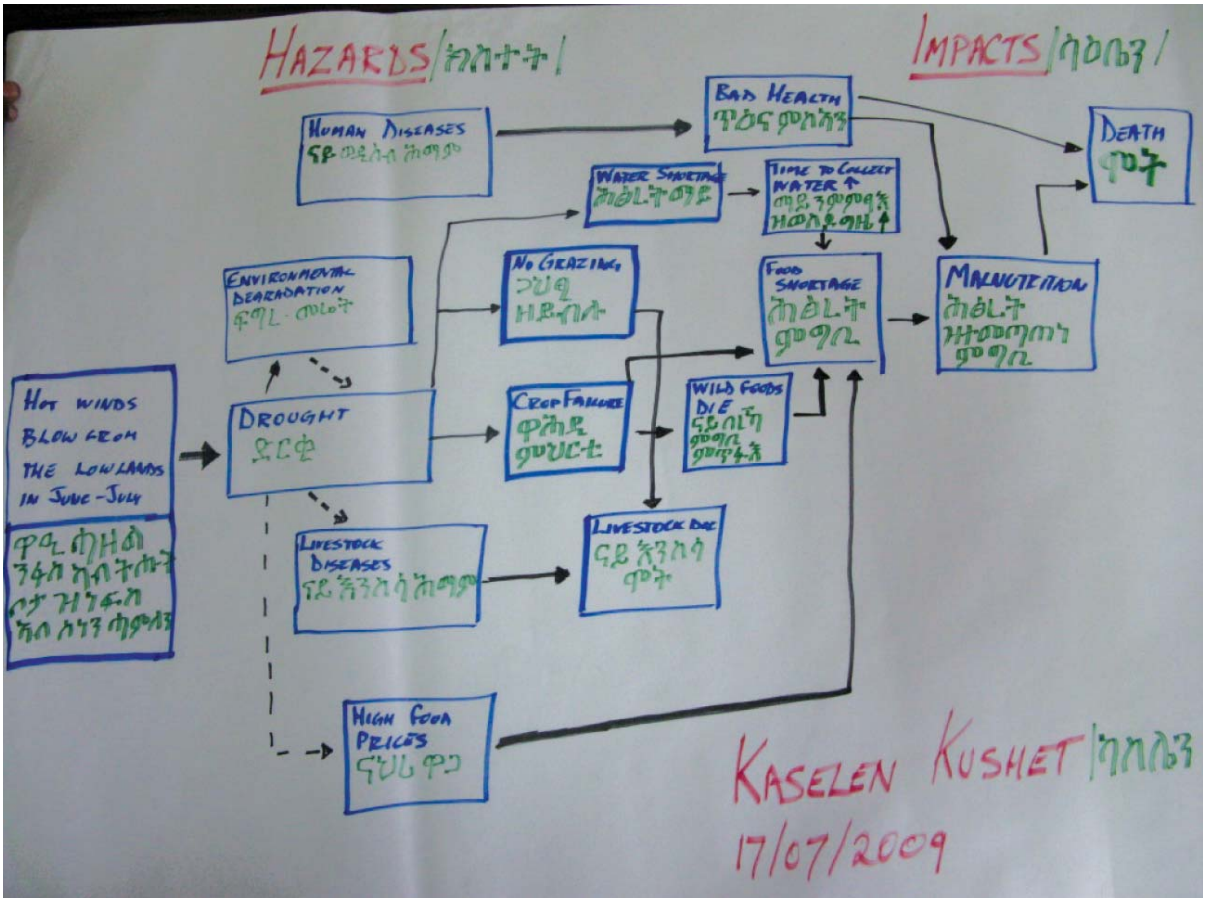
1. KDPCs were formed in all kebeles. These replaced an already existing Early Warning Committee and the project is working on improving the capacity of the new committees. These committees may not have yet taken deep root in the community. Another study that exhaustively studied institutions in one of the kebeles involved with ACRP—the Long Term Perspectives on Development Impacts in Rural Ethiopia—did not list the KDPC as one of the village governance structures in work conducted earlier in 2010.
2. Seven of eleven kebeles have conducted a planning exercise that resulted in a list of problems and suggested solutions. This was called a Community Disaster Preparedness Plan, although it resembles a general development plan more than a specific Community Disaster Preparedness Plan (see example below in Table 16). While the intent of ACRP is that disaster risk management should be mainstreamed into development planning, in some cases, the plans were so generic that risk management was almost left out.
3. There is generally a good awareness of major hazards and major means of reducing and mitigating risk, and preparing for onset of shock. Some of this was pre-existing (i.e., before ACRP), and some of it was not necessarily written down. ACRP has been instrumental in helping communities to funnel awareness into actual planning.

Specific areas of KDPC capacity reviewed included analysis, planning, implementation, and monitoring and evaluation.

Analysis. The 2009 baseline noted some constraints across all the KDPCs in terms of analytical capacity. Committees particularly had a difficult time distinguishing between hazards and poor outcomes, and between plans and interventions. Some KDPCs clearly had a good capacity for analyzing their situation—it is more a matter of providing some training or assistance on which areas constitute causes, which areas constitute interventions, and which areas constitute outcomes. One KDPC in 2009 came up with an excellent problem analysis depicted in Figure 8. But this kind of analysis was not resulting in plans of a similar quality.

Much of the activity of ACRP in 2009 and 2010 was oriented at improved analysis and planning. Early warning—and particularly the reporting of early warning information—has improved. But it is evident from the

FIGURE 8: Causal Analysis: Hazards and Impacts. Kaselen Elders Group (2009)



quality of the plans that there is still need for further capacity building in this area.

Planning. All the *kebeles* visited by the team had plans in 2010 and seven of eleven *kebeles* involved with ACRP had submitted written plans to the *woreda*. These were general development plans—they identify disaster hazards, but also a lot of general development needs. It is clear that many of the "problems" mentioned in the plans are therefore general issues (inadequate classroom space, lack of electricity, etc.), not specific disaster risks or hazards (although some hazards such as drought, human and livestock diseases, and environmental degradation) are present.

One of the objectives was to integrate disaster risk assessment and reduction plans into general kebele development plans, so incorporating both into one document is a step ahead. There remains, however, some lack of clarity about the difference between general development planning on the one hand, and specific disaster preparedness and planning on the other. One of the problems with combining them is that many disaster hazards listed in 2009, and indeed ranked among the most serious, do not turn up in some of these combined plans—at least in part because there is not an on-going development activity directly addressing these issues (indebtedness, for example). On the other hand, some *kebeles* had specific plans of action during 2008 when drought gripped their area of Tsaeda Amba. These might not have been explicitly written down as preparedness plans, but a general consensus existed on what needed to be done.

In brief, progress has been made in that most kebeles now have written plans. Linkages are being made between problems identified, community resources available, and the gap that must be filled by external resources. But as noted, at times a lack of specific preparedness lingers in current plans for mitigating the impact of specific hazards or dealing with the consequences of specific shocks.

Implementation. Most of the KDPCs had been implementing some of the planned programs for many years—initially through the Employment Generating Scheme (EFS) and subsequently through the PSNP. While it was not possible to visit any on-going programs due to the time of the year, there is reasonably good capacity in the area of project implementation where activities were long-standing practices. Improving the capacity for actual project management in these areas has not been a major area of ACRP intervention

In newer programmatic areas, capacity was less clear. Managing destocking is one such example. While this was mentioned in nearly every KDPC interview, when asked for specifics, it was clear that most KDPCs did not yet have the capacity to manage or facilitate destocking, in many cases they didn't agree among themselves as to what constitutes "destocking" and/or did not agree that it should be done. Many KDPC members and community members in general agreed with the sentiments of one respondent who noted that selling animals "is not in our interest, so we usually don't do it unless we have to." This continued to be the case in 2010. But with graphic results of the asset losses during 2009, this could be an important area of focus for further risk reduction work in Tsaeda Amba

Monitoring and evaluation of interventions was the other area in which KDPC capacity was noted in 2009 as low. Few changes were noted in this area in 2010—indeed it was not noted by KDPCs as a priority at this stage.

Other impacts and linkages. The planning function at the local level is focused at the *kebele* committee. At the *woreda* level, there are several linkages. As noted by the 2009 report, a *woreda* Early Warning committee receives and reviews reports from KDPCs twice a month. This has led to better planning, better division of labor and better management. The committee is aware of any new national policy, but the impact of the policy has yet to be felt in Tsaeda Amba. ACRP has chosen to work primarily at the level of strengthening the capacity of the KDPCs and the link with the *woreda*. According to both *kebele* and *woreda* officials, this link has been strengthened.

Awareness raising and behavior change. One of the major objectives of ACRP was awareness rising. There is generally good awareness of most of the issues raised in the interviews that focused specifically on hazards and risk. In the timeframe of this study, it is difficult to attribute changes in behavior to changes in awareness. Some constraints on behavioral change can be better attributed to institutional factors than to awareness-raising. One of these is "harmful traditional practices." Another is destocking, or deliberately downsizing livestock herds in the face of drought or other threat. There is no baseline information on either of these practices. And while almost all groups report destocking as an area in which "awareness" has been changed, few groups reported actual changed behavior. Livelihoods diversification is a third area in which people report substantive changes in awareness, although data collected by the two rounds of both qualitative and qualitative methods show no significant difference in the degree of livelihood diversification in the short time frame of this study.

A fourth area of awareness-raising—and perhaps the one where awareness itself is the most critical—is awareness and recognition of new hazards. In this case, the two hazards that came to light in the course of the study that were previously not part of any awareness-raising campaign were indebtedness and the Cochineal insect infestation problem. The latter has yet to reach Tsaeda Amba, so in some ways it is not surprising that people are not aware of it (even some ACRP staff were not aware of it). But the problem of indebtedness is already affecting people in Tsaeda Amba—again, lack of detailed baseline information prior to the study makes it hard to reach any conclusions. The survey results indicate the number of households taking out loans during the two rounds of the household survey, 2009 and 2010, dropped from 54 percent in 2009 to 39 percent in 2010 (Annex 2). But it is the qualitative evidence that is the most worrying about the practice of borrowing, particularly during bad years. While the qualitative methods don't permit numeric extrapolation, taking a loan for an investment in either crops or livestock but then suffering losses (especially in the case of livestock) and having to liquidate other major assets to repay the loan, was a story that the study team heard repeatedly in all of the study areas. Further quantitative measurement will give a better estimate of this issue. Credit is clearly one means to improved livelihoods, but the qualitative evidence suggests a very mixed record in recent years. A program designed to help communities and households manage risk better needs to focus on this issue closely, because the implications are not straightforward or formulaic. ■

Section 4. Conclusions of the Two-Year study

Objectives of the study

As noted in the introduction, this study had five overall objectives:

- Assess the impact of a specific, community-driven Disaster Risk Reduction program in Northern Ethiopia.
- Assess change in livelihoods over time, including an understanding of the dynamics of changes in livelihood assets, strategies, and outcomes in response to repeated shocks.
- Understand the major factors driving these changes—all causal factors including but not limited to interventions of ACRP.
- Understand community perceptions of hazards and risk.
- Develop the means to measure the impact of DRR intervention in chronically risk prone areas.
- Provide feedback to project management in the development of a risk management strategy.

This report has discussed the documented impacts of ACRP (Objective 1) and has assessed the change in livelihood assets, strategies, and outcomes (Objective 2). Understanding community perceptions of risk was a major purpose of the first report (Maxwell et al. 2009) and these were briefly recounted in Section 1. Many of the indicators developed to capture change (Objective 5) are evidenced in this report, although space did not allow the detailed discussion of these here. These will be described and analyzed in separate forthcoming peer-reviewed articles for broader dissemination. Feedback to project management (Objective 6) has been conducted through formal reports, as well as direct memos and informal discussions throughout the course of the study. Understanding causal factors *outside* the management purview of ACRP was the major purpose of the January 2010 fieldwork (Coates et al. 2010). That report analyzed the institutional and policy context and it is briefly summarized below.

Two general research questions guided this study: The first was whether specific interventions can reduce or mitigate the risk of hazards and enable people to prepare for, mitigate, and recover from the shocks and become more resilient to future shocks. The second was how communities perceive risk and thresholds of overcome the risk of repeated humanitarian emergencies.

The study team and the management of ACRP (and World Vision more broadly) are in general agreement that the time frame of the current study was inadequate to address the first question fully. Although some trends were noted, and an excellent baseline has been conducted for future monitoring, the trends were distinctly mixed and attribution of any of the outcomes to ACRP activities is difficult. On the other hand, communities were able to articulate their perceptions of risk and their views of the livelihood characteristics—especially asset thresholds—they view necessary to overcome persistent risks. It is less clear, particularly in light of some of the institutional constraints, that these levels can be achieved in the short term. This implies that preparedness for and the capacity to respond to shocks will continue to be important in the short to medium term. But it is also clear that greater resilience in the medium to longer term is of equal or greater importance

Institutional factors influencing livelihoods

Informants attributed little of their current livelihood circumstances—for better or worse—directly to ACRP interventions. Research in January 2010 highlighted the major institutional and environmental constraints to livelihoods in Tsaeda Amba (Coates et al. 2010). Very briefly, the areas highlighted in that report included access to land and natural resources (and the efforts made to address land and natural resource conservation); access to credit (and the links between credit and vulnerability reduction which can be both positive and negative); access to markets and market; traditional institutions and practices; labor, migration, and remittances (and the contribution of each to primary agricultural livelihood systems); gender and social relations; local government; and access to the Productive Safety Net Programme (PSNP). That research also detailed major changes in the national policy environment in Ethiopia.

Land, land access, and land quality. The small size of land holdings, the limits on land transactions, and the

absence of any major land redistribution subsequent to the redistribution held in the wake of the current government coming to power in 1991, have all made access to land for primary agricultural livelihoods a major constraint. Land is used continuously, resulting in soil-quality degradation problems, but more importantly, a class of landless youth is growing for whom livelihood choices are a major constraint. While soil and water conservations programs are an important part of DRR programs, they cannot directly address this issue. And the issue of land access is an increasingly important constraint particularly to younger community members.

Credit. Access to credit and, through credit, to production-enhancing technology, has been a mainstay of the overall development strategy of the Ethiopian Government in Tigray, and it has a history of many successes. However, in the context of 2009–2010, this study found very high costs of borrowing compared to the earnings from saving. And the high cost of defaulting on loans is leading to behaviors that can undermine livelihoods—mainly the selling of major assets to avoid the stigma and high cost of defaulting on a loan, and the avoidance of credit-led interventions altogether. Hence one of the strategies intended to improve livelihoods has the potential to significantly undermine the livelihoods of one group of people. This has significant implications for further study, but also for programming. Offering rural financial services that are savings-led rather than credit-led is one possible solution. Rainfall-indexed insurance schemes are one approach to micro-credit that could protect against losses to at least one major hazard—drought—and thus protect against the risk of credit default.

Traditional practices and institutions. Recognizing and building on traditional institutions could address some of these concerns. But the analysis of traditional institutions reveals that some are potentially helpful in reducing risks, particularly *uqub* and *idir*—traditional savings groups and ceremony groups (to help in paying for such unexpected events as funerals)—but some practices such as traditional feast days can be detrimental. These are both already addressed by ACRP interventions. The degree of behavior change regarding traditional practices is very difficult to judge or measure. People report fewer ceremonies, and less wasteful practices, but there is a heavy expectation that they would report this way. There is no clear baseline on such practices, so even if observations could be made in the field, there would be little basis for comparison.

Access to the PSNP. In theory, households are selected into the PSNP based on certain poverty criteria and according to *woreda* statistics half of the population in the *woreda* is included in the PSNP. However, in the past, targeting was done on an individual basis, meaning that some individuals in a household might receive benefits but not others. This tended to distribute the benefits of the PSNP as widely as possible, but also meant that few households received the intended full benefits. In 2010, the targeting procedures were changed, meaning that fewer households were included in the PSNP, but more resources were targeted to those who were included. This is reflected in the data above on food and income sources. It appears that other programs have stepped in to fill the void left in some households by the withdrawal of PSNP resources.

Changes in key national policies

A National Disaster Management policy is now being considered by the cabinet of the Government of Ethiopia. It is expected to be implemented beginning sometime later in 2010, but many of its provisions have already started to take effect. The overall objective of the new National DRM policy is to "reduce the risk and impact of disasters through the establishment of a compressive disaster risk management system within the context of sustainable development."[6] Other elements of the objectives of the new policy include shifting the focus to proactive measures; to save lives and livelihoods during crises and move quickly to recovery and rehabilitation in their aftermath; to promote resilience; and to ensure mainstreaming of DRM practices across government and partners.

Under the new policy, the emphasis shifts from "disaster response" to "disaster risk management" implying a much more pro-active approach to dealing with hazards than in the past—in other words, hazards and risks are to be managed in such a way that they do not manifest themselves in disasters. This is a major step forward in promoting DRR in Ethiopia.

Disaster risk financing is planned to become the major mechanism of early response. This will be triggered by indicators that track both major hazards (including rainfall, but also including measures of livelihood outcome), and these indicators will be tied to pre-allocated funding for response by means of an index. This ensures that a certain level of crisis triggers the response mechanism, rather than the old way of declaring a disaster, conducting *ex-post* needs assessments, and then appealing for response funding. Improved early warning will be based on new vulnerability profiles and hazard monitoring, tied directly to the index just described.

Responsibility for policy, management and oversight rests primarily with government, but involves many partners, including donors, UN agencies, international

6 This was taken from interview notes—the wording in the policy document might differ. The draft policy is not yet in the public domain.

and Ethiopian NGOs, and increasingly, local communities (which is where KDPCs and the link to ACRP is most pronounced) and private sector actors within Ethiopia.

The DRM policy envisions activities in three phases or categories including pre-disaster, during disaster, and post-disaster. The pre-disaster phase includes the prevention of shocks and the mitigation of shocks in the event that they happen. A third element of the pre-crisis phase is good emergency preparedness. These will all be incorporated into development planning. Declaring an emergency is the responsibility of the Federal Disaster Risk Management Council. More localized crises can be declared by the same authority at the regional level. Emergencies are to be declared when the capacities of local authorities to cope have been overwhelmed by events.

While disaster response in the past relied heavily on external contributions, this new policy prioritizes national or internal resources to fund prevention, mitigation, preparedness, response, and rehabilitation, to the extent possible. Protecting against relatively predictable shocks and vulnerabilities will be incorporated into government recurrent development budgets. Large-scale programs and response would still have a role for donors and international agencies. Finally, one of the steps in the new policy is to ensure that there is enabling legislation for the DRM policy, and that it strengthens the mechanisms of accountability.

Since 2004 the Government of Ethiopia and a set of donors, led by the World Bank and WFP, have been designing a drought shock scale-up of the PSNP, based on a national index, with localized early warning systems providing information. Under the new policy, risk management will be more clearly linked to contingency planning, capacity building, and more robust early warning systems. A new triggering index will be based on the Water Requirements Satisfaction Index (WRSI) and will have some livelihoods outcomes indicators as well. These indicators form the backbone of the LEAP (Livelihoods, Early Assessment, and Protection) index as the basis for triggering a contingency-risk financing fund. The LEAP index will coordinate the key components of a DRM framework including early warning, local contingency planning, and capacity building.

Information systems are expected to be improved, and linked to an indexing system that will reduce the time lag in responding to crises. Under the current system, a major effort at livelihoods mapping was carried out by the DPPA through its Livelihoods Integration Unit (LIU). This has resulted in baseline assessments for all the drought-prone *woredas* in Ethiopia. Under the new policy, *woreda* vulnerability profiles are to be developed which will build on these baselines and extend them to the whole country to analyze underlying causes of disaster risk and DRR interventions for each *woreda*, and design early warning indicators that can trigger a response. Building on work done by the LIU, early warning thresholds will note both a "survival threshold" and a "livelihood protection threshold" of response. While the livelihood protection threshold is obviously the objective for DRM programs, these thresholds also serve a role in the allocation of limited resources in the event of a major disaster.

Changes

Measuring change in livelihoods by definition a slow process. Many of the interventions of ACRP and its *woreda* partners require significant time to be implemented, and more time before measurable change can be noted. Most of the changes noted by the two rounds of qualitative and quantitative research by the Tufts team reflect changes in the agricultural seasons, not the impact of ACRP or other programmatic inputs. Some of the short-term changes, particularly in terms of levels of household assets held, were negative—that is, levels of assets were lower in 2010 than in 2009.

Section 2 of this report detailed changes in livelihoods over the two years of this study. Both positive and negative directions were documented. The combined impact of the food price crisis and the drought resulted in the loss of assets, although these losses were not even, and in many ways appear to have affected wealthier households more adversely than poorer households.

The results of the study indicate several areas of program impact. The most significant of these is the capacity built at kebele community grass roots level that has improved early warning report and awareness through established *kebele* disaster-preparedness committee.

Recommendations to ACRP

The first phase of ACRP is soon ending, but it is anticipated that there will be follow on activities related to a DRR strategy in Tsaeda Amba. The following recommendations grow out of this research:

1. **Gradually shift focus from awareness-raising to more specific interventions.** There is evidence of a generally good level of awareness among the population of the ACRP operational area, but it is less clear that awareness-raising alone leads to significant behavior change. Going forward, ACRP should gradually shift its focus to changing actual behaviors. Programmatically, this could take several practical forms.

    a. *Emphasis on proactive, commercial destocking led by KDPCs, rather than passive advice-giving.* There is

evidence that efforts to make the connection between livestock producers and commercial livestock traders during drought can have a significant impact on household income, consumption, and asset protection.[7] But these programs require more than just awareness-raising. The process described by Abebe et al. (2008) encourages not only intensive involvement in facilitating meetings and negotiations between communities and traders. It also encourages careful selection of animals to be destocked and kept, and provision of inputs (both fodder and medicines) to ensure that the core breeding herd survives and is able to reproduce again as soon as the drought ends.

b. *Introduction of improved technologies and varieties.* There are new varieties of crops being developed all the time, many of which are more drought resistant than landrace varieties. In the face of persistent drought, and with evidence mounting that climate trends suggest increasingly variable weather patterns in the future, working to introduce these new varieties is a critical part of risk reduction.

c. *Livelihood diversification.* It is clear that diversifying the sources of income already has well recognized benefits in Tsaeda Amba. Future programming can reinforce this diversification. Part of this might have to do with access to micro-finance services—not only credit (which is already widely available) but especially savings-led interventions and possibly insurance. Diversification can also be linked to more sustainable natural resource management, enabling income streams from natural resources—particularly for households of younger members of the community who have not inherited any land. And it could be in value-added activities to the primary production already taking place (honey processing, butter production, etc.). New income-generating activities are urgently needed for both poverty reduction and resilience in the face of repeated hazards.

d. *Future training should focus on these areas.* All this is not to imply that there is no role for training—indeed there is a need for training. But it should be on more focused, specific improvements, rather than awareness-raising *per se*.

2. **Continue to emphasize focus on capacity building**. Building local capacity—at both the *woreda* and the *kebele* level—has probably been the most important impact of ACRP. While good progress has been made, more could be done. Emphasis on planning and improved management at the kebele level is still an important area to focus on, and one from which a larger strategy of engagement could be based.

   a. *Focus on improved analysis*. And in particular, on the link of analysis to action. New "response analysis" tools are being developed all the time. Introducing training that relies on these tools could help to link analysis to action.

   b. *Differentiate disaster prevention and preparedness from general development planning*. It is important to incorporate DRR into general development planning, but as of the moment, there is little to distinguish *hazards* from general *needs* in *kebele*-level plans. This makes disaster preparedness planning somewhat haphazard. In general Community Disaster Preparedness Plans should focus on specific hazards, not general needs.

3. **ACRP objectives should be incorporated into integrated development programs**. While there is still a need to differentiate hazards from needs at the level of specifics, there is also the more general need to incorporate risk reduction and preparedness into broader development planning. The planning of preparedness, response, risk reduction and general development should be separate categories but part of the same overall plan—at both the *woreda* and *kebele* levels

4. **Address specific constraints.** Several specific constraints were identified. These could be addressed by greater geographic focus (perhaps only three or four kebeles, rather than eleven), by creating the time and space for staff to really focus on a limited number of objectives, and by providing incentives for staff to see an entire project through, to reduce staff turnover.

5. **Treat ACRP as a learning laboratory.** ACRP is a project, but also an important crucible in which significant programmatic learning has taken place. Treating the project as a learning laboratory—as well as the means to implement improved programming—will increase the overall value of future programming. This means encouraging staff to experiment with local innovation, encourage them to keep on top of emerging threats and hazards, and to think of inventive ways of addressing these threats. One example of this is the micro-insurance effort described in the

7 See Abebe, et al. 2008. "Impact of a commercial destocking relief intervention in Moyale district, southern Ethiopia." See also the LEGS manual.

first report, aimed at reducing the risk of default, indebtedness, and asset loss resulting from failed attempts with credit-based livelihood promotion interventions, or drought.

Overall, a DRR strategy must address the various elements of the conceptual framework from the original proposal. These elements include the following:

1. Reduce the occurrence of adverse events.
2. Reduce the risk of negative human outcome through reducing exposure to adverse events that continue to occur.
3. Transfer risk within communities. Where shocks occur, the imperative is to improve the capacity of communities to deal with idiosyncratic risk.
4. Transfer risk or shifting some of the burden of a shock that affects most people in a community out of the local system.
5. Enable prudent risk taking.

Table 15 (reproduced from the 2009 report) depicts possible places where ACRP interventions address known hazards. Transferring risks within communities is all about dealing with idiosyncratic risk, and it is clear that most DRR activities in Ethiopia are (rightfully) focused on covariate risk, particularly on drought. But a comprehensive risk management and reduction strategy would differentiate these two kinds of risk and deal with them separately. The Productive Safety Net Programme has provided the means for chronically at-risk populations to survive back-to-back bad agricultural seasons without a major humanitarian emergency. ACRP has made good progress on capacity building and awareness-raising for resilience and risk management. To take this work to the next level, the capacity building and awareness raising can be paired with interventions that successfully and sustainably reduce these risks, as outlined in Table 20. This could be taken as a template for planning future activities under a renewed or expanded ACRP program. ■

TABLE 15. DRR Strategies and Hazard Categories in Tsaeda Amba

DRR Strategies	Categories of Hazard					
	Climatic	Natural-Resource	Economic	Disease	Demographic	Social
1. Reducing the occurrence of adverse events	?	Y	?	Y	Y	Y
2. Reducing risk of negative human outcome	Y	Y	?	Y	Y	Y
3. Transferring risk within communities	Small-scale	N	?	N	N	Y
4. Transferring risk outside communities	Y	?	Y	N	Y	?
5. Enabling prudent risk taking	Y	Y	Y	Y	Y	?

Y = Interventions exist
N = Interventions probably do not exist
? = Not clear whether existing interventions address the problem, or not

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Annex 1:
A framework for DRR analysis and programming

The generally agreed policy framework for DRR is the Hyogo Framework for Action. This encompasses five main points: ensuring that DRR is a national and a local priority with appropriate institutional linkages; identifying risks and enhancing early warning; promoting education and the use of scientific knowledge to reduce vulnerability; addressing underlying risk factors; and strengthening preparedness (UNISDR 2005). This framework has also been adopted by World Vision as its over-arching framework for DRR as well. In recent work on risk analysis (UN 2006, Dilly and Boudreau 2001), the proposed conceptual framework considers risk as the likelihood of a negative outcome in terms of human lives and livelihoods, and defines it as some function of the hazards that exist in the that environment and people's vulnerability—or the combination of their exposure to those risks and their ability to cope with their consequences:

R = *f* (H,V). Different hazards require different means of reducing risk. Some frameworks refer to risk reduction (the *ex ante* prevention of adverse events); risk mitigation (reducing the impact during an adverse event) and risk coping (the *ex post* limitation of the negative impact of an event that has already occurred). This leads to a classification of different risk-addressing or reducing activities that follows this schema, but breaks out risk according to whether it affects entire communities, or only some households in communities.

1. **Reducing *the occurrence* of adverse events.** This includes measures to prevent or reduce the risk of a particular shock occurring. This would include, for example, reducing the risk of flooding through soil and water conservation—an area in which substantial investment has already been made. Not all hazards can be prevented, however.
2. **Reducing *risk of negative outcome* through reducing exposure to adverse events that occur.** For shocks that cannot be prevented, reducing the impact of shocks is critical. This would include, for example, reducing the impact of drought on through livelihoods diversification to include activities that are not dependent on rainfall; promoting drought resistant technology, such as short-season seeds or other drought resistant crops; or protecting assets such as livestock through commercial off-take at the outset of a drought.
3. ***Transferring risk within communities*.** Where shocks occur, the first imperative is to improve the capacity of communities to deal with idiosyncratic risk (affecting only individuals or households with specific characteristics), through support for mechanisms that effectively share overall risk at the local level. This includes, for example, the introduction of savings groups or promotion of indigenous social networks, such as *idirs* or traditional funeral societies that help to spread the risks and the costs of adverse events.
4. ***Transferring risk* or shifting some of the burden of a shock that affects most people in a community *out of the local system*.** A second imperative is improving community capacity to deal with covariate risk (affecting nearly everyone without respect to specific characteristics). This requires assistance from outside the local community. But this also includes community-based early warning and emergency preparedness. In the case of major hazards like drought, it might also include weather-indexed insurance at the national or regional level that is triggered by a rainfall index or some other combination of factors (Hess et al. 2006, World Bank 2008).
5. **Prudent *risk taking*.** Lastly, recent work has shown that while reducing risk is imperative, in order to overcome some forms of chronic vulnerability, households and communities have to take certain kinds of risk—most prominently investment in different kinds of productive livelihood strategies. For example, in the Tsaeda Amba context, indebtedness is a serious risk factor that households do their best to avoid, but at the same time, credit is one of the few ways to improve livelihood options, and credit is an integral part of "household package" approaches to graduation from the Productive Safety Net Program (PSNP). Determining what is acceptable, prudent risk-taking to improve livelihoods possibilities, and reducing other kinds of risks to make this necessary risk taking possible, presents both analytical and programmatic challenges that have yet to be comprehensively addressed (Oxfam, 2009). ■

Annex 2:
Statistical results of second household survey round in June2010 and comparison with 2009

The tables in this annex present a summary of the statistical information gathered during the household survey in June 2010, and a comparison with baseline conditions recorded in May and June 2009. The tables presented here include 2009–2010 comparisons of the following:

1. Basic descriptive statistics of HH characteristics (size, Sex of HHH, education of HHH)
2. Measures of income sources and assets at household level (by gender of household head, by livelihood zone and by income group—using reported income figures)
3. Assets (land and livestock) and comparison of proportions by wealth group, gender and livelihood zone
4. Measure of livelihood diversification (number of reported income sources and number of households reporting each)
5. Water sources and distance
6. Savings and indebtedness
7. Current food security status: DD, CSI and HFIAS
8. Disaster management results
9. Impact of disasters

There is a discussion of the comparison between these results and those of the participatory livelihoods baseline focus groups in the main report. ■

Statistical Annex:
Ethiopia Tsaeda Amba Household Survey, ROUND TWO (2010)

TABLE A1. Household Descriptive Statistics			
		2009 (%)	2010 (%)
Sex of HH Head	Male	62.5	67.8
	Female	37.5	32.2
Sex of HH members	Male	46.7	49.9
	Female	53.3	50.1
Age of HH members	0–14	43.0	42.5
	15–64	50.3	53.1
	65+	6.7	4.3
Ability of HH members (>age 10) to read and write	Yes	64.6	62.2
	No	35.4	37.8
Health status of HH members (>age 5)	Always able to work, attend school	85.5	82.5
	Usually able to work, attend school	8.6	11.5
	Never able to work, attend school	5.9	6.0
Highest education completed	No school	70.1	64.4
	1st cycle primary	19.9	23.4
	2nd cycle primary	6.9	9.0
	1st cycle secondary	2.0	2.4
	2nd cycle secondary	0.4	0.5
	Technical college / university	0.6	0.3

TABLE A2a. Household Income Sources and Assets

		Totals		By sex of HH head			
				2009		2010	
		2009	2010	Male (n=250)	Female (n=150)	Male (n=265)	Female (n=135)
Total mean income (ETB)		1645	1460	1951	1137	1693	1003
Source of income (%—percent refers to % of HHs reporting source)	sales of own agricultural products	18.0	43.5	20.0	14.7	43.8	43.0
	sales of livestock	54.8	26.5	59.6	46.7	25.3	28.9
	sales of livestock products	6.0	8.0	5.6	6.7	9.8	4.4
	sales of honey	1.0	0.3	1.2	0.7	0.4	0.0
	sales of wild products	3.2	0.3	2.8	4.0	0.4	0.0
	farm labor	1.5	1.8	1.2	2.0	2.6	0.0
	non-farm labor	3.5	3.0	3.2	4.0	3.8	1.5
	petty trade (specify goods)	1.0	1.5	1.2	0.7	1.9	0.7
	own business	6.5	5.8	8.0	4.0	7.2	3.0
	work in another household	0.0	0.0	0.0	0.0	0.0	0.0
	professional/ civil servant	2.2	0.5	2.8	1.3	0.8	0.0
	productive safety nets program (PSNP)	89.2	25.3	88.0	91.3	25.7	24.4
	other food for work or cash for work program	4.5	3.0	5.2	3.3	4.2	0.7
	remittances	4.8	4.0	5.2	4.0	3.4	5.2
	other		0.5			0.8	0.0

TABLE A2b. Household Income Sources and Assets

		By livelihood zone					
		2009			2010		
		Atsbi-Wonberta Highlands (n=80)	Eastern Plateau (n=300)	Irob Mountains (n=20)	Atsbi-Wonberta Highlands (n=100)	Eastern Plateau (n=280)	Irob Mountains (n=20)
Total mean income (ETB)		1506	1702	1348	1298	1512	1540
Source of income (%—percent refers to % of HHs reporting source)	sales of own agricultural products	22.5	18.0	0.0	43.0	45.7	15.0
	sales of livestock	51.2	56.0	50.0	28.0	25.4	35.0
	sales of livestock products	3.8	7.0	0.0	4.0	9.6	5.0
	sales of honey	2.5	0.7	0.0	1.0	0.0	0.0
	sales of wild products	2.5	3.7	0.0	0.0	0.4	0.0
	farm labor	1.2	1.7	0.0	1.0	2.1	0.0
	non-farm labor	5.0	3.3	0.0	4.0	2.5	5.0
	petty trade (specify goods)	0.0	1.3	0.0	1.0	1.4	5.0
	own business	1.2	8.3	0.0	3.0	6.1	15.0
	work in another household	0.0	0.0	0.0	0.0	0.0	0.0
	professional/ civil servant	0.0	3.0	0.0	0.0	0.4	5.0
	productive safety nets program (PSNP)	95.0	87.0	100.0	26.0	25.0	25.0
	other food for work or cash for work program	3.8	3.3	25.0	2.0	3.6	0.0
	remittances	7.5	4.0	5.0	5.0	2.9	15.0
	other				1.0	0.4	0.0

TABLE A2c. Household Income Sources and Assets

		By household wealth group							
		2009				2010			
		Very Poor: <1650 ETB (n=256)	Poor: 1650–2249 ETB (n=61)	Middle Income: 2250–2999 ETB (n=41)	Better-off: 3000+ ETB (n=42)	Very Poor: <1650 ETB (n=282)	Poor: 1650–2249 ETB (n=45)	Middle Income: 2250–2999 ETB (n=26)	Better-off: 3000+ ETB (n=47)
Total mean income (ETB)		835	1890	2568	5261	805	1900	2583	4353
Source of income (%—percent refers to % of HHs reporting source)	sales of own agricultural products	16.0	19.7	30.0	16.3	45.4	46.7	34.6	34.0
	sales of livestock	41.4	75.4	80.0	81.4	35.0	33.3	42.3	25.5
	sales of livestock products	7.0	4.9	2.5	4.7	5.0	8.9	7.7	8.5
	sales of honey	0.8	0.0	2.5	2.3	0.0	0.0	0.0	0.0
	sales of wild products	2.7	1.6	0.0	11.6	0.0	0.0	0.0	0.0
	farm labor	1.2	4.9	0.0	0.0	0.0	4.4	7.7	4.3
	non-farm labor	2.7	4.9	0.0	9.3	0.0	6.7	15.4	2.1
	petty trade (specify goods)	0.8	0.0	0.0	0.0	5.0	2.2	0.0	6.4
	own business	4.3	8.2	10.0	14.0	15.0	2.2	11.5	19.1
	work in another household	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	professional/ civil servant	0.4	3.3	0.0	14.0	5.0	0.0	0.0	2.1
	productive safety nets program (PSNP)	92.6	88.5	77.5	81.4	25.0	17.8	30.8	14.9
	other food for work or cash for work program	4.7	4.9	5.0	2.3	0.0	6.7	3.8	8.5
	remittances	2.7	3.3	15.0	9.3	15.0	4.4	0.0	12.8

TABLE A2d. Household Income Sources and Assets							
		Totals		By sex of HH head			
				2009		2010	
		2009	2010	Male (n= 250)	Female (n= 150)	Male (n= 265)	Female (n= 135)
Total mean income (ETB)		1645	1460	1951	1137	1693	1003
Mean Income amount by source (ETB)	sales of own agricultural products	88.74	515.57	114.76	45.37	546.40	466.93
	sales of livestock	584.26	388.59	723.89	351.55	430.18	306.96
	sales of livestock products	7.62	25.25	8.64	5.93	19.25	0.00
	sales of honey	3.00	2.50	3.20	2.67	3.77	0.00
	sales of wild products	6.36	2.00	6.44	6.23	3.02	0.00
	farm labor	5.50	27.25	2.20	11.00	41.13	0.00
	non-farm labor	25.77	46.13	19.90	35.53	60.19	18.52
	petty trade (specify goods)	4.75	39.75	5.80	3.00	54.72	7.41
	own business	62.42	147.27	91.04	14.73	201.91	40.00
	work in another household	.00	0.00	.00	.00	0.00	0.00
	professional/ civil servant	176.96	21.00	262.33	34.67	31.70	0.00
	productive safety nets program (PSNP)	553.91	140.36	578.21	513.40	160.34	101.15
	other food for work or cash for work program	7.55	13.55	8.80	5.47	19.51	1.85
	remittances	72.12	76.83	79.20	60.33	95.92	39.33
	other	10.34	0.88	3.30	22.07	1.32	0.00

TABLE A2e. Household Income Sources and Assets

		By livelihood zone					
		2009			2010		
		Atsbi-Wonberta Highlands (n=80)	Eastern Plateau (n=300)	Irob Mountains (n=20)	Atsbi-Wonberta Highlands (n=100)	Eastern Plateau (n=280)	Irob Mountains (n=20)
Total mean income (ETB)		1506	1702	1348	1298	1512	1540
Mean Income amount by source (ETB)	sales of own agricultural products	62.12	101.75	.00	468.15	562.91	170.00
	sales of livestock	561.10	574.99	816.00	342.95	388.19	622.50
	sales of livestock products	6.25	8.50	.00	38.00	21.79	10.00
	sales of honey	10.00	1.33	.00	10.00	0.00	0.00
	sales of wild products	1.75	8.02	.00	0.00	2.86	0.00
	farm labor	2.50	6.67	.00	20.00	31.79	0.00
	non-farm labor	40.58	23.53	.00	55.00	41.25	70.00
	petty trade (specify goods)	.00	6.33	.00	10.00	48.21	50.00
	own business	15.00	79.23	.00	50.00	172.88	275.00
	work in another household	.00	.00	.00	0.00	0.00	0.00
	professional/ civil servant	.00	235.94	.00	0.00	25.71	60.00
	productive safety nets program (PSNP)	658.00	533.21	448.00	147.25	140.25	107.50
	other food for work or cash for work program	.50	7.69	33.60	11.00	15.43	0.00
	remittances	145.63	54.00	50.00	150.00	37.61	260.00
	other	4.50	12.58	.00	2.00	0.54	0.00

TABLE A2f. Household Income Sources and Assets

		By household wealth group							
		2009				2010			
		Very Poor: <1650 ETB (n=256)	Poor: 1650–2249 ETB (n=61)	Middle Income: 2250–2999 ETB (n=41)	Better-off: 3000+ ETB (n=42)	Very Poor: <1650 ETB (n=282)	Poor: 1650–2249 ETB (n=45)	Middle Income: 2250–2999 ETB (n=26)	Better-off: 3000+ ETB (n=47)
Total mean income (ETB)		835	1890	2568	5261	805	1900	2583	4353
Mean Income amount by source (ETB)	sales of own agricultural products	55.14	71.48	193.25	216.05	365.64	874.89	665.38	1022.34
	sales of livestock	229.61	857.54	1287.00	1654.30	212.54	499.33	1014.62	992.55
	sales of livestock products	9.65	6.56	.75	3.49	21.45	58.89	11.54	23.40
	sales of honey	1.56	.00	2.50	16.28	3.55	0.00	0.00	0.00
	sales of wild products	2.99	8.20	.00	29.77	2.84	0.00	0.00	0.00
	farm labor	6.25	9.84	.00	.00	1.42	60.00	134.62	91.49
	non-farm labor	5.26	23.93	.00	174.42	8.87	143.33	250.00	63.83
	petty trade (specify goods)	4.10	.00	.00	19.77	8.87	22.22	0.00	255.32
	own business	21.09	46.23	135.00	263.95	36.20	17.78	265.38	872.34
	work in another household	.00	.00	.00	.00	0.00	0.00	0.00	0.00
	professional/ civil servant	1.69	25.41	.00	1600.00	4.26	0.00	0.00	153.19
	productive safety nets program (PSNP)	469.23	700.74	709.62	704.88	135.21	127.22	152.69	177.02
	other food for work or cash for work program	6.96	11.11	11.48	2.33	8.05	44.44	7.69	20.21
	remittances	39.26	9.84	120.00	311.63	19.61	66.67	0.00	472.34
	other	4.53	41.39	.00	10.47	1.24	0.00	0.00	0.00

TABLE A2g. Household Income Sources and Assets							
		Totals		By sex of HH head			
				2009		2010	
		2009	2010	Male (n=250)	Female (n=150)	Male (n=265)	Female (n=135)
Livelihood diversification	# of income sources	1.96	1.24	2.04	1.83	1.30	1.12
House ownership (%)	Yes	97.0	97.5	97.2	96.7	97.4	97.8
Iron sheet roofing (%)	Yes	16.8	18.5	18.1	14.8	18.5	18.8
Access to land (%)	Yes	93.8	95.3	93.6	94.0	95.1	95.6
Land owned (timad)	Amount	1.77	1.68	1.96	1.46	1.84	1.37
Livestock owned (TLU)	Tropical Livestock Units	2.33	2.32	2.64	1.84	2.66	1.66

TABLE A2h. Household Income Sources and Assets							
		By livelihood zone					
		2009			2010		
		Atsbi-Wonberta Highlands (n=80)	Eastern Plateau (n=300)	Irob Mountains (n=20)	Atsbi-Wonberta Highlands (n=100)	Eastern Plateau (n=280)	Irob Mountains (n=20)
Livelihood diversification	**# of income sources**	1.96	1.97	1.80	1.19	1.25	1.25
House ownership (%)	**Yes**	97.50	97.30	90.00	99.0	97.5	90.0
Iron sheet roofing (%)	**Yes**	5.10	20.70	5.00	1.0	26.4	0.0
Access to land (%)	**Yes**	92.50	94.30	90.00	96.0	95.0	95.0
Land owned (timad)	**Amount**	1.49	1.89	1.15	1.69	1.68	1.74
Livestock owned (TLU)	**Tropical Livestock Units**	2.15	2.45	1.39	2.24	2.39	1.82

TABLE A2i. Household Income Sources and Assets									
		By household wealth group							
		2009				2010			
		Very Poor: <1650 ETB (n=256)	Poor: 1650–2249 ETB (n=61)	Middle Income: 2250–2999 ETB (n=41)	Better-off: 3000+ ETB (n=42)	Very Poor: <1650 ETB (n=282)	Poor: 1650–2249 ETB (n=45)	Middle Income: 2250–2999 ETB (n=26)	Better-off: 3000+ ETB (n=47)
Livelihood diversification	**# of income sources**	1.77	2.20	2.22	2.51	1.17	1.33	1.54	1.38
House ownership (%)	**Yes**	96.90	96.70	97.40	97.7	96.8	100.0	96.2	100.0
Iron sheet roofing (%)	**Yes**	17.30	14.80	12.80	20.90	16.0	24.4	26.9	23.4
Access to land (%)	**Yes**	93.80	95.10	100.00	86.00	95.0	100.0	96.2	91.5
Land owned (timad)	**Amount**	1.71	1.75	2.15	1.77	1.61	1.69	2.08	1.93
Livestock owned (TLU)	**Tropical Livestock Units**	2.13	2.50	2.64	3.03	2.21	3.02	2.60	2.13

TABLE A3. Water Sources and Distance			
		2009 (%)	2010 (%)
Primary HH Water Source	Bore hole (via faucet)	21.1	31.8
	Hand-dug well with hand pump	36.3	45.3
	Protected spring with faucet or pipe	6.0	2.3
	Rainwater surface catchment (protected)	2.0	0.0
	River (direct)	9.3	5.3
	Unprotected spring	20.6	13.8
	Pond/surface water catchment (unprotected)	4.8	1.0
Type of toilet used	None	11.8	14.8
	Wooden standard pit latrine	77.5	74.3
	Cementer standard pit latrine	4.8	7.5
	Ventilation improved pit latrine	5.0	3.3
	Other	1.0	0.0

	Year	Minimum	Maximum	Mean	Median	Std. Deviation
Minutes to fetch water from primary water source	2009	1	375	35.28	20	55.067
	2010	0	240	41.21	30.0	30.327

TABLE A4. Savings and Debt			
		2009 (% of HHs)	2010 (% of HHs)
Existence of HH Savings	Yes	1.5	5.3
	No	98.5	94.7
Existence of HH Debt	Yes	54.5	39.0
	No	45.5	61.0
Source of loans	DECSI/ MFI/DEDEBIT	78.9	80.1
	Money lender	0.4	0.6
	Friend/neighbor/ relatives	11.8	8.1
	Cooperatives	0.4	10.6
	Other	8.1	0.6
Reason for loan	To buy food	22.9	8.8
	Housing materials expenses	0.4	0.6
	To buy agricultural inputs	6.9	18.7
	To buy livestock	68.2	70.6
	To start new business	0.8	2.5
	Health expenses	0.4	0.0
	Educational expenses	0.4	0.0

TABLE A5a. Food Security Status—FCS (Dietary Diversity)					
	Year	Minimum	Maximum	Mean	Std. Deviation
Food consumption score (aggregate)	2009	12	98	37.9650	11.46144
	2010	10	101	37.4511	17.053

	Range	2009 (%)	2010 (%)
Food consumption score (disaggregated)	0–21	10.8	17.5
	21.5–35	24.8	36.0
	>35	64.5	46.5

	2009		2010	
	Mean	Std. Deviation	Mean	Std. Deviation
# of days eating grains in the last week	6.69	0.759	6.62	0.981
# of days eating tubers in the last week	0.42	0.972	1.34	1.829
# of days eating pulses or legumes in the last week	5.06	2.555	4.16	2.633
# of days eating vegetables in the last week	0.44	1.027	1.15	1.604
# of days eating fruits in the last week	0.09	0.429	0.43	1.070
# of days eating meat in the last week	0.87	1.408	0.44	1.181
# of days eating eggs in the last week	0.50	0.896	0.59	1.197
# of days eating fish in the last week	0.06	0.612	0.09	0.627
# of days eating dairy products in the last week	0.41	1.271	0.98	1.847
# of days eating sugar or honey in the last week	1.54	2.270	2.89	2.534
# of days eating oils in the last week	4.04	2.676	3.53	2.593

TABLE A5b. Food Security—HFIAS*

	Year	Minimum	Maximum	Mean	Std. Deviation
HFIAS access score (1 week recall, 0–63 scale)	2009	0	49	25.68	8.822
	2010	0	45	13.3945	10.96790

		2009 (%)	2010 (%)
HFIAS access score (aggregate)	0–9	2.5	40.7
	10–19	22.9	25.1
	20–29	41.3	25.6
	30–39	31.5	7.8
	40+	4.3	0.8

HFIAS questions (modified)	2009		2010	
	Mean	Std. Deviation	Mean	Std. Deviation
1. # of days in the past week that you worried HH would not have enough food	4.59	2.196	2.29	2.253
2. # of days in the past week that HH relied on less preferred foods	6.22	1.504	2.64	2.893
3. # of days in the past week any HH member had to eat a limited variety of foods	5.06	2.174	3.49	2.923
4. # of days in the past week that HH gathered wild food, hunted, or harvested immature crops	.00	.100	.31	.884
5. # of days in the past week any HH member had to limit portion size	3.96	2.377	1.80	2.351
6. # of days in the past week HH had to reduce the number of meals in a day	3.62	2.512	1.83	2.506
7. # of days in the past week that there was no food to eat in the HH	.98	1.868	.20	.728
8. # of days in the past week any HH member had to go to bed hungry	1.08	1.778	.65	1.338
9. # of days in the past week any HH member had to skip entire days without eating	.21	.769	.21	.675

		2009 (%)	2010 (%)
Modified HFIAS food security categories	Food secure	1.0	26.4
	Mildly food insecure	1.2	6.5
	Moderately food insecure	28.5	31.2
	Severely food insecure	69.2	35.9

* Categories modified slightly

	Year	Minimum	Maximum	Mean	Std. Deviation
Household Hunger Scale (HFIAS questions 7, 8, 9)	2009	3	8	3.90	1.071
	2010	3	7	3.27	.604

*Categories modified slightly

* 0–1 days = scored as "1"; 2–4 days = "2"; 5–7 days = "3"

TABLE A5c. Food Security—The Coping Strategies Index					
	Year	Minimum	Maximum	Mean	Std. Deviation
Coping Strategies Index (0–189 scale)	2009	0	109	41.03	20.139
	2010	0	123	17.299	19.19589

		2009 (%)	2010 (%)
CSI score categories	0–19 (Food secure)	12.5	59.3
	20–39 (Borderline food insecure)	40.9	28.1
	40–59 (Moderately food insecure)	26.3	9.5
	60–79 (Very food insecure)	17.3	2.0
	80–99 (Extremely food insecure)	2.7	0.7
	100+ (??)	0.3	0.7

CSI questions (modified)	2009		2010	
	Mean	Std. Deviation	Mean	Std. Deviation
# of days in the past week rely on less preferred or less expensive food?	6.22	1.504	2.64	2.893
# of days in the past week borrow food, or rely on help from a relative?	1.29	1.912	.63	1.361
# of days in the past week purchase food on credit?	.57	1.303	.26	.895
# of days in the past week gather wild food, hunt, or harvest immature crops?	.01	.100	.31	.884
# of days in the past week consume seed stock held for next season?	2.76	2.603	.62	1.245
# of days in the past week send household members to eat elsewhere?	.13	.695	.35	.926
# of days in the past week send household members to beg?	.04	.465	.16	.768
# of days in the past week limit portion size at mealtimes?	3.97	2.377	1.80	2.351
# of days in the past week restrict consumption by adults in order for small children to eat?	2.49	2.470	1.04	1.704
# of days in the past week reduce the number of meals eaten in a day?	3.62	2.512	1.83	2.506
# of days in the past week skip entire days without eating?	.21	.769	.21	.675

TABLE A6a. Disaster Management							
		Totals		By sex of HH head			
				2009		2010	
		2009 (%)	2010 (%)	Male (n=250)	Female (n=150)	Male (n=265)	Female (n=135)
Knowledge of government body concerned with disaster management	Yes	80.5	24.0	81.5	78.7	23.8	24.4
Knowledge of government policies in addressing disaster in local area	Yes	77.4	23.8	77.5	77.3	24.2	23.0
Knowledge of committee in the community dealing with disaster management	Yes	74.9	21.8	75.5	74.0	21.9	21.6
How often in the past year HH member has attended public meeting about management of disaster risks?	Never	61.9	84.8	62.7	60.7	86.4	81.5
	Sometimes	32.1	14.8	30.5	34.7	13.6	17.0
	Many times	6.0	0.5	6.8	4.7	0.0	1.5
Any HH members trained in risk/ vulnerability assessment in past year	Yes	13.5	7.5	14.5	12.0	7.9	6.7
Local early warning system in community	Yes	68.9	20.0	69.1	68.7	20.8	18.5
	No	7.0	14.2	8.4	4.7	15.8	11.1
	Don't know	24.1	65.8	22.5	26.7	63.4	70.4
Presence of disaster preparedness plan in community	Yes	63.2	20.0	64.7	60.7	20.8	18.5
	No	7.8	14.0	8.8	6.0	14.7	12.6
	Don't know	264	66.0	26.5	33.3	64.5	68.9

TABLE A6b. Disaster Management							
		By livelihood zone					
		2009			2010		
		Atsbi-Wonberta Highlands (n=80)	Eastern Plateau (n=300)	Irob Mountains (n=20)	Atsbi-Wonberta Highlands (n=100)	Eastern Pslateau (n=280)	Irob Mountains (n=20)
Knowledge of government body concerned with disaster management	Yes	83.8	79.9	75.0	24.0	23.2	35.0
Knowledge of government policies in addressing disaster in local area	Yes	78.8	77.3	75.0	22.0	23.6	35.0
Knowledge of committee in the community dealing with disaster management	Yes	72.5	76.3	65.0	22.0	20.8	35.0
How often in the past year HH member has attended public meeting about management of disaster risks?	Never	70.0	60.9	45.0	80.0	86.1	90.0
	Some-times	20.0	33.8	55.0	19.0	13.6	10.0
	Many times	10.0	5.4	0.0	1.0	0.4	0.0
Any HH members trained in risk/ vulnerability assessment in past year	Yes	12.5	13.7	15.0	6.0	7.5	15.0
Local early warning system in community	Yes	70.0	68.9	65.0	18.0	20.0	30.0
	No	2.5	8.7	0.0	9.0	17.1	0.0
	Don't know	27.5	22.4	35.0	73.0	62.9	70.0
Presence of disaster preparedness plan in community	Yes	60.0	63.9	65.0	17.0	20.4	30.0
	No	6.2	8.7	0.0	15.0	14.6	0.0
	Don't know	33.8	27.4	35.0	68.0	65.0	70.0

TABLE A6c. Disaster Management

		By household wealth group							
		2009				2010			
		Very Poor: <1650 ETB (n=256)	Poor: 1650–2249 ETB (n=61)	Middle Income: 2250–2999 ETB (n=41)	Better-off: 3000+ ETB (n=42)	Very Poor: <1650 ETB (n=282)	Poor: 1650–2249 ETB (n=45)	Middle Income: 2250–2999 ETB (n=26)	Better-off: 3000+ ETB (n=47)
Knowledge of government body concerned with disaster management	Yes	77.0	85.2	82.5	92.9	24.1	24.4	15.4	27.7
Knowledge of government policies in addressing disaster in local area	Yes	73.0	85.2	80.0	90.5	24.1	24.4	15.4	25.5
Knowledge of committee in the community dealing with disaster management	Yes	70.3	82.0	82.5	85.7	21.7	22.2	15.4	25.5
How often in the past year HH member has attended public meeting about management of disaster risks?	Never	64.8	47.5	70.0	57.1	83.6	86.7	88.5	87.2
	Some-times	31.6	34.4	25.0	38.1	16.0	13.3	11.5	10.6
	Many times	3.5	18.0	5.0	4.8	0.4	0.0	0.0	2.1
Any HH members trained in risk/ vulnerability assessment in past year	Yes	12.1	26.2	7.5	9.5	7.8	8.9	7.7	4.3
Local early warning system in community	Yes	62.5	75.4	82.5	85.7	19.9	20.0	11.5	25.5
	No	7.8	6.6	7.5	2.3	13.8	20.0	23.1	6.4
	Don't know	29.7	18.0	10.0	11.6	66.3	60.0	65.4	68.1
Presence of disaster preparedness plan in community	Yes	58.2	73.8	65.0	76.2	19.5	20.0	15.4	25.5
	No	9.8	6.6	5.0	0.0	14.5	15.6	11.5	10.6
	Don't know	32.0	18.0	30.0	23.8	66.0	64.4	73.1	63.8

TABLE A7a. Impact of Disasters			
		2009 (%)	2010 (%)
HH affected by major shock in the past 12 months	Yes	95.5	28.0
Shock affected HH's ability to feed its members	Yes	96.2	26.8
Coping strategies to deal with shock	Distress sales / exchanging of farm produce	17.8	4.8
	Distress sales of personal/ HH items	3.8	1.5
	Distress sales of productive assets	56.1	20.3
	Increased extraction / sales of natural resources	4.0	0.8
	Sought additional wage labor	21.8	6.3
	HH members left to seek work elsewhere	9.3	1.0
	HH sought support from government	79.2	17.5
	HH sought support from NGO	14.8	1.3
	Begging	1.3	0.8

TABLE A7b. Impact of Disasters					
		2009		2010	
		Mean	Std. Deviation	Mean	Std. Deviation
Impact of disasters (1–5 scale) in decreasing order of importance (most significant first)	Drought	3.56	0.918	2.70	.997
	Food Price Inflation	3.53	0.843	2.44	.861
	Frost	1.63	0.842	1.66	.846
	Human Illness	1.63	0.85	1.47	.753
	Livestock Pests and Diseases	1.43	0.937	1.43	.743
	Hail	1.38	0.674	1.39	.761
	Agricultural Pests and Diseases	1.36	0.67	1.39	.628
	Flooding	1.16	0.474	1.27	.565
	HIV/AIDS	1.07	0.383	1.19	.414

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