

*Case Report*

# Blending Science and Community Voices for Multi-Scale Disaster Risk Reduction and Climate Resilience: A Participatory Scenario Planning Approach

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**Abstract:** Climate change is a major development challenge to Ethiopia. Unless adaptation measures are widely implemented, climate change can set back development efforts and achievements by years. Recognizing this, the Government of Ethiopia (GoE) and civil society organizations have since recently been making considerable efforts to tackle the climate change problem. This paper documents the experience of CARE International in Ethiopia in facilitating bottom-up approaches to promote community-led disaster risk management and climate change adaptation planning through a participatory scenario planning (PSP) methodology. PSP is a coordinated approach which leverages a variety of stakeholders' skills and mandates to explore potential climate change risks and their impacts, and then develop locally relevant and shared adaptation action plans that support livelihoods, social capital and ecosystem resilience. The approach has facilitated timely access to and communication of seasonal climate advisories which in turn is empowering communities to take advantage of opportunities that climate presents, which is a key part of adapting to climate change. The institutionalization of the approach by district and regional disaster prevention and food security coordination offices in the southern pastoral regions of Ethiopia encouraged integration of PSP into community livelihood adaptation and local government development planning, hence continuity of the process. Sustainability is expected to be fully achieved when local government planning processes recognize the importance of and provides resources for the participation of meteorological services and community forecasting experts to help refine plans on a seasonal basis, and for systems for dissemination of advisories.

**Keywords:** climate change; disaster risk reduction; participatory scenario planning; pastoralism; Ethiopia

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## 1. Context

Ethiopia is a poor developing country in the Greater Horn of Africa Region that is highly vulnerable to climate change-induced drought, unseasoned floods, and environmental degradation, causing severe food, water and social insecurities (Aklilu & Alebachew, 2009). Ethiopian smallholder farmers and pastoralists (about 65% of them cultivate less than 1 hectare of land) are in particular most vulnerable to climate change (Dessalegn, 2011; Alebachew 2011, 2016). A significant portion of the country's economy is dependent on rain-fed agriculture (although the country has a potential of 37 million hectare of irrigable land, only 3 per cent of this is irrigated) (MoARD 2010).

Farming and herding techniques are nature-dependent and relatively backward, and the majority of the country is already hot and dry (MoA, 2015).

About 12% of Ethiopia's 96 million people are pastoralists (CSA, 2008), herding their livestock in the arid and semi-arid lowlands that constitute about 63 of the country's land mass (MoARD 2010). These areas are prone to rainfall variability and extreme drought. The people in the arid lowlands are mainly pastoralists and agro-pastoralists who are among the most resource-deprived and geographically and politically marginalized (Ayalew, 2009; Lister, 2003). In response to changes in climatic conditions, scarcity of natural resources and the magnitude of hazards in the pastoral areas have been intensifying through time. The harmful impacts of climate change are also compounded by poor resource governance, land grabbing, and the lack of economic and institutional capacity (Dessalegn, 2011).

## **2. Climate variability and change in Ethiopia**

Throughout its long history, Ethiopia has struggled considerably with climate related vulnerability. The country has historically suffered from climatic variability and extremes. Rain failures have contributed to crop failure, death of livestock, hunger and even famine in the past. Even relatively small events during the growing season, like too much or too little rain at the wrong times, can spell disaster. Subsistence farmers and pastoralists, who are already struggling to cope with the impacts of current climatic variability and poverty, face daunting tasks to cope with increased weather variability and adapt to future climate change.

Droughts and floods are very common occurrences in parts of Ethiopia, with significant events every 3 to 5 years (World Bank 2010). Since the 1980s, the country has experienced at least eight major droughts, along with dozens of localized droughts- as well as more than 40 flood incidences (MoA 2015). Over the last two decades, the frequency of droughts and floods has increased in many areas, resulting in loss of lives and livelihoods (MoA, 2015). These droughts are major causes of food insecurity and transient poverty- destroying watersheds, farmlands, and pastures, contributing to land degradation and causing crops to fail and livestock to perish. The 1972/73 ENSO related drought, for example, led to the Wello famine, during which about 200,000 people died (Nicholls 1993). During the 1984/5 drought, national GDP growth declined by 9.7%, agriculture output declined by 21%, and gross domestic savings declined by about 59% (World Bank, 2006). The 2015 El Nino, which in itself has been supercharged by climate change. affected 10.2 Ethiopians (Government of Ethiopia & United Nations, 2016). Flooding meanwhile causes significant damage to settlements and infrastructure, and the inundation and water-logging of productive land undermines agriculture by delaying planting, reducing yields, and compromising the quality of crops (NMA, 2007). Outbreak of climate-sensitive human and livestock diseases and crop pests in various times in the past have also undermined the productivity and food security of the rural population, especially in drought and flood prone areas of the country (Tulu, 1996).

### 3. The impact of the 2015 El Niño in pastoral Ethiopia

Climate change-induced drought is a major recurring problem affecting pastoral lives and livelihoods in the dryland regions of Ethiopia. As recently as in 2015, the country faced a massive drought and food insecurity crisis as a result of failed rains and droughts that have been worsened by the 2015 El Niño, which in itself has been supercharged by climate change (Government of Ethiopia 2016; OCHA 2016; Government of Ethiopia & United Nations 2016; . According to a report by the Ministry of Finance and Economic Development (MOFED, 2016) the El Niño weather system, exacerbated by climate change, comes off the back of 12 to 18 months of erratic or failed rains. It led to crop failures of the 2015 *kiremt* harvest (June-September) of between 50 and 90%, particularly in the eastern pastoral regions of the country, and has dried up many water sources and rangelands. Pastoralists in Afar and Somali regions were some of the first and hardest hit. In December 2015, the Ethiopian government launched the 2016 Humanitarian Requirements Document (HRD), calling for \$1.4billion to support 10.2 million people in 2016. This is over and above the 7.9 million chronically food insecure people are being supported through the government-led Productive Safety Net Programme (PSNP). The government estimated that 27 percent of the pastoralists in Somali region (1.5m people) require food assistance. Some areas in these regions were already at IPC level 4, classified as 'emergency'. In Afar, little pasture, forage, and water was available More than 200,000 livestock have died in southern Afar and Somali region's Sitti zone (MOFED, 2016). More than 13,000 households had lost all livestock and migrated to informal camps in Sitti zone (Ibid).

### 4. Participatory Scenario Planning (PSP)

Participatory Scenario Planning (PSP) is a coordinated, bottom-up approach which leverages a variety of stakeholder's skills and mandates to explore potential climate and weather changes and their impacts, and then develop locally relevant action plans that support livelihoods, build social capital and enhance ecosystem resilience. Central to PSP is the creation of inclusive and respectful spaces for sharing and integrating indigenous<sup>1</sup> and scientific weather forecasts so that both sets of information may be interpreted and contextualized to inform local disaster risk management and climate change adaptation strategies (Ambani & Percy, n.d.). Figure 1 shows the basic theory of change in PSP.

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<sup>1</sup> *Indigenous weather forecasts are generated by local community forecasters based on indigenous climate knowledge, gleaned over generations of living and observing the environment. Scientific forecasts are based on careful observation and measurement of air-surface interactions via modern scientific monitoring*

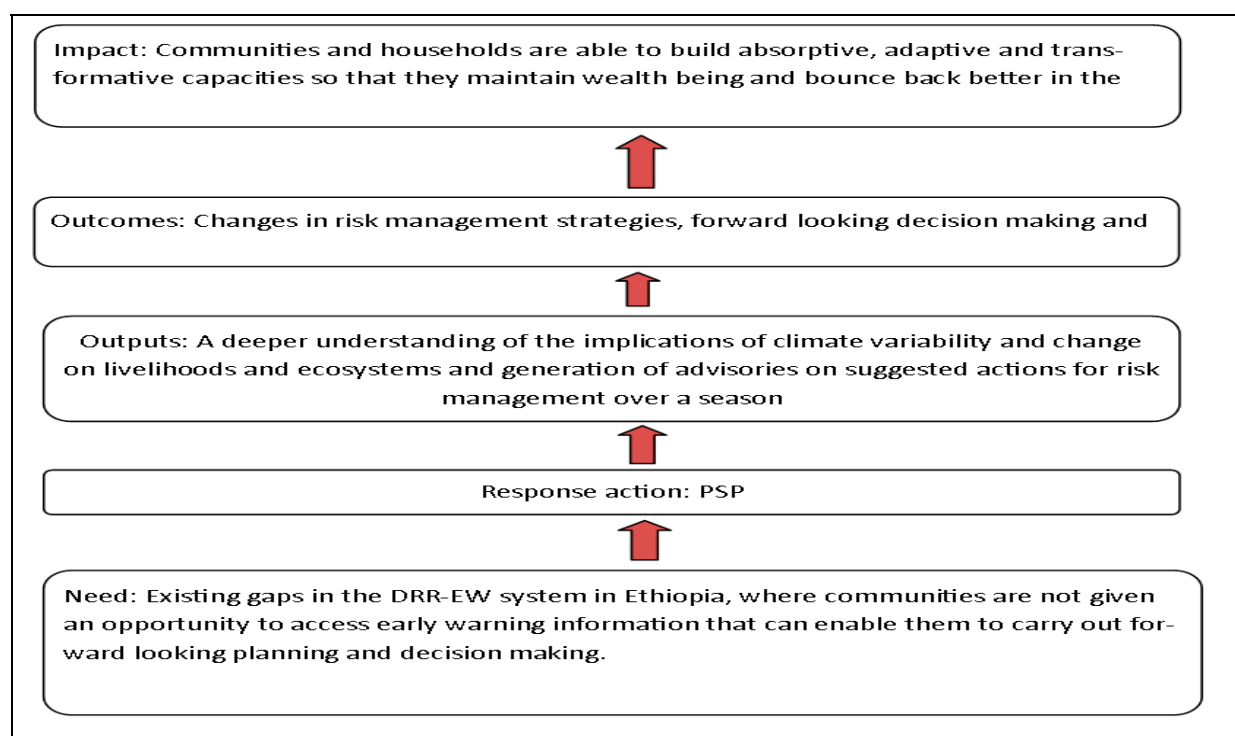


Fig 1. The PSP theory of change in PRIME project

Within these spaces, stakeholders- households, local community leaders, traditional weather forecasters and resource monitors, government officials, meteorologists, private sector actors, and civil society- collectively share, analyze, and interpret these seasonal weather forecasts to develop locally-relevant adaptation plans and contingency plans aimed at supporting households, communities, and businesses in responding to different levels of risks and uncertainty. This paper is based on field experiences drawn from implementation of the PSP approach by the CARE Ethiopia led PRIME (Pastoral Resilience Improvement through Market Expansion) project. Adapting from CARE International's Adaptation Learning Programme (ALP), PRIME utilized the PSP process to promote flexible and forward-looking adaptation planning and livelihood decision making in the Afar, Somali and Oromia pastoral regions of Ethiopia. PRIME is a five-year (2012-2017), \$ 62million USAID-funded, multi-agency program implemented in the pastoral regions of Ethiopia. It is one of the first large-scale development initiatives to address climate risks across sectors, including livestock and non-livestock based livelihoods, natural resource management, and nutrition. PRIME has a major climate change adaptation pillar which aim to engage local communities and institutions, government, and private sector actors in developing community-based strategies for increasing the resilience of Ethiopian pastoralists. The Participatory Scenario Planning (PSP) methodology, developed by CARE, has been critical to building resilience to climate related shocks and stresses among communities engaged in pastoralism and small-holder agriculture. This paper highlights the successes and challenges of using the PSP approach for addressing climate risks in fragile environments. CARE's approach to climate change adaptation is grounded in the knowledge that people must be empowered to transform their own livelihoods and secure their rights and entitlements. It also recognizes the critical role that local and national institutions, as well as

public policies, play in shaping people's adaptive capacity. Fig 2. shows the PSP process adopted by CARE Ethiopia under the PRIME project.

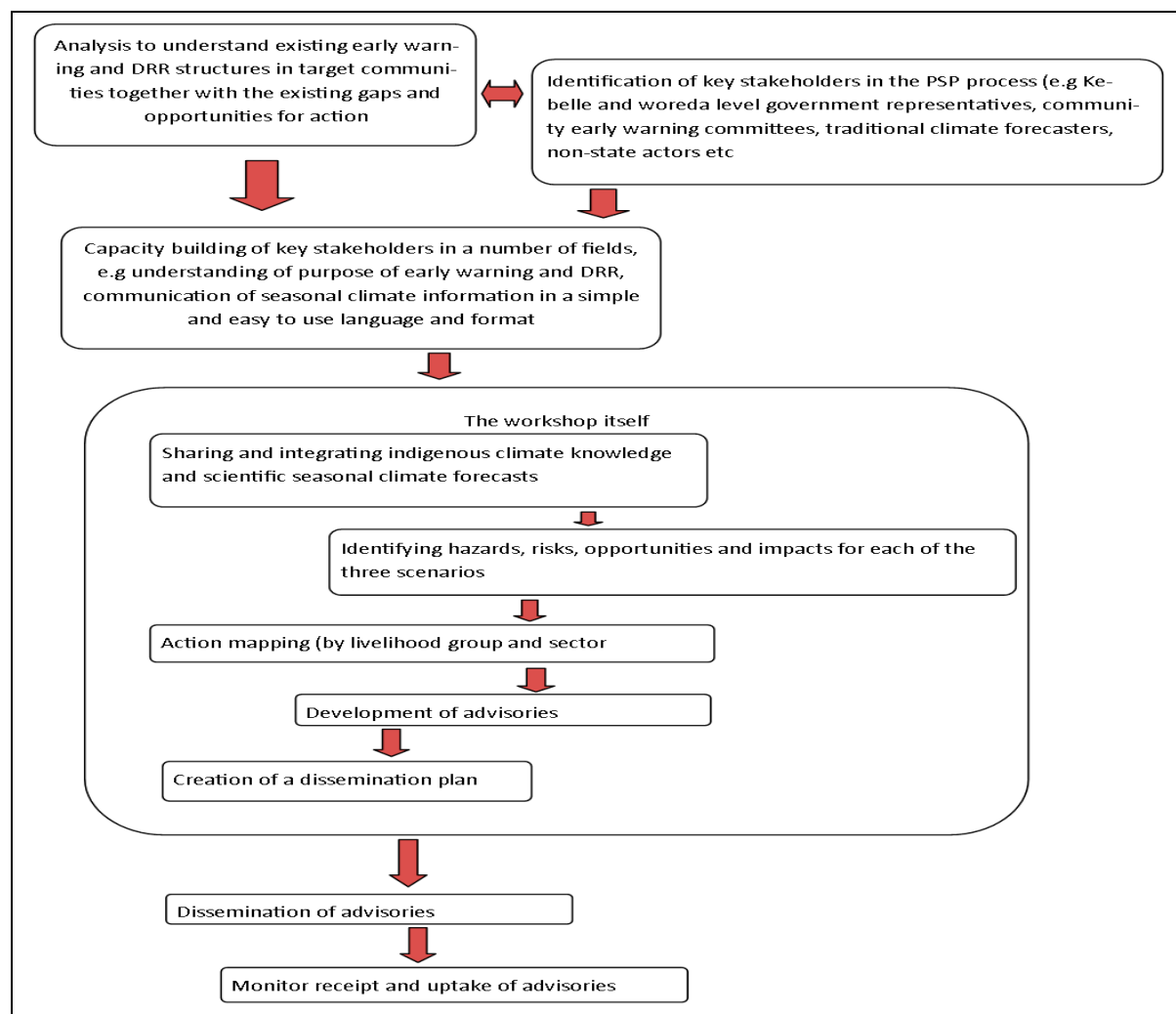


Fig 2. PSP process map in Ethiopia

#### 4.1. Overview of the PSP Process in CARE Ethiopia (PRIME Project)

The PSP process brings community members, meteorology experts and other government representatives together in dialogue on seasonal forecasts and potential responses, based on an assessment of probabilities of different scenarios and the associated risks and opportunities (Ambani & Percy, n.d.). The process has a number of aims:

- create a common platform to strengthen linkages between traditional and scientific knowledge and facilitate co-production of information by community, government and other stakeholders.
- Support rural communities and local government in developing mutually agree-on DRR and adaptation plans that support climate-resilient livelihoods
- Promote the integration of market-based climate-resilient livelihoods and DRR into local government and community planning processes

The following are the major PSP process steps and components under the PRIME project:

### ***Step 1: Context analysis and stakeholder mapping***

The process begins with a context analysis- providing an overview of existing early warning, Disaster Risk Reduction (DRR), and climate change adaptation (CCA) challenges, structures and processes in the target areas- and an exercise to understand the major climate change related hazards, risks and underlying drivers of vulnerability, analyzing the effectiveness and sustainability of existing coping strategies, and mapping key existing and potential DRR and CCA stakeholders (e.g., households, traditional leaders and weather forecasters, meteorologists, local planners and government officials, private sector actors and civil society). The mapping exercise helps identify both bridgeable gaps that will serve as focal areas and the geographical level (e.g., community, village, district) of engagement. It is also instrumental in developing an engagement plan for the process. In pastoral Ethiopia, PRIME holds PSP processes at the district or woreda level, creating an important link between local and national levels of governance.

### ***Step 2: Capacity building***

PRIME then trains key stakeholders in the PSP process. The training process aims to deepen buy-in and enable stakeholders to contribute as owners and active leaders during their community's PSP process. Beyond increasing the value of process outputs, this training ensures stakeholders can facilitate subsequent PSPs independently. PRIME also conducts numerous exchange visits, allowing trainees to observe other communities' PSPs firsthand. These observations provide trainees tangible examples of peer challenges and successes and build confidence as they head into their own PSPs. In preparation for the roll-out of PSPs within districts, PRIME conducts specialized trainings for specific sets of stakeholders within government agencies. For example, PRIME trains representatives from the Ethiopia's Meteorological agency in downscaling, contextualizing and simplifying climate information and communicating it more effectively.

### ***Step 3: Workshop***

A two-day multi-stakeholder workshop provides a platform for sharing seasonal weather forecasts and discussing possible scenario-based local adaptation action plans. PRIME pulls workshop participants from the key stakeholder groups identified during Step 1. PSP workshops are conducted as soon as a seasonal climate forecast is available from meteorological services, meaning it occurs as many times in the year as there are rainy seasons in that particular area. In PRIME, PSP events are organized twice a year and a month ahead of the start of the main (June-September) and small (March- May) rainy seasons. The workshop consists of five core activities:

- a) *Reviewing past season's climate and community vulnerabilities:* The workshop begins with a review of past season's climate, community vulnerabilities and by examining the effectiveness of the coping strategies adopted by households and community groups. The approach proceeds to examining to what extent the advisory messages developed during the previous season's PSP event have been useful in informing livelihood decisions and to what extent the community

action plans have been implemented. Much of the information for this review is collected from seasonal pre-and post-harvest assessment reports of district early warning and food security task forces and selected community members who serve as PSP champions monitoring progress in the dissemination and utilization of PSP advisories and implementation of adaptation action plans. CARE also support the process through applying its Climate Vulnerability and Adaptive Capacity (CVCA) methodology. The CVCA is a methodology developed by CARE for gathering, organizing and analyzing information on vulnerability and adaptive capacity of communities and of individuals and households within communities. It provides guidance and tools for participatory research and learning and provides a framework of guiding questions for analyzing this information. It also considers the role of local and national institutions and policies in facilitating adaptation. In analyzing climate risks and vulnerabilities, the CVCA methodology address livelihood, governance, ecosystem, and market issues.

- b) *Sharing and discussion of seasonal weather forecasts (indigenous and scientific)*: Participants share indigenous and scientific forecasts and integrate them into a localized and more relevant forecast. Local community forecasters deliver indigenous forecasts, and the Ethiopian Meteorological Agency presents scientific forecasts. Through an in-depth discussion of the forecasts' key differences and similarities, participants work toward a mutually agreeable combination of the two forecasts and create three probabilistic seasonal weather scenarios (i.e., normal, below normal and above normal rainfall). Each scenario explores associated risks, impacts, opportunities, and adaptation actions tailored to the relevant livelihood sector.
- c) *Development of PSP advisories*: Participants develop PSP advisories for all stakeholders (across sectors and at multi-scales), listing locally relevant forecast information along with recommended actions for each stakeholder. These are then printed on simple leaflets for easy dissemination through agricultural and health extension agents, schools and community radio programmes. A advisories for communities are translated into a local language to ease understanding by the participants and target end-users.
- d) *Creation of PSP advisory dissemination plans*: Participants then develop dissemination plans for the PSP advisories, assigning responsibilities among key stakeholders to ensure they reach target populations (including ensuring they can orally convey information to non-readers).
- e) *Selection of PSP champions*: During the PSP event, each target village will establish PSP working groups with members elected to serve as champions for the PSP approach. The village groups will be tasked to facilitate and monitor the dissemination of PSP advisory messages and technically support implementation of community adaptation action plans (CAAPs). Each village PSP group is comprised of 5-8 villagers representing clan leaders, traditional forecasters, DRR/early warning committee members, kebele/village leadership and women and youth representatives. The groups area also tasked with the responsibility of connecting the PRIME program staff with the community and local administration, thus facilitating operational synergies and local ownership for the process.

#### **Step 4: Dissemination and monitoring**

To disseminate PSP advisories after the PSP workshop, PRIME leverages community early warning and food security committees and workshop participants' networks, as well as other

actors such as development agents, health extension workers, community animal health workers (CAHWs), teachers, youth and women groups, rural veterinary shops, village saving and loan associations (VSLAs), and customary institutional leaders. Community early warning committees and extension workers are embedded within local government structures and comprised of community members with sufficient community knowledge and connections to ensure advisory information is widely accessible.

Advisories for government actors are shared with different actors levels of government. Local government actors request resources for implementing DRR and adaptation actions from the regional government through district/woreda and zonal actors, triggering both upward and downward flow of information. The dissemination plans hold these local government actors (and other stakeholders) accountable to communities, ensuring that information reaches the target audience. PRIME continuously monitors all dissemination efforts, tracking the receipt and use of advisories throughout the season.

Because PRIME conducts PSPs at the district level, CARE and its partners anticipate local government structures at this level will ultimately assume control (i.e., facilitation and financial support) of the PSP process. To support this transition, CARE is encouraging the Ethiopian government and the regional states in Afar, Somali and Oromia to institutionalize the approach as well as provide monetary and in-kind resources toward preparation for the workshop and district level government actors to assume specific roles (e.g., facilitation of PSP events, packaging and dissemination of advisories, and monitoring of impact) in the process.

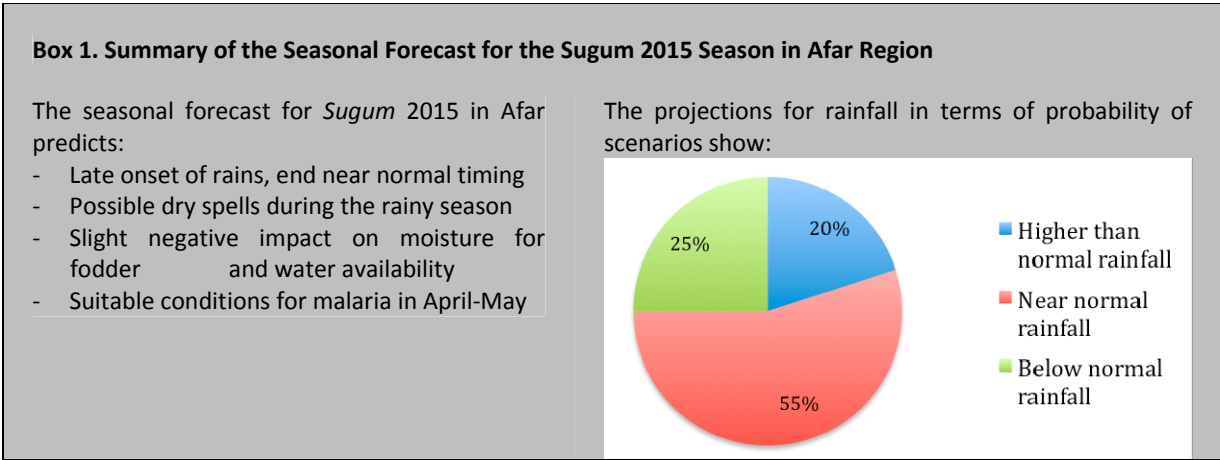
#### **4.2. PSP in Afar region: Lessons from Awash district**

Awash Fentale district is located in zone 3 of Afar region in northeastern Ethiopia. It is a community of approximately 4800 people, including agro-pastoral households that maintain a permanent base in scattered villages, and pastoral households that come and go with the rains. The main livestock owned are shoats, cattle and camels. The family system, like in all Afar rural areas is the extended family system- the different generation of family together or in satellite camps. This family system means that resources are freely shared among the extended family. Families, especially the Afar pastoralists, are largely polygamous (with two wives being more common), except for young and poor families who are not in a position to support extra families. The father is the head of the family and clan authority is vested on clan leaders who handle all disputes and other clan decisions. Women may sell livestock only with permission from the father and if he is away, they can only sell shoats, to raise just enough money to keep the family going.

Awash Fentale is drought-prone. It is one of the districts hit hardest by the 2015 El Nino. In February 2015, a PSP workshop was held in the district. The workshop brought together 58 participants, including a representative from the regional branch of the National Meteorological Agency (NMA), traditional weather forecasters, clan leaders, pasture scouts, representatives of women's groups and relevant experts from the Woreda-level government, including pastoral and agricultural development officers, crop and livestock extension agents, health officers and early warning officers. The process concerned the upcoming rainy season, called *Sugum* in the

local language, which runs from late February to early May. After an introduction to the PSP approach by the PRIME team, the meteorological agency representative presented a review of the rainfall performance during the last rainy season, called *Kerma*, noting that the amount of rainfall received was in line with the government’s forecast, which suggested a high probability of normal rainfall. Community members stressed that this overall assessment does not capture the variability that was experienced locally, highlighting the need for traditional knowledge to inform this process.

A summary of the government’s forecast for the *Sugum* 2015 season, from February to May, as presented by the regional meteorological expert, is shown in box 1. Following this presentation, the participants divided into groups by Woreda and the traditional weather forecasters, called *Hutukbiya*, presented their predictions for the upcoming season. Although they are waiting for the next phase of the moon to make more detailed predictions, the traditional forecasters were generally in agreement with the scientific projections, notably in predicting a late start to the rains. Groups also discussed the current status of key crisis indicators, noting that pasture and water are becoming scarce, but that livestock health was so far not negatively affected. There is concern, however, about the potential late arrival of the early rains, which are called *Lahirobu*, meaning ‘cattle rains’. The *Lahirobu* rains generally last a couple of days and precede the main *Sugum* rains by about four weeks. As evidenced by their name, they are critical for livestock health because they initiate the growth of fodder after the dry season.



Groups identified the hazards, the areas in the Woreda affected by the hazards, the risks and the opportunities associated with the three different rainfall scenarios. An example is shown in box 2.

**Box 2. Analysis of Risks and Opportunities for Awash Fentale district (Sugum 2014 PSP workshop)**

Scenarios	Hazards and Risks	Opportunities
Scenario A (above normal, 20% probability)	Flood: Livestock disease, human disease, displacement, destruction of crops and agricultural land	Increased productivity of grazing lands, increased water availability
Scenario B (near normal, 55% probability)	Livestock disease, human disease, shortage of drugs	Stability in household incomes and prices of grain and food items
Scenario C (below normal, 25% probability)	Drought: Death of livestock, increase in price of grain and food items, shortage of water and fodder, children leaving school	Triggers engagement in alternative income generating strategies

የአካባቢያት Scenarios	Hazards/ ክስተቶች / የአካባቢ መፍጠሪያ	ፍተሽ ምኞት Risks	መጠንቀቂያ ስሜት Opportunities
A ሕመምተኛው የሰለጠነ 20%	-ጥፋት	-የአካባቢ ወንጌት ተፈላጊ ሰንጠረዥ ተገንጥሎ የሰለጠነ ቀለሙ የሰለጠነ ቀለሙ	-የአካባቢ አካባቢ ስሜት የአካባቢ ስሜት የአካባቢ ስሜት
B ሕመምተኛው 55%	-የሰለጠነ መታወቂያ	>>	-የአካባቢ አካባቢ ስሜት የአካባቢ ስሜት የአካባቢ ስሜት
C ሕመምተኛው የሰለጠነ 25%	-የአካባቢ የአካባቢ ስሜት	-የአካባቢ የአካባቢ ስሜት የአካባቢ ስሜት የአካባቢ ስሜት	-የአካባቢ የአካባቢ ስሜት የአካባቢ ስሜት የአካባቢ ስሜት

Building on this, participants discussed the actions that could be taken to reduce the risks and capitalize on the opportunities. These actions were translated into advisories for community members, for example:

For the above normal rainfall scenario:

- Construction of flood protection dykes
- Maintaining the canals of the Awash river to reduce risk of flooding
- Using mosquito nets to reduce potential exposure to malaria
- Dissemination of early warnings for floods

For the below normal rainfall scenario:

- Constructing and maintaining water harvesting structures
- Conserving crop residues for livestock fodder
- Destocking of livestock while still healthy
- Cultivation of early maturing and drought-resistant crop varieties
- Facilitate access to markets for destocking of livestock
- Cultivation of livestock fodder (with irrigation where possible)

The advisories were communicated through a number of different channels, including community meetings, flyers and posters, direct communication to family and neighbors, markets and radio. Information on the community advisories and any potential support required for their implementation, was communicated to all concerned government departments by official letter.

A major challenge in the PSP process in Awash Fentale was religion. Afar pastoralists are predominantly Muslim by religion. Religious leaders used to be resistant to the concept of forecasting in and of itself, because they believed that only God can know the future, so efforts were needed to involve them in the process and to come to a common understanding of the role of seasonal forecasts. The scale of the meteorological agency forecasts is very large in relation to the area of concern for the communities involved, emphasizing the importance of

integrating the traditional and scientific forecasts and of valuing and documenting community experiences and observation on trends and events in their localities. It was difficult for meteorology experts, who are not accustomed to working at the community level, to present concepts such as probability in ways that are accessible, particularly for participants with lower literacy levels. This made the dialogue on the forecasts critically important, to place the broader scenarios in the local context and build a deeper understanding on both sides.

Access to information is only an initial step. In the first PSP process in Afar (June 2015), participants identified many actions that would require external support and/or inputs to be realized. This presented a barrier to action in response to the advisories. While local government institutions are active participants in the process, they face resource and capacity limitations in supporting community action. To better understand these barriers, PRIME organized a meeting which brought community members together with local government and other institutions to discuss how to better support action in line with the advisories. At the same time, however, it was noted by one of the facilitators that the most recent PSP process yielded significantly more activities where community members themselves hold the main responsibility, rather than government or other sources of support. This was a sign of increasing agency, which is critical for climate change adaptation. Positive examples that demonstrate the benefits of the advised actions in relation to climate risks are also needed to motivate people to act.

PSP will need to be institutionalized in the government structure of Awash district if the process is to continue beyond the life of the project. PRIME has already begun to create linkages with existing mechanisms to develop capacity to take PSP forward and to ensure that communities have the support they need to manage risks over time. For example, the project has worked with Kebele/Village Early Warning Committees (KEWCs) to expand their membership to include traditional forecasters, community members and pasture and water scouts. The KEWCs play a leading role in monitoring the crisis indicators mentioned above and informing the local authorities as well as the project if there are signs of negative trends. They also disseminate PSP advisories and early warnings for hazards such as floods, providing an important link between communities and higher-level structures and processes.



*Fig 3. Dulecha , 42, a PSP champion from Halaydege village in Awash, northeastern Ethiopia.*

The advisories from the first PSP process in Awash Fentale district in the Afar pastoral region of Ethiopia, for the *Sugum* 2014 season (February-April 2014), reached over 5872 pastoral households through dissemination at mosques, markets and community meetings. Discussions during the workshop revealed that the advisories did have some influence on decision-making. Participants stated that some actions were taken in response to the information received, including harvest and storage of fodder and destocking of livestock, converting them to cash while they were healthy and a better price could be achieved. There were also anecdotal evidence that community members were requesting the advisories for the coming season, which demonstrated the value of the process in creating demand for climate information. A dialogue was ongoing between community leaders, traditional forecasters and the meteorological agency to determine how the process can be continued beyond the life of the PRIME project.

## 5. Outcome

Mid-term evaluation of CARE Ethiopia's work on participatory scenario planning under the PRIME project documented strong evidence showing "PSP events are the most effective and empowering ways to promote access to localized early warning and seasonal forecast information to communities, local planners and decision-makers" (Tebarek & Glwadys 2016). Study participants highlighted the following as the most important enabling factors for both the PRIME project and for CARE Ethiopia to implement effective PSP events: i) the multi-stakeholder approach; ii) the engagement of locally trusted traditional weather and climate forecasters; and iii) the use of various accessible information dissemination strategies; iv) institutional capacity building and implementation support. Although it is too early to determine the long-term impacts of the activity, changes were seen in the form of: i) improved

access to climate information; ii) the application of the advisories in the implementation of improved management of rangelands and livestock resources; iii) soil and water conservation techniques; iii) planned management of animals and mobility patterns; iv) diversification of income sources increasingly towards climate-resilient activities, including interest to grow and manage feed and fodder resources; v) household economic empowerment through promotion of joint decision making with spouses and a culture of savings; and vi) capacity building in disaster management.

Observations also suggest several additional effects of PSP processes on key aspects of disaster risk management (DRM) and climate change adaptation (CCA) planning and implementation, including:

***More comprehensive assessment of risks and adaptation planning:*** An avenue for integrating how information (e.g., indigenous and simplified scientific forecasts) into risk analysis and planning, resulting in more robust adaptation options and informed livelihood decision-making. This information is allowing stakeholders to more effectively contextualize guidance for advisory recipients (e.g., communities, local governments).

***Greater access to and understanding of agro-meteorological advisories:***

Integrating indigenous and scientific forecasts is increasing community members' acceptance and understanding of future climate scenarios. Engaging informal channels and institutions (e.g., community animal health workers, youth and women groups) as advisory dissemination networks is also allowing frequently excluded groups (e.g., people with disabilities, youth and women) increased access to critical risk and adaptation information).

***Enhanced capacity to adapt livelihood decisions:*** The increased accessibility and reach of the advisories is increasing community members' capacities to assess these options and implement them. The gradual inclusion of the private sector in PSP processes is also enabling communities and individual households to more effectively operationalize the adaptation guidance.

***Increased and more inclusive engagement in DRR planning:*** Through inclusive stakeholder engagement, PSP is providing an opportunity for simultaneous bottom-up and top-down approaches to planning in which communities (including highly vulnerable groups like resource-poor women and the disabled, public sector actors, and non-state actors collaborate to identify risk management options.

***Increased government investment in and responsiveness to community adaptation needs:***

While it is not possible to attribute changes in government budgeting or actions to PSP definitively, governments are implementing activities (e.g., adaptation planning, fodder production and hay making, rangeland rehabilitation, livestock management, livelihood diversification) that PSPs are also proposing. In perhaps the most significant development yet, the Oromia Region Disaster Prevention and Preparedness Commission (DPPC) has requested all non-PRIME zones in the region to adopt the PSP model.

**New networks between communities and households:** Interactions between stakeholder groups through the PSP process are fostering additional trust and creating both formal and informal social networks between communities and households. Anecdotal reports suggest individuals from different communities are observing new and deeper connections between and within communities as a result of PSP processes. This networking is critical to building social capital among PSP beneficiaries.

**PSP’s Contribution towards enhancing resilience:** The PSP process provides an opportunity to contribute towards enhancing resilience at the household, community and systems levels as the process and its products can influence absorptive, adaptive and transformative capacities. Through PSP, absorptive capacity can be built by minimizing the exposure and sensitivity that households/communities have to disasters through preventing the occurrence of disasters as well as enabling coping mechanisms. Adaptive capacity on the other hand is possible under PSP when communities/households proactively put measures in place that can enable them to make proactive and informed choices and changes in livelihood strategies for longer term changes in social, environmental and economic structures. Lastly, transformative capacity is built by PSP by providing opportunities for communities/households to gain access to: improved governance; formal safety nets; markets; basic services; agricultural services; natural resources; bridging and linking social capital; financial services; as well as empowering vulnerable groups in the community (e.g. women, children and people living with disabilities). The table below highlights the ways in which PSP adds value to absorptive, adaptive and transformative capacities.

Table 1. PSP’s contribution to resilience

Capacities	Existing government-led DRM	Government-led DRR and Early Warning Systems + PSP
Absorptive	Generally biased towards disaster management	Addresses both disaster risk reduction and disaster management (i.e. advisories provide options for mitigating the risk of disaster as well as actions that can be used when the disaster actually strikes).
	The effects on households and communities are decreased sensitivity to hazards. For example, food aid reduces the severity of food insecurity at this level	Actions help to reduce both sensitivity and exposure to risk. For example, in anticipation for a dry season, advisories can recommend stocking of surplus food (which reduces sensitivity) as well as planting of early maturing crop varieties to reduce the exposure of these crops to dry conditions.
Adaptive	Information flow is outwards (communities only participate in the assessments, but do not get back any information that can be useful for DRR/DRM)	Information flow is both ways, where both communities, government and non-state actors participate in the assessments as well as receive back information on the implications of the findings on their activities and options for DRR/DRM.
	Adaptation actions are reactive. Even though information is available before the disaster strikes, a reaction is only possible after the disaster strikes.	Proactive decisions are made, so that both DRR and DM actions are possible.

Transformative	Little interaction between actors, except during trainings and assessments	Links creates for engagement of different stakeholders (e.g. communities and government representatives). Before, during and after the PSP workshop, actors get multiple opportunities to interact and discuss issues related to DRR and adaptation.
		Different levels of actors, especially community individuals and groups, are involved in decision making

6. Lessons Learned

CARE and its partners in Ethiopia have learned the following lessons while developing and implementing PSPs through the PRIME project in Ethiopia. these lessons have proven important to CARE Ethiopia as it scales-up the PSP process in other geographic regions and contexts.

***Building users’ trust of climate information***

Multi-stakeholder processes play an important role in building trust through enabling a common understanding of uncertainty, co-production, downscaling and communication of relevant climate information to manage different future possibilities (Ambani & Percy 2014).Combined with social learning processes, trust is enhanced when users and producers continually learn from a wide range of experiences and knowledge systems on the value of accessing, understanding and using climate information for decision making.

***Communicating rather than disseminating climate information***

For climate information to be adequately used for decision making, it must reach the people who need the information in good time but more so for the information to be in a form and language that can be understood for action. Efforts are currently on going in Ethiopia to disseminate climate information using various channels such as community radio and mobile phones. While dissemination may work to increase the number of people reached with climate information, this may not directly translate into users actually understanding the information, trusting it enough to use it or knowing how to use it. What is more important is to communicate climate information through two-way systems that work on wide spread reach of information but also allow users to contribute their own knowledge, question information presented and follow up with relevant/designated service providers for further information and support in implementing decisions and actions. Setting up effective climate information communication systems requires ongoing assessment of preferences for users at different levels, including recognition of gender/social differences. This needs to be combined with development of innovative systems to expand the number of people accessing and taking action on climate information.

***Contextualize the process***

Because governance structures vary, there is no single way to conduct a PSP process that ensures maximum effectiveness and buy-in among all community members. However, contextualizing PSP helps ensure it fits into existing structures and provides opportunities for diverse stakeholder groups to contribute to and benefit from the process.

***Tap into existing structures***

Surveying and incorporating existing DRR and CCA structures- instead of creating redundant parallel or external structures- can increase cost-effectiveness and ownership of PSP. PRIME's collaboration with community and government early warning, food security and natural resource management structures le smooth operationalization of PSP processes.

***Employ iterative capacity building for key DRR and CCA leaders and stakeholders***

iterative training and capacity building among key community and government actors can; 1) deepen their understanding of PSP and its relevance to early warning systems, DRR and CCA; 2) increase the relevance and timeliness of their communications with community members; 3) increase their responsiveness to community feedback, engagement, and planning; 4) increase linkages between national, zonal, and district/woreda level planning and community DRR and CCA activities; 5) ensure government stakeholder agencies are able to assume ownership at the end of the project. Continual, iterative training is especially critical where government agencies experience high turnover and/or frequent political transitions.

***Engage the private sector to increase adaptation benefits***

As communities adapt their livelihood strategies based on PSP discussions and advisories, the private sector can provide critical adaptation intelligence and productive inputs, as well as links to new markets for potentially better adapted products and services. For example, private sector actors present during a PSP may be able to provide stakeholders information about the availability, quality or pricing of inputs or services critical for a specific adaptation strategy. build these relationship early into the process to increase their likely effectiveness.

***Build a case for the integral role of PSP's in supporting DRR and early warning systems***

Gathering and p[resenting evidence to policy-makers that demonstrates PSP's contribution to DRR and CCA is critical to ensure proper allocation of resources towards approaches that promote stakeholder engagement and collaborative decision-making.

**7. Conclusion**

CARE Ethiopia employed the PSP approach to promote resilience in household and community livelihoods decision making and in local disaster risk management and climate change adaptation planning. The approach has led to improved access to climate information, the application of the advisories in the implementation of improved management of rangelands and livestock resources, soil and water conservation techniques, planned management of animals and mobility patterns, diversification of income sources increasingly towards climate-resilient activities including interest to grow and manage feed and fodder resources, household economic empowerment through promotion of joint decision making with spouses and a culture of savings, and capacity building in managing disasters. Timely access to and communication of seasonal climate advisories from PSP is empowering communities to take advantage of opportunities that climate presents, which is a key part of adapting to climate change. The institutionalization of the approach by the regional disaster prevention and food security coordination office (DPFSPCO) in Afar and the respective disaster prevention and preparedness bureaus in the Guji and Borena zones of Oromia in the southern pastoral regions

of Ethiopia encouraged integration of PSP into community livelihood adaptation and local government development planning, hence continuity of the process. Sustainability is expected to be fully achieved when local government planning processes recognize the importance of and provides resources for the participation of meteorological services and community forecasting experts to help refine plans on a seasonal basis, and for systems for dissemination of advisories.

## **8. Recommendations for taking PSPs forward**

Based on the early experiences with PSP in Ethiopia, the PSP process has already proven its value in terms of increasing access to climate information for decision-making and increasing demand for this information among community members. The following recommendations are put forward for improving the effectiveness of the process:

- Make access to climate information services an integral part of program design and implementation process.
- Build capacity of Regional Meteorological Agency representatives to communicate seasonal forecasts in ways that are relevant and accessible for participants in PSP workshops, including community members with low literacy.
- Include a step in the process to prioritize the different actions for communication as advisories. Some actions will be helpful regardless of which rainfall scenario occurs – these should be the highest priority actions. Other factors to be considered include the scenario probability and the accessibility of the action for the most vulnerable groups within the community.
- As climate change is a cross-cutting issue, the PSP process should ideally be informing actions in the other components of PRIME project or for other projects of CARE Ethiopia and its partners for that matter. For example, PSP advisories would be a helpful input to livestock market development trainings to enable a more risk-oriented approach.
- Explore further ways of disseminating PSP advisories, linking to other systems and structures used by the project, including Social Action and Analysis for Adaptation (SAAA) groups, village savings and loans (VSLA) groups and networks for disseminating market information, among others.
- Improve the linkages between PSP and other sources of support for communities, such as the government's productive safety-net programme (PSNP), household asset building programme (HABP), and development projects working on livelihood support in the pastoral regions, in order to improve coordination and enhance communities' ability to act on the PSP advisories.
- Sustainability of the PSP process is dependent on the extent to which it is institutionalized into existing systems. Institutionalization is critical for scaling out of the PSP process to more communities. In Ethiopia, efforts are being made to have PSP taken up by the disaster preparedness and food security sector bureaus as a DRR tool. To progress towards sustainability, ensure greater commitment from the key stakeholders. This is however dependent on stakeholders' understanding of PSP, buy-in and their willingness to co-finance the PSP. Costs for the PSP are already being cost-shared between PRIME and district disaster preparedness and food security sector bureaus.

- Liaise with regional DRR, food security and meteorology Bureaus to scale-out the PSP approach in non-pastoral areas of Ethiopia.

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