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## ETHIOPIA COUNTRY REPORT

# Impact Assessment on Climate Information Services for Community - Based Adaptation to Climate change

C4 EcoSolutions

CARBON I CONSERVATION I CLIMATE I COMMUNITY

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## Acronyms and abbreviations

| | |
|---|---|
| **ADP** | Advisory dissemination plan |
| **AHS** | Annual household survey |
| **ALP** | Adaptation Learning Programme |
| **APDO** | Agricultural and Pastoral Development Office |
| **CAHWs** | Community Animal Health Workers |
| **CBA** | Community-based Adaptation |
| **CBOs** | Community-based organisations |
| **CIS** | Climate Information Services |
| **CRGE** | Climate Resilient Green Economy |
| **CVCA** | Climate Vulnerability and Capacity Analysis |
| **DPPB** | Disaster Prevention and Preparedness Bureau |
| **DPPFSCO** | Disaster Prevention and Preparedness and Food Security Coordination Office |
| **DPPO** | Disaster Preparedness and Prevention Office |
| **DRM** | Disaster risk management |
| **DRMFSS** | Disaster Risk Management and Food Security Sector |
| **DRR** | Disaster risk reduction |
| **EWC** | Early Warning Committee |
| **EWS** | Early Warning System |
| **FGDs** | Focus-group discussions |
| **FtF** | Feed the Future |
| **GTP** | Growth and Transformation Plan |
| **IFAD** | International Fund for Agricultural Development |
| **IPCC** | Inter-governmental Panel on Climate Change |
| **IR** | Intermediate result |
| **KIIs** | Key informant interviews |
| **LAC** | Local Adaptive Capacity |
| **M&E** | Monitoring and evaluation |
| **MoWCYA** | Ministry of Women, Children and Youth Affairs |
| **MWE** | Ministry of Water and Energy |
| **NAPA** | National Adaptation Programme of Action |
| **NGO** | Non-governmental organisation |
| **NMA** | National Meteorology Agency |
| **PDO** | Pastoralist Development Office |
| **PRIME** | Pastoralist Areas Resilience Improvement through Market Expansion |
| **PSP** | Participatory Scenario Planning |
| **RLC** | Rangeland Council |
| **SAAA** | Social Analysis and Action for Adaptation |
| **SNNPR** | Southern Nations, Nationalities and Peoples' Region |
| **ToPS** | Transitioning out of pastoralism |
| **ToT** | Training of trainers |
| **USAID** | United States Agency for International Development |
| **VSLAs** | Village Savings and Loans Associations |

# Impact assessment on climate information services for community-based adaptation to climate change

## Ethiopia Country Report

### Executive summary

Climate change is a key emerging threat to the lives and livelihoods of pastoral communities in Ethiopia. Existing coping mechanisms employed by pastoral communities are stretched – sometimes beyond their limits – requiring new approaches that facilitate climate-informed decision-making as well as build capacity for the adaptive management of livelihoods[1].

CARE's Adaptation Learning Programme (ALP) has been implemented in four countries across Africa since 2010, aiming to increase the capacity of vulnerable households in Sub-Saharan Africa to adapt to climate change and variability. ALP develops and promotes a range of community-based adaptation (CBA) approaches which strengthen the adaptive capacity of vulnerable men and women. The programme has integrated the CBA approach into the development of adaptable, flexible and interactive climate information services (CIS) that contributes to building the necessary adaptive capacities. ALP's Participatory Scenario Planning (PSP) process is a CBA approach to climate change adaptation that facilitates cooperation between communities, NGOs, and weather- and climate-forecast producers to develop scenarios for the approaching rain seasons and to devise plans to prepare for these scenarios. This climate information is disseminated to *inter alia* communities, farmers and agro-pastoralists in the form of advisories through a wide range of media.

One of ALP's main objectives is to improve the management of climate risks by taking advantage of the opportunities that climate change may present. Access to relevant and up-to-date climate information is central to this objective. The 'Pastoralist Areas Resilience Improvement through Market Expansion' (PRIME) project adopted and replicated the PSP approach in partnership with CARE Ethiopia in 2015. The PRIME project focuses its efforts in the Afar, Oromia and Somali Regions of the country, performing the role of CARE in implementing the ALP approach to CIS through the PSP process.

Users of climate information in Ethiopia need effective CIS to better inform their planning and decision-making for upcoming rain seasons. This is particularly important for communities in remote regions that do not receive regular weather and climate forecasts to make climate-smart decisions. It is consequently necessary to ensure that CIS is delivered appropriately, timeously and through appropriate channels to achieve maximum impacts for the targeted beneficiaries.

[1] PRIME Learning Brief: Participatory Scenario Planning for climate change adaptation in Ethiopia's pastoral regions. March 2015.

The CIS impact assessment is part of an overall regional impact assessment of the CIS approaches developed by CARE ALP in climate change adaptation across five sub-Saharan African countries. This country report explores the extent of PSP adoption and uptake in Ethiopia and the major changes and innovations that took place within the PSP process. The assessment further reports on the value and impact of PSPs in Ethiopia, particularly how the process has strengthened adaptive capacities and community-level climate resilience. The methodology for this impact assessment employed primary data sources such as key informant interviews (KIIs), focus-group discussions (FGD), case study documentation and field observations. A critical review of relevant literature and government climate change-related policy and strategy documents was also undertaken.

The findings within this Ethiopia Country Report highlight that contextualising the PSP process and tailoring advisories to local contexts is of critical importance. Existing governance structures will determine the extent to which such tailoring will be successful and sustainable.

Although the original PSP principles and processes have been maintained, PRIME has adapted the PSP process specifically for the contexts it is working in Ethiopia. This has included tailoring the PSP approach around disaster risk reduction (DRR) and early warning system (EWS) structures to enhance community-level climate resilience. Deviations from the CARE ALP model made to the PSP process in Ethiopia include *inter alia*: i) a shift in the organisational structure of the PSP process; ii) more involvement by NGOs and at more levels; and iii) a broader range of stakeholders engaged.

Key success factors of PSPs in Ethiopia include: i) developing new knowledge for communities and individual members (e.g. communicating the element of uncertainty and probability for decision-making); ii) creating new and transforming existing stakeholder relationships (e.g. community members and other users having a direct channel to technical personnel and producers of climate forecasts); and iii) bringing community members that have otherwise been marginalised – such as women and youth – into the decision-making process.

The multi-stakeholder setting of the PSPs has built trust and confidence in participants as well as those that receive information and feedback from participants. Furthermore, the interaction between local DRR institutions, NGOs, and agricultural and livestock management sectors has increased and evolved into a more coordinated extension services for communities. This has resulted in the adoption of a more proactive – rather than reactive – approach to adapting to climate variability and extremes.

Based on early experiences with PSPs in Ethiopia, the process has already proven its value in improving decision-making for climate-resilient livelihoods and the integration of DRR considerations into community planning and decision-making. In addition, PSPs provide improved access to climate information which promotes a shift in livelihood practices. This shift in practices was observed in the implementation of *inter alia*: i) improved management of rangelands and livestock resources; ii) soil and water conservation techniques; iii) planned sale of animals and mobility patterns; and iv) diversification of income sources towards climate-resilient activities including growing and managing feed and fodder resources.

A major challenge in PSP processes is communicating scientific forecasts in relevant and accessible channels to users. PSPs will need to be institutionalised into local structures if the process is to continue beyond the lifespan of the programme. PRIME has already begun to create linkages with existing mechanisms to develop capacity to take PSP workshops forward, and to ensure that communities have the support they need to manage risks over time. Further to this, PRIME disseminates PSP advisories and early warnings for hazards such as floods. In this way, the PSP process provides an important link between communities and higher-level government structures and processes.

# 1. Introduction

## *1.1. Climate change risks and vulnerabilities in Ethiopia*

Climate change is causing numerous challenges to communities in Ethiopia. Most significantly, the impacts of climate change are negatively affecting economic development, energy consumption, natural resources and livelihoods. Ethiopia is extremely vulnerable to the effects of climate change because of *inter alia*: i) poor socio-economic development; ii) inadequate infrastructure; iii) lack of institutional capacity; and iv) a strong dependency on natural resources.[2] Climate change affects large numbers of vulnerable Ethiopian communities who rely on climate-sensitive economies, namely subsistence crop cultivation and livestock production. Although climate change impacts are widespread across the country, pastoral areas are particularly sensitive to climate variability and climate hazards. These areas expand into the extensive lowlands which have experienced several climate-related disasters, including droughts, flooding and disease outbreaks[3].

Droughts have been a long-standing challenge in Ethiopia and have impacted millions of livelihoods[4]. Pastoralists in Ethiopia constitute ~12% of the total population and occupy ~61% of the total land mass of the country. A few of the biggest pastoral problems in Ethiopia include: i) arid and semi-arid lands; ii) unreliable rainfall; iii) shortage of water; iv) poor infrastructure; v) insufficient social service; and vi) inefficient markets. Subsidiary factors to issues experienced in the pastoral areas include: i) the appropriation of pastoral communal resources by the state; ii) expansion of protected areas; iii) privatisation of land; iv) encroachment of crop farming into grazing land; v) drought; and vi) famine.[5]

Recent extreme droughts, out-of-season flash floods and disease outbreaks in the Ethiopian pastoral areas are indicators of how poverty reduction, food security and pastoral livelihood strategies are still largely impacted by variations in climate. These climate-linked events highlight the vulnerability of communities in particular to seasonal variability and long-term changes in climate[6]. Additional problems facing pastoralists include degradation of grazing land as a result of bush encroachment and invasion of alien plant species[7]. The gradual decrease in availability of resources, inadequate livestock watering and poor infrastructural facilities are eroding the livelihoods of local communities.

## *1.2. Adaptation and the need for climate information services*

Pastoral communities of arid and semi-arid Ethiopian lands have long-developed mechanisms for coping with droughts and climate variability. Livestock is the main element in these strategies, supported by a wide range of features that contribute to the long-term security of

[2] National Adaptation Program of Action of Ethiopia (NAPA). 2007. Final Draft Report. National Meteorology Agency (NMA), Addis Ababa.
[3] Aklilu A & Alebachew A. 2009. Community perspectives on climate impacts and the responses in the Southern Lowlands of Ethiopia. Cord Aid and Forum for Social Studies, Addis Ababa, Ethiopia.
[4] See Annex 1.
[5] Ayalew G. 2001. Pastoralism under pressure: land alienation and pastoral transformations among the Karrayu of Eastern Ethiopia, 1941 to present. *PhD Dissertation*, The Netherlands.
[6] EPA-FDRE. 2011. Ethiopian Programme of Adaptation to Climate Change. Draft Report, Addis Ababa.
[7] Particularly, *Prosopis juliflora* (locally known as *woyane zaf*).

pastoral livelihoods. These features include *inter alia*: i) household livelihood diversity and flexibility; and ii) trade and other linkages to a wider economy. However, climate change is exposing these communities to new extremes, and as a result are challenging their adaptive capacities. Climate-related hazards have impacted the means by which communities adapt to climate change and variability. The main challenge pastoralists face is to respond to the impacts of these changes in a timely and sustainable manner. This requires a diverse portfolio of locally-specific knowledge and sustainable adaptation strategies.

There is a growing recognition among researchers and development agents that climate information is an important factor for climate change adaptation[8]. Timely provision of climate information and advisory services enables communities to make more informed decisions to prepare for the coming rain season. Indeed, flexible planning is a principle element in a continuously changing climate to build adaptive capacity needs. It results in communities being informed by climate forecasts and decreases the effects of uncertainties on different vulnerable groups and socio-economic sectors[9].

Climate information needs to be packaged in a manner that is reliable and easily accessible to communities. Information that is reliable to a community should encompass traditional and historical observations as well as more formal measurements. Together, these observations and measurements can be used to inform on-the-ground climate information systems (CIS) that reach the community population. Access to and use of climate information in the form of CIS is critical where small-scale agriculture is an integral part of livelihoods and is threatened by climate change and climatic variability. CIS assist small-holder farmers to improve their understanding of the varying and changing climate, and assess its impact on agricultural production and outcomes.

### *1.3. Outscaling of the Adaptation Learning Programme approach to Participatory Scenario Planning in Ethiopia*

Participatory Scenario Planning (PSP) is a CIS approach developed in 2010 by the Adaptation Learning Programme (ALP). The PSP approach was adopted by CARE as one of the Community-based Adaptation (CBA) initiatives and implemented by CARE International in developing countries across Africa. The main objective of the introduction of the PSP is to increase the capacity of local communities to better adapt to climate change and variability.

PSPs incorporate the collective interpretation of seasonal forecasts by a range of local level actors. This collection is done through a multi-stakeholder platform to ensure participants understand the concept of working with uncertainty. The information is co-generated using all knowledge sources available, including community knowledge on the current status of CIS and seasonal forecasts. The PSP platform brings together people from a wide range of backgrounds, allowing for multi-sectoral coordination, which creates a linkage from

[8] Jones L, Ludi E & Levine S. 2010. Towards a characterisation of adaptive capacity: a framework for analysing adaptive capacity at the local level. Background Note. The Overseas Development Institute, United Kingdom.
[9] CARE. 2013. Decision-making for climate-resilient livelihoods and risk reduction: a Participatory Scenario Planning (PSP) approach. Available at: http://www.careclimatechange.org/files/adaptation/ALP_PSP_Brief.pdf

communities to local and national levels. Motivation for more equitable and flexible planning systems and responses have been created through the PSP approach[10].

Following five years of ALP implementation in Kenya, the initiative is now focusing on: i) demonstrating; ii) scaling up and out[11]; and iii) good practice for integrating CBA into sector-specific work, especially in smallholder agriculture, local development planning and for disaster risk reduction (DRR). This shift is being done through innovation, refinement and testing replicability of approaches in new and existing ALP initiative sites, as well as outscaling in other countries.

To further support the upscaling of the PSP process in Africa, CARE organised a training-of-trainers (ToT) workshop in March 2015 for government staff and NGO practitioners from Ethiopia, Ghana, Kenya, Malawi, Mozambique, Rwanda, Somalia, Sudan and Uganda. To complement this upscaling, the International Fund for Agricultural Development (IFAD) organised two learning routes in Kenya. These routes included: i) bringing policy-makers and government staff from Ethiopia, Lesotho, Rwanda and Sudan together to learn from the PSP experience in Garissa County, Kenya; and ii) updating national adaptation plans and committing to incorporate adaptation to climate change into relevant national policies and plans. As a result, the Pastoralist Areas Resilience Improvement through Market Expansion (PRIME) project adopted and replicated the PSP approach. PRIME is a five-year United States Agency for International Development (USAID) and Feed the Future (FtF) initiative. Furthermore, PRIME is a multi-agencies programme led and implemented through Mercy Corps[12]. The project is designed to support resilience, livelihood development and household nutrition security among pastoralist communities, and those transitioning out of pastoralism (ToPS) in the Afar, Oromia and Somali Regions of Ethiopia. The objective of the PRIME project is to increase productivity and competitiveness in the livestock sector, as well as enhancing market-driven options for livelihood diversification.

Under PRIME, CARE Ethiopia is the lead organisation for the programme's second intermediate result ($IR_2$)[13], namely to enhance pastoralist's adaptation to climate change. The $IR_2$ is designed to improve information systems, governance and technologies that can support decision-making towards climate change adaptation. The $IR_2$ aim is to increase communities' ability to adapt to a changing climate by:

- Increasing the availability and utility of climate information to communities, businesses and local government decision-makers in PRIME operational areas through PSP workshops;
- increasing adaptive capacity at the community level utilising CARE's proven Climate Vulnerability and Capacity Analysis (CVCA); and

[10] CARE International management response to the evaluation of the Adaptation Learning Programme (ALP) for Africa, 15 October 2015.
[11] Upscaling: moving from pilot sites that are project/programme-based to longer-term, sustainable systems where PSPs are mainstreamed into decision-making processes. Upscaling is done at the country level. Outscaling: to replicate a project/programme in another country.
[12] PRIME is a US$62 million project, of which CARE Ethiopia is a member.
[13] The PRIME project has five major components as follows.
1) Intermediate Results ($IR_1$) dealing with livestock.
2) Intermediate Results ($IR_2$) dealing with natural resources and climate change.
3) Intermediate Results ($IR_3$) dealing with livelihood.
4) Intermediate Results ($IR_4$) dealing with learning and knowledge.
5) Intermediate Results ($IR_5$) dealing with nutrition.

- implementing adaptation solutions through community action planning and linkages to economic opportunities under PRIME $IR_1$ and $IR_3$.

Since 2014, PRIME has facilitated PSP development processes in 24 *woredas*[14] across the three pastoral regions of Afar, Somali and southern Oromia (see Figure 1[15]).

[14] *Woreda* is the term used to classify the districts of Ethiopia. They are the third level administrative divisions of the country.
[15] Alebachew et al. 2010 Afar National Regional State Programme of Plan on Adaptation to Climate Change.

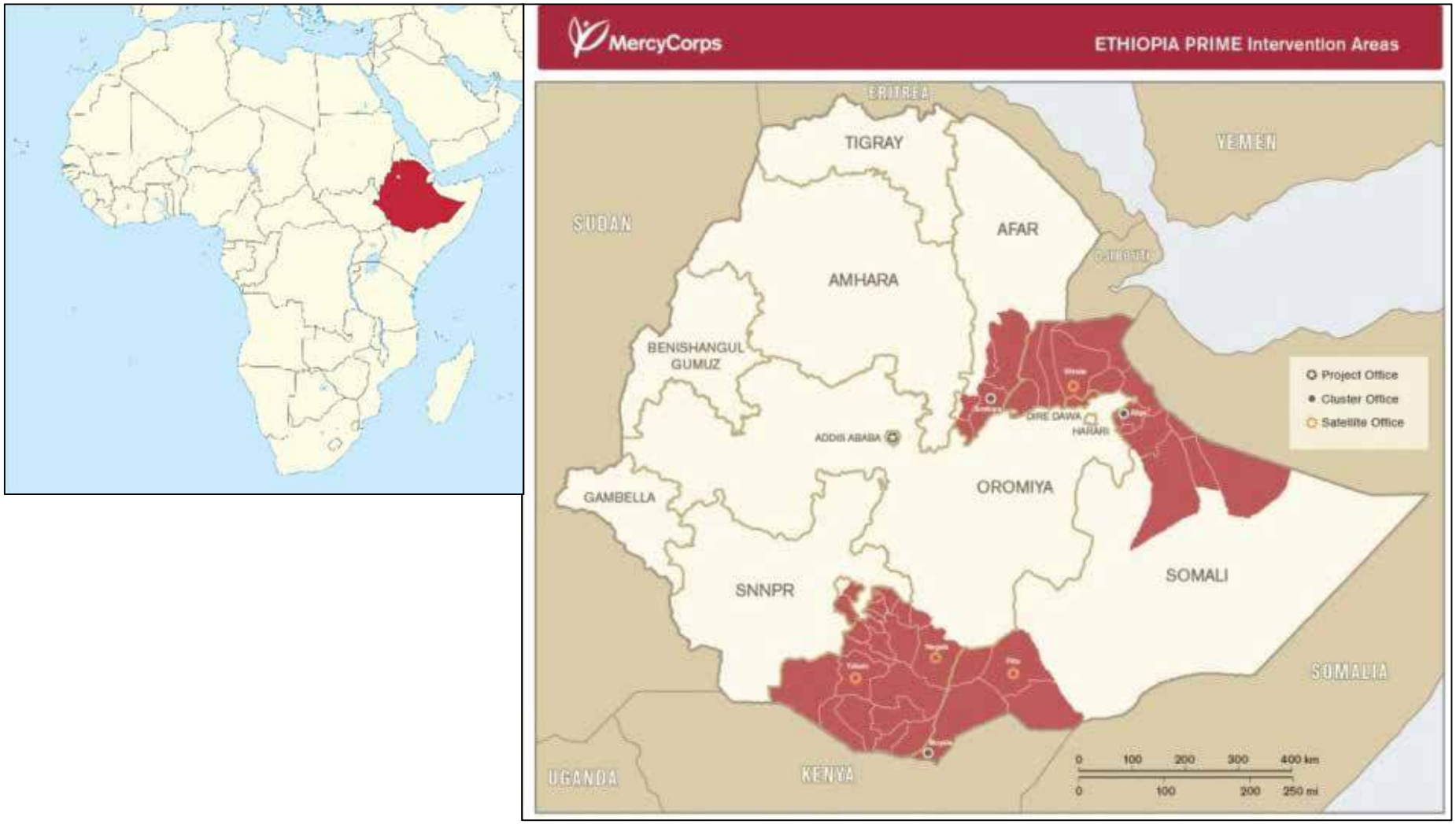



**Figure 1.** *Top left:* Map of Africa indicating the location of Ethiopia in East Africa. *Right:* Map of Ethiopia showing different regions. The red areas indicate the PRIME intervention sites.

### *1.4. Objectives of the impact assessment*

This impact assessment is part of the CARE-commissioned regional study to assess the impact of the ALP and CIS approaches in addressing climate change adaptation across five sub-Saharan African countries, namely Ethiopia, Ghana, Kenya, Malawi and Niger. The overall objective of the regional assessment is to explore the value and impacts of CIS approaches on CBA.

Specifically, the assessment was designed to help progress the following areas of understanding and joint learning across the ALP team and stakeholders.

- Developing a better understanding of the situations in which the ALP approach to CIS worked well, and those where it did not, in order to advance understanding of what works, where it works, for whom and why.
- Assessing the overall value and impacts of CIS approaches developed by the ALP.
- Drawing on this understanding and assessment to progress and strengthen the continuing upscaling and outscaling of the ALP approach to CIS.
- Reconstructing the theory underlying the ALP and CIS programme and assessing its underlying assumptions, as a means of identifying which mechanisms were in operation, in what contexts and why.

This country report contributes to the overall regional impact assessment objective by assessing the following in Ethiopia:

- Understand the level of PSP adoption/uptake and major changes or innovations of the PSP process.
- Assess the level and effectiveness of communication sharing and the use of different tools.
- Assess the value and impact of PSPs, particularly how PSPs have strengthened adaptive capacity and community climate resilience.
- Explore the factors hindering or enabling the transition of PSPs from a pilot phase to a country-wide adoption as an effective approach for delivering CIS that responds to community needs.
- Assess whether there is a linkage between long-term adaptation/resilience programming, disaster preparedness and early action through PSPs.

## 2. Analytical framework[16]

The analytical framework for this impact assessment is based on social learning methodology and practice[17]. The impact assessment is directed by the following underlying conceptual approaches: i) the CARE CBA approach; and ii) the subsequent Local Adaptive Capacity (LAC)[18] framework. ALP understands learning to be a:

> *"…social process, bringing people together for meaningful conversations that lead to action and using practical innovation as a learning process… as ALP's learning on climate change impacts and CBA evolve, new reasons for putting learning at the centre of adaptation have emerged."*[19]

[16] This section provides a summary of the analytical framework for the CARE Regional Impact Assessment and underlying conceptual framework. A detailed breakdown will be included in the Regional Impact Assessment report for the CARE assessment.
[17] Ensor E & Harvey H. 2015. Social learning and climate change adaptation: evidence for international development practice. *WIREs Climate Change* 6:509–522.
[18] Jones et al. 2010. Towards a characterisation of adaptive capacity.
[19] CARE. 2015. Adaptation Learning Programme: ALP Results, Outcomes and Impacts Report. January 2010 to June 2015.

Overall, successful adaptation is measured in terms of the learning and decision-making processes that are *inter alia*: i) capable of drawing on knowledge about risks and uncertainties; ii) evaluating the response options planned and implemented; and iii) creating the conditions for adaptation actions[20]. Adaptation and the enabling of decision-making processes, are therefore not static, but dynamic in nature. These processes constantly evolve and improve with newly emerging information and understanding.

The ALP theory of change involves two main components that feed into the PSP process outlined below.

- **Knowledge and information.** The first component consists of seasonal forecasts, local knowledge and other relevant scientific and technical knowledge.
- **Institutions and entitlements**. The second component involves multiple and multi-level stakeholder participation, including *inter alia* meteorology services, government representatives, local-level governing bodies, communities, extension officers and non-governmental organisations (NGOs).

Social learning occurs at the level of processes between actors. This interaction allows trust to be built as well as learning and developing empowerment to make informed decisions. Key assumptions underlying the multi-stakeholder social learning praxis and design shape the PSP process[21]. These are outlined below.

- Enable communicating, sharing, understanding and interpretation of climate information.
- Through development of scenarios, PSPs enable the assessment of risks and uncertainties linking climate information to decisions concerning livelihood activities in preparation for the coming year.
- Provide opportunities for dialogue on local adaptation challenges and options[22]. These processes in turn promote: i) flexible and forward-looking decision-making and governance at both community and government level; ii) influencing enabling policy environment; and iii) innovation.
- Through trust and relationship-building designed into the workshop process, the PSP process provides opportunities for dialogue on local adaptation challenges and options, and agreement of ways forward.

## 3. Investigations and methods

### *3.1. Data collection*

Data was collected using four tools that integrate multiple methods, including focus-group discussions (FGDs), key informant interviews (KIIs), short case studies and a review of available literature and previous reports. Further to this data collection, field observation and

[20] Leary N, Adejuwon J, Barros V, Burton I, Kulkarni J & Lasco R. 2008. Climate change and adaptation. Earthscan, London, United Kingdom; Osbahr 2007.
[21] Ambani M & Percy F. 2014. Facing uncertainty: the value of climate information for adaptation, risk reduction and resilience in Africa. CARE International, Adaptation Learning Programme. Available at: http://careclimatechange.org/wpcontent/ uploads/2014/08/C_Comms _Brief.pdf
[22] Ambani & Percy 2014. Facing uncertainty.

photography were also used to assist with the analysis for the assessment. The use of these varied methods ensured comprehensiveness and triangulation for better reliability and accuracy of the collected data. The four data collection methods are detailed below.

- **Focus-group discussions (FGDs)**. The PSP impact assessment was undertaken at the local community level using FGD session guides. Three FGDs were conducted in mixed community groups – one in Yabelo/Oromia and two in Awash/Afar – with PSP workshop participants and non-participant community members in different localities/*kebeles*[23]. FGDs involved pastoral elders, young pastoralists, women pastoralists, agro-pastoralists and traditional forecasters. The Yabelo/Oromia FGD was held in Derito *kebele* on 14 May 2016 and consisted of 12 community members. The Awash/Afar FGDs were conducted from 23–24 June 2016. The first FGD was held in Doho *kebele*, where 10 community members with both men and women pastoralist representatives, youth, religious leaders, traditional forecasters and elderly people participated. The second FGD took place in Haleydegi *kebele*, involving 13 participants, included both men and women pastoralists, youth, religious leaders, traditional forecasters and elderly people.
- **Key informant interviews (KIIs)**. Conducted with CARE staff and various government sector representatives from *inter alia*: i) Disaster Preparedness and Prevention Office (DPPO); ii) Agricultural and Pastoral Development Office (APDO); iii) water management office; iv) education office; v) community-based organisations (CBOs); vi) research institutes; vii) CARE Ethiopia's field staff; viii) local women associations; and ix) development and environmental NGOs. The KIIs were conducted at the *woreda*-level both in Yabelo Oromia and Awash Afar Regions. Depending on the availability of interviewees and their preferences, individual face-to-face meetings were organised as well as group meetings of three to four interviewees.
- **Short case studies**. In both Yabelo and Awash villages, a total of eight personal narrative stories describing PSP workshop experiences by women and men pastoralists and traditional forecasters was collected. Participants were invited to recall their past PSP workshop experiences and highlight any changes they noticed in the workshops, memorable interactions, their expectations when attending PSP workshops and any suggestions for future workshops. Those participants who had not previously attended PSP workshops were asked how community representatives have been selected. This led to the question of their confidence in the selected representatives to share the knowledge gained from the PSP workshops efficiently. The narratives from each participant are compiled as short case studies using a summary of their own words, the discussion that followed the story and a brief analysis of the combined stories based on the objectives of the assessment. The analysis of the narratives assisted in capturing insights from the personal experiences of participants and their particular vulnerabilities to climate change impacts.
- **Review of literature and previous reports**. Extensive desktop reviews were undertaken to compare the objective and expected outcomes of the ALP initiative with its achievements. These reviews covered: i) the project document and baseline information; ii) the outputs produced during the project implementation period – including *inter alia* publications and outcomes of capacity-building exercises; and iii) periodic progress reports produced during the programme lifespan as well as the monitoring and evaluation (M&E) documentation. These documents were reviewed to investigate the enabling factors underpinning the achievement of ALP and to identify challenges involved in the implementation of the programme over the years and various locations. Information from PRIME PSP reports was compiled together with a dataset during field missions. A review and analysis of the available literature revealed gaps in the current CIS methods

[23] *Kebele* is the term used to describe the smallest administrative unit of Ethiopia – similar to a ward, a neighbourhood or a localised group of people.

implemented in Ethiopia, and highlighted the need for further assessment. Moreover, a critical review of the relevant government policy, strategy documents and official reports was conducted on *inter alia*: i) Ethiopia's National Adaptation Programme of Action (NAPA); ii) Climate Resilient Green Economy (CRGE); iii) Growth and Transformation Plan (GTP) documents; iv) Inter-governmental Panel on Climate Change (IPCC) reports; v) research reports conducted by various research institutions and NGOs; vi) CARE Ethiopia's programme documents and project reports; and vii) the PSP framework.

## *3.2. Lines of investigation*

Three main aspects, described below, were investigated during the impact assessment.

- **Implementation process** (method): assessment of the practice of PSP principles implemented and the way in which it is carried out between counties.
- **Communication**: assessment of the reach of information to different users, the content and quality of advisories produced, and channels of communication for climate information that have developed over time, between users as well as different livelihoods and sectors.
- **Use and impact**: assessment of the use and impact of the advisories on the users, i.e. whether they implemented the advisories in practice and whether they trust the information source.

### 3.2.1. Line 1: implementation process

Following implementation of the PSP process in the 2016 rainfall season in different locations across the country, and based on previous implementation of PSPs[24], the assessment focussed on the following.

- Analysing the PSP process and considering improvements and innovations in design and implementation. This included identifying the characteristics and reasons of any loss in integrity of the approach from the ALP PSP principles.
- Analysing interactions between the different stakeholders, namely the producers, intermediaries and users, on the process of:
  - integrating local and scientific knowledge to develop a common understanding for all stakeholders;
  - producing plans and actions for seasonal decision-making and providing the opportunity for long-term planning; and
  - interpreting seasonal forecasts and the level of uncertainty in delivering user-responsive CIS.
- Analysing the ability of the PSP process to integrate feedback for specific climate information needs.

### 3.2.2. Line 2: communication

The assessment of communication serves to understand the reach of climate information to different audiences and how it is able to support informed decision-making and planning for all stakeholders. Assessing the reach of communication involved the following.

- Evaluating how seasonal forecasts and uncertainty are communicated through the various channels of communication.

[24] PSPs for MAM and OND in 2014 and 2015.

- Analysing the differential reach of communication of advisories to the different user groups, taking into account livelihoods, gender, age and sectors. This meant assessing by: i) cross-tabulating information content and different users at the community and local levels; and ii) evaluating the range of channels of communication and their access by the different user groups.

### 3.2.3. Line 3: use and impact

The assessment of use and impact provides evidence of the impacts PSPs have had on users, namely *inter alia*: i) users, i.e. farmers, agro-pastoralists and communities; and ii) producers and intermediaries. Further to this, the assessment takes into account gender, context, sectors and levels, as outlined below.

- Capturing any change in knowledge, attitude and practices, considering any changes specifically for: i) users, e.g. decision-making processes or changing information needs; ii) intermediaries, e.g. provision of climate-informed agriculture methods, DRR and other sectoral services; and iii) producers, e.g. understanding different user information needs and developing more user-responsive climate information products and services.
- Analysing the resulting livelihoods, poverty reduction, DRR and sectoral development measures adopted by the different users.
- Demonstrating productivity gains in agriculture and other relevant sectors, where possible.
- Investigating the resulting effects on planning processes and decision-making at the community and local levels in terms of promoting and integrating CIS into adaptation, DRR, agriculture and development.

### 3.2.4. Sustainability of the Participatory Scenario Planning process, communication and impact

Assessing the sustainability of the PSP process including all three lines of investigation was integrated into the analysis. This fourth line of investigation assessed how successful the PSP process has been and the different ways it can enable continued user-based CIS for on-going adaptation and climate-informed decision-making.

The analysis for the fourth line focused on the various levels of evidence of sustainability in different regions, *woredas* and *kebeles*. The fourth line approach assists with identifying the enabling, challenging and failure factors that influence the integration of PSPs into: i) sectoral and development planning processes; ii) sustainable CIS systems; and iii) appropriate institutions.

## 4. Results and analysis

This section summarises the findings from the FGDs, KIIs, short case studies and the data taken from the review of past PSP reports. Using these findings, it focuses on addressing the lines of investigations identified in Section 3.2.

The analyses are qualitative, focusing on the content of the questionnaires. Information extracted from the interview data and literature review is categorised for classification, summarisation and tabulation to outline descriptive as well as interpretative results. Descriptive results are what the data shows (i.e. evidence), whilst interpretative results are what the data

means. Short case studies have been illustrated to assist with assessing the findings and drawing lessons. From these, recommendations have been made to improve the on-going PSP approach and inform broader development and support for user-based CIS in Ethiopia. Each sub-section is further divided into observations and analysis to illustrate the description and interpretive results.

## *4.1. Implementation process*

Following the implementation of the PSP process in the 2016 rainfall season across different counties and based on previous PSP implementation, the assessment of the implementation process focused on analysing the following considerations: i) quality of the PSP process; ii) how and how well the PSP approach has been adopted in relation to key good practice principles; iii) modifications being made to the PSP approach; and iv) the reasons for these modifications made in the PRIME PSP approach. These considerations were included in the assessment to inform good practices for further adoption, upscaling and institutionalisation of PSPs. The above considerations are discussed in detail in the sub-sections below. Each sub-section is divided into observations and analysis to illustrate the description and interpretive results.

### 4.1.1. Adaptation and the difference in Participatory Scenario Planning processes across regions

*Observations*

The PSP process is relatively new in Ethiopia[25] and is currently viewed as an activity of the PRIME project. Although the original PSP principles and steps have been maintained, PRIME has integrated slight variations to contextualise the process to the needs in Ethiopia, focused on integrating PSPs into DRR and Early Warning System (EWS) approaches to enhance the community's climate resilience.

Variations from the CARE ALP model made to the PSP process include *inter alia*: i) a shift in the organisational structure of the PSP process; ii) more involvement by NGOs and at more levels; and iii) broader range of stakeholders engaged.[26] These variations are outlined briefly below.

- **Shift in organisational structure**. Before implementing the first PSP in Ethiopia, PRIME partnered with the National Meteorological Agency (NMA) and the Disaster Risk Management and Food Security Sector (DRMFSS) under the Ministry of Agriculture[27]. Because of the relationship between PRIME and the DRMFSS, the PSP model was adapted to suit the need for EWS and DRR in Ethiopia. PRIME and DRMFSS undertook a comprehensive exercise to understand the structure and status of Early Warning Systems (EWS) at all levels (i.e. zonal, *woreda* and *kebele*). The analysis helped understand DRR and EWS structures and further highlighted any gaps within the system

[25] Being implemented in *woredas* since 2014 by PRIME. See Section 1.3.
[26] Alebachew A. 2016. PRIME Learning Brief: PSP for climate change adaptation in Ethiopia's pastoral regions. CARE Ethiopia, Addis Ababa.
[27] The DRMFSS supports general management and overall coordination of early warning, disaster risk monitoring and response at all governance levels through the DPPO structures – i.e. national, regional, zonal, *woreda* and *kebele*.

at the different governance levels. This understanding informed the structuring of the PSP process in the regions where PSPs have been implemented. The PRIME-adapted PSP model made use of established government management structures to build the process, namely the EWS and natural resource and rangeland management structures. In this way, PRIME was able to refine the PSP process at the same time as developing supporting mechanisms for the PSP process in the future.

- **NGO involvement**. There is strong collaboration between various NGOs involved in the PRIME project; this has translated into a good representation of NGOs and their involvement in the PSP process. CARE Ethiopia plays a technical role in the PSP process with various other NGOs forming the role of facilitators for the workshops. NGOs that have been involved in the PSP process include SOS Sahel, Mercy Corps and ACPA (a local NGO).
- **Range of stakeholders engaged.** The PRIME-adapted PSP model integrates the three main levels of stakeholders into the process, namely the users, intermediaries and producers. Government institutions are incorporated at the intermediary level to facilitate with the technical aspects of developing advisories. These institutions include *inter alia*: i) National Meteorology Agency (NMA) at the regional level; ii) DPPO at the zonal and district level; iii) Pastoralist Development Office (PDO); iv) Ministry of Water and Energy (MWE); and v) the Ministry of Women, Children and Youth Affairs (MoWCYA). Community representatives are included at both the intermediary and user level, and include *inter alia*: i) traditional forecasters; ii) community rangeland management committees; iii) *kebele* early warning committees (EWC); iv) chiefs; v) community leaders; and vi) civil society organisations.

Since implementation of the PRIME-adapted PSP process in selected pastoralist *woredas* of three Ethiopian regions, namely Afar, Oromia and Somali, the following changes have been observed in the PSP workshops.

- **Changes over time.** At the initial implementation of PSPs in 2014, the workshops were organised at the regional level and involved ~55 participants. Presently, PSPs are being organised at a more localised level. For example, in Oromia Region two PSP workshops were held per season for the 87 sub-divisions of the region. The sub-divisions were clustered by geographical area for the two workshops. In 2015 and 2016, eight PSPs workshops have been organised with 114 participants. As a result of this increase in workshops, the reach of PSPs has increased in numbers as well as information, with the produced advisories more aligned with the local conditions. Overall in 2016, across the three regions, PRIME – in partnership with the local Disaster Prevention and Preparedness Bureau (DPPB) – facilitated PSP events in 22 *woredas* and registered 1,080 participants, 162 of which were woman[28].
- **Differences in the PSP process between regions**. KII participants revealed that there are two main differences in the PSP process according to the different regions. These changes are briefly outlined below.
    - Level of local government involvement. At the onset of PSPs in Ethiopia, CARE Ethiopia staff who were leading the whole process and were responsible for *inter alia* mobilising participants of government offices and community, facilitating meetings, leading discussions, as well as packaging and disseminating the information. However currently, the CARE approach has shifted from a leading role to a facilitation role. In Borena (PRIME South cluster) and Afar (PRIME East cluster) Regions, the PSP workshops are organised through the DPPO. Whereas in the Somali Region (PRIME South cluster), CARE Ethiopia is still responsible for organising and managing the

[28] PRIME Q14 final report. 2016. Pastoralist Areas Resilience Improvement through Market Expansion (PRIME) Project quarter Report No. 14, Submitted to USAID Ethiopia Mission. Addis Ababa.

PSP process. CARE Ethiopia is currently encouraging the local government to co-sponsor and take a co-leadership role in Somali Region, as the DPPO has in Borena and Afar.

- Preparation of advisories and the dissemination process. In Borena and Afar Regions, the DPPO leads the translating and packaging of the advisories developed during the PSP workshop. Dissemination of the advisories is then through agricultural extension systems, EWCs and teachers. However, in Somali Region, NGO partners of the PRIME project form the leading role for both the preparation of advisories and the dissemination process.

The differences observed in the PSP process across the regions can be attributed to relevant capacities of the local government. Both Borena and Afar Regions have local governments with strong leadership and suitable availability for representatives to run the PSP process. However, in Somali Region, the local government lacks available capacity, both in terms of leadership and personnel. As a result, PRIME provides greater support to the Somali Region to counter this gap in local government capacity.

*Analysis*

The need for DRR to be integrated into climate change adaptation has been encouraged as good practice to advance sustainable development[29]. The PRIME-adapted PSP process implemented in Ethiopia to assist vulnerable communities in dealing with climatic variability has resulted in various benefits for the communities. These benefits are described below according to the variations made to the CARE ALP approach to the PSP process outlined above in observations.

- **Shift in organisational structure.** As a result of the partnership with the DRMFSS and Ministry of Agriculture, the PRIME-adapted approach developed a cost-effective option in delivering CIS. This is because partnering with a governing entity like the Ministry of Agriculture allows for cutting various logistical costs, e.g. gaining access to the regions and locations of relevant users, intermediaries as well as producers. Further to this, the PRIME-adapted approach promoted local ownership of the PSP process and subsequently contributed to sustainability of the process past the PRIME project lifespan.
- **NGO involvement**. The involvement of various NGOs[30] demonstrate that the PSP process, including the workshop and integration of various sources of knowledge, is becoming an accepted tool for CIS. Furthermore, as a result of the active participation of NGOs, PSPs are becoming more trusted amongst the communities.
- **Range of stakeholders engaged.** The broad range of stakeholders involved throughout the PSP process, including during preparation, facilitation and feedback, assists with encouraging the communities to take ownership of the process. In turn, this promotes sustainability of the process beyond the PRIME project lifespan.

The variations in the PSP process have been beneficial to the success and future of the programme in Ethiopia. Restructuring the focus of PSP workshops on DRR and EWS aligns with numerous policies and frameworks. For example, Ethiopia's newly-approved National Policy and Strategy on Disaster Risk Management (DRM policy)[31] has highlighted principles necessary for DRR and its integration with development planning. Two of these principles are emphasised through the PRIME-adapted PSP approach, namely: i) to identify, assess and

[29] Birkman J & von Teichman K. 2010. Integrating disaster risk reduction and climate change adaptation: key challenges – scales, knowledge and norms. *Sustainability Science* 5:171–184.
[30] Including local and well-known Ethiopian NGOs.
[31] National Policy and Strategy on Disaster Risk Management. 2013. The Federal Democratic Republic of Ethiopia, Addis Ababa.

monitor disaster risks; and ii) to enhance early warning, participatory and bottom-up planning. Additionally, the DRM policy recognises the role of communities in EWS. Consequently, the *woreda*-level DRR planning programme was established, which is led by DRMFSS under the Ministry of Agriculture. Through the DRR planning programme, the Ministry of Agriculture seeks to shift Ethiopia's more-reactive approach towards dealing with disasters and emergencies to explore new methods of managing risk. Further to this, these methods will be designed based on decentralised and participatory approaches, including inputs from local governmental experts, community representatives and local civil society organisations. Through the DRR planning programme, a number of *woreda*-level Disaster Risk Mitigation, Adaptation and Contingency plans have been completed, which have resulted in Ethiopia being utilised as a 'good practice' example for DDR[32]. However, while preparation of these plans is undoubtedly an important step, involving the targeted communities in the planning, preparation and implementation stages of these plans still remains a challenge.

The implementation of the PRIME-adapted PSP model has contributed to strengthening of Ethiopia's DRR management system in the following ways[33].

- PSPs have allowed the participatory engagement of community members who were previously left out in the government DRR system. This ensures that marginalised groups are aware of the PSP process and DRR outcomes. Therefore, the PRIME-adapted approach promotes further buy-in and implementation of DRR actions by government and institutions.
- PSPs offer community members the opportunity to be more involved in, and to influence, DRR decision-making at all governance levels. Bridging the gap between local and non-local actors promotes a shared understanding of DRR priorities and better implementation of these actions, which increases the effectiveness of the process.
- PSPs present an opportunity for information to be used to inform DRR actions at a multi-lateral level. This means that both local- and non-local-level actors contribute towards risk assessments (i.e. information delivered to *woreda*-, zonal- and federal-level government systems) while also receive information regarding their risk status. Receiving an assessed risk status includes what the risk status means for their social, economic and environmental systems.

As discussed above, the PRIME-adapted PSP model reinforces existing DRR structures in the country, namely EWS and natural resource and rangeland management structures. For example, the PSP process has worked with *kebele* EWCs to expand their membership to include traditional forecasters, community members as well as pasture and water scouts. The *kebele* EWCs inform local authorities and report back to PRIME if there are signs of negative trends. The *kebele* EWCs also assist in disseminating advisories following PSP workshops and early warnings for hazards such as floods. This *kebele*-level system of disseminating information provides a link between communities (users) and the intermediaries and producers.

According to regional and district officials working on DRM and livelihood adaptation, there are various other entities that are assisting with the success of the PSP process in Ethiopia. These

[32] Alebachew 2016 PRIME Learning Brief.
[33] Alebachew 2016 PRIME Learning Brief.

include, i) the integration of Early Warning and Food Security (EWFS) Outlooks[34] produced by the regional Disaster Prevention and Preparedness and Food Security Coordination Office (DPFSPCO); ii) historical climate data produced by the regional meteorological branch directorate; and iii) Climate Vulnerability and Capacity Assessment (CVCA)[35] and DRM assessment reports produced by PRIME. The combination of EWFS outlook data, historical climate data, CVCA and DRM with the PSP seasonal forecasts, helps provide the most accurate risk profile of the area. Further to this, as CVCA and DRM are community participatory approaches, this helps to further integrate bottom-up data/information into PSP process. This bottom-up approach integrates local realities and priorities identified by the communities themselves. As a result, more relevant and context-specific PSP advisories are produced.

The PRIME-adapted PSP model has exhibited flexibility in the process. Examples observed in Ethiopia demonstrate that the extent of this flexibility often depends on: i) the local context (e.g. DRR responses and coordination); ii) the type of resources (e.g. human capital and financial aid); and iii) ensuring that the level of involvement has been adjusted accordingly (e.g. level of government capacity and subsequent involvement in Borena and Afar Regions compared with Somali Region).

### 4.1.2. Multi-stakeholder participation and interactions

*Observations*

- **Involvement of all relevant stakeholders to enable a responsive and participatory process**. Since the introduction of PSP workshops to Ethiopia in 2014, the process has involved a diverse group of participants in the stakeholder groupings. These participants include representatives from *inter alia*: i) regional meteorology unit and DPFSPCO; ii) *woreda* administration and sector offices; iii) traditional forecasters; iv) clan leaders; v) community data collectors; and vi) women and youth representatives. Generally, a PSP workshop will be attended by between 50 and 120 participants. At the onset of PSP implementation in Ethiopia, women were not well represented. However, during *Sugum* 2016, women have been noted to begun participating significantly more. There are still some districts where women participation is limited. For example, during *Sugum* 2016, women participation was a minimum of 3% for the district of Kbayah/Jigjiga in Somali Region, and a maximum of 31% in the Mueso/Muli District in Somali Region.
- **Multi-stakeholder interactions during PSP workshops**. FGD and KII participants revealed that participating in PSP workshops has transformed their relationship and level

[34] The EWFS outlook data provides detailed information on rainfall patterns, crop and livestock conditions, terms of trade, food prices, water availability, nutrition survey data, nutrition programme coverage and relief pledges (food and non-food items) by region. It also includes information on funding shortfalls by sector (e.g. food, nutrition, water, sanitation and education). Examples of early warning indicators collected include: i) occurrence of extreme conditions (e.g. hail storms, unseasonal rainfall and extreme temperature); ii) ploughed and cultivated land available; iii) supply and distribution of agricultural inputs (e.g. fertiliser); iv) crop condition and production prospects; v) disease and pest outbreaks affecting crops and livestock; vi) supply of feed and water for livestock; vii) sudden movement of livestock; viii) nutrition status of the population particularly in pastoral areas and with the appearance of increased incidence or 'hot spots'; ix) emergence of conflicts; and x) spread of diseases.

[35] Through the community dialogues, PRIME organised CVCA and DRM assessment. This approach facilitated mapping out of major livelihood resources and climate-related hazards, identification of vulnerable resources and social groups, assessments of the effectiveness of existing preparedness and response strategies and a list of priorities for risk reduction and livelihood adaptation. The assessments further included the potential of irrigated horticulture development as well as climate sensitivity analyses for private sector actors to help in the design and development of climate-adaptive and irrigation-based livelihood diversification options, specifically for pastoralists and agro-pastoralists in PRIME intervention areas.

of interaction with the different categories of stakeholders. The different observations made by FGD and KII participants are outlined below for each category.

- **Government agencies**. PSP workshops have been a channel through which they are now able to reach out to more communities. In addition, community members have been provided with contact numbers of government officials to request additional information. As a result, there has been an increase in demand-driven requests for climate information from communities, and consequently the flow of communication between communities and DPPO officers and agricultural extension officers has increased. Participants from government agencies further acknowledged that there is better coordination between different government sectors involved in PSPs. For example, the DPPO office is coordinating with the agricultural extension services to disseminate the advisories developed during the PSP workshops[36].
- **Community members**. PSP workshops have provided a platform to share their views. In addition, participants feel empowered through their involvement in the workshop[37]. PSP participation has developed a sense of place and community with a shared interest in climate change and variability. Communities report having better relationships with government institutions and NGOs through the development of both an informal and direct relationship. As a result of this, community access to information has improved as well as the understanding of the information, as they are more comfortable to ask questions. Communities have acknowledged that PSP workshops provide them with a platform to share and learn experiences from other communities – for example, risks and coping strategies from other *kebeles* – which would otherwise never have been accessible.
- **Traditional forecasters**. It was revealed that the participation of traditional forecasters in the PSP workshops has rebuilt confidence in, and respect for them, within communities. Their role in communities was decreasing because of the increase in monotheism religion (e.g. Muslim/Christianity).

- **Interpreting seasonal forecast probability and uncertainty**.
  - **Traditional and scientific forecasting methods**. Both traditional forecasters and community members highlighted the integration of the two different sources of information, namely traditional forecast methods and scientific (i.e. meteorology) forecasts, in the process. Together, they noted the importance of the co-integration of both sources in reaching a common agreement. The PSP workshop setting encourages open discussions between the two which helps both sources to reach a level of understanding with each other. Traditional forecasters and community members agreed that this aspect of the workshops is one of the most successful elements of the PSP process. In general, both traditional and scientific sources provided similar forecast for the coming rain season. In an instance where the two sources do not agree, the scientific forecasts have been the chosen by the participants as the one to follow. This situation occurred during *Belg* 2016 PSP in Erer town in the Somali Region. The two sources predicted opposing forecasts for the coming *Belg* rain season, where the traditional forecasters predicted 'below normal' rainfall while the scientific forecasts predicted 'normal' and 'above normal' rainfall distribution. Regardless of the disagreements between the two forecasts, the workshop participants agreed to develop advisories based predominantly on the scientific forecasts[38]. This example demonstrates cooperation and an acceptance and trust by communities in scientific knowledge and forecasts.
  - **Engaging level of PSP workshops**. Participants highlighted that the PSP process (and in particular, the workshops) helped them to learn and understand more about

[36] Extracted from KII discussions held on 13 May 2016 in Yabelo town, Oromia Region.
[37] Extracted from FGDs discussions held on 23 June 2016 in Doho *kebele*, Awash District, Afar Region.
[38] PRIME Q15 Report.

climate change and variability. Furthermore, the engagement level of the workshops has assisted their understanding of uncertainty and probability in forecasts and advisories. Participants noted that the increased knowledge has better equipped them to make informed decisions based on the advisories, rather than take them as prescriptive (i.e. being told what to do).

- **Challenges in communicating probability and uncertainty to users**. There is still a challenge to adequately communicate probability and uncertainty to users as many are illiterate. In addition, as a result of cultural preferences, some community members (mostly in the Afar region) have been reluctant during the beginning of the PSP process to accept and trust the forecasts. This is illustrated by the following statement by a traditional forecaster and elder in Halgyd of Awash/Afar region:

> *"Yes, we don't understand some terminologies used by scientific forecasts. Sometimes, the meteorologist people will show us some maps and photographs and lines we do not understand. They need to use our language and also tell us the information using our context and our life and culture as examples."*[39]

### *Analysis*

The observations above have revealed that the most notable barriers for communities to take effective action on climate resilience are related to how messages and climate change information are constructed and disseminated[40]. Further to this, the observations provide evidence that the PRIME-adapted PSP model has assisted communities in overcoming these barriers, for example through undertaking appropriate actions in the face of climate change and variability. Through the PSP process, stakeholders have been given the opportunity to produce actionable advisories for seasonal decision-making as well as short-term planning.

The introduction of PSPs in Ethiopia has been an effective means of developing: i) new knowledge for communities and its individual members (e.g. the element of uncertainty and probability for decision-making); and ii) creating new and transforming existing stakeholder relationships (e.g. community members, i.e. users, having a direct contact with technical personnel and producers of climate forecasts). There is evidence of social learning in workshop participants specifically concerning seasonal forecasts, uncertainty and actionable seasonal planning. An example of this is those community participants who feel empowered through the engagement of the workshop and take ownership to disseminate the information to fellow community members. This highlights that individuals are learning from each other and their experiences and building trust in the process, rather than feeling as if they are being told what to do through a weather or climate forecast. The multi-stakeholder setting of the PSPs has built trust and confidence in participants and those that receive information and feedback from participants. Furthermore, PSPs bring community voices that have otherwise been marginalised (such as women and youth[41]) into the decision-making process. This inclusion of marginalised groups has resulted in the information reaching further and wider than previously achieved in CIS.

[39] Taken from case study discussions held on 23 June 2016 in Halgyd *kebele*, Awash District, Afar Region.
[40] Ensor & Harvey 2015. *WIRES Climate Change*.
[41] There is always a conscientious effort by PSP organisers to include women and youth representatives – see PRIME project quarterly reports.

### 4.1.3. Participatory Scenario Planning feedback process

*Observations*

One of the principles guiding participatory tools is the importance of integrating a positive feedback process. Incorporating feedback encourages producers of climate data and the initial weather and climate forecasts to improve the presentation of the data and adapt it to the changing local user needs[42]. The following are three observations taken from PSP workshops conducted across various Ethiopian regions.

- As part of the PRIME fourth intermediate result ($IR_4$), an M&E system has been developed that tracks and measures the impacts, outcomes and outputs of the PRIME project. This M&E system involves an annual household survey (AHS) undertaken to evaluate the performance of PRIME through various indicators. One of the indicators, 'number of stakeholders using climate information in their decision-making', is calculated as the percentage of households that have used at least one of sets of climate information i.e.: i) seasonal rainfall forecast; ii) pasture conditions; or iii) the level of water availability from a source linked to PRIME. The different sources of information included in the calculation are *inter alia*: i) EWCs; ii) Rangeland Council (RLC); iii) Social Analysis and Action for Adaptation (SAAA); and iv) PSP advisories. The 2015 AHS revealed that 24,785 people have used climate information from a variety of PRIME sources, including PSP advisories, to inform decision-making. Furthermore, households located in Afar and Oromia regions apply, on average, more technologies and are more likely to use climate information in their decision-making than in other measured regions. Decisions made using climate information are generally related to: i) fodder stocking; ii) herd movement; iii) changing types of livestock; iv) fodder management; and v) coping activities.
- A different approach to feedback was taken during a PSP workshop session in Awash town of the Afar region[43] involved participants reviewing the previous rain season, including the forecasts, the developed advisories and the outcomes following the rains. A representative from the meteorological services presented a summary and review of the rainfall performance from the previous rain season[44]. The representative noted the amount of rainfall received was in line with the climate forecast, which had indicated a high probability of 'normal' rainfall. Community members responded that this result did not adequately capture the variability that was experienced across the *woredas* and *kebeles*[45]. Through this feedback process it was revealed that integration of traditional knowledge, including traditional forecasters, is integral to informing the advisories and documenting accurate reviews.
- Another monitoring system a part of the PRIME project, and the PRIME-adapted PSP model, is under $IR_2$, 'follow-up, implementation, support and monitoring of the dissemination and utilisation of PSP advisories by pastoralists and small businesses'. Under $IR_2$, NGO partners in the PSP process conducted subsequent follow-up workshops at *woreda*-level to gauge the success of the PSP process and to facilitate the dissemination of advisories at a more local level.

[42] Specifically, for the PSP process, producers include meteorologists and technical departments.
[43] This PSP workshop was held in February 2015 in Awash town, Zone 3 of the Afar Region.
[44] For February 2015 in Awash town, the previous rainfall seasonal is known as *Kerma*.
[45] From the perspective of improving the reliability of climate forecasts for local planning and making critical livelihood decisions in pastoral contexts, with support from PRIME, the Meteorological Forecast and Early Warning Directorate at the Ethiopian NMA will conduct a comparative performance assessment. In terms of accuracy and skill scores, climate forecasts will be from NMA as well as regional and international forecast systems.

*Analysis*

Although the $IR_4$ indicator used in the PRIME project in the observation above provides an estimate of the number of people using climate information from different sources, it is not specific to the individual performance of the PSP process. In addition, the AHSs do not capture the user experience of the advisories and how useful they were in decision-making and the outcomes following the rain season. A feedback process within the PSP process is necessary to accurately determine how the process is affecting people on-the-ground.

Including a feedback process into the workshop process provides a platform for participants to critically review previous seasons. Furthermore, it allows their opinions and experiences on the forecasts and use of advisories to be expressed and included in discussions. FGD participants in Yabelo Region highlighted this feedback session as one of the key successful elements of the PSP workshop. They were able to openly discuss the results from the previous season and what they felt was helpful in making their preparation decisions. However, because the feedback process is conducted only during the workshop, facilitators do not have the necessary time to act on it for the coming rain season. The information generated at the workshop can only be assessed and integrated during the preparation of the next PSP.

The examples depicted in the observations above provided an opportunity to reflect on the effectiveness of the PSP approach and draw lessons for future PSPs. For example, in June 2014, consultations[46] held highlighted the need to institutionalise the PSP process. Also apparent was the need for delineating roles and responsibilities among different stakeholders for both disseminating advisories and implementing actions. As a result, EWCs are being strengthened through the inclusion of traditional forecasters and RLCs as members for monitoring and tracking early warning information on a regular basis. PSP organisers have collaborated with relevant community development agents and institutions to improve the stakeholder diversity of the process, including Community Animal Health Workers (CAHWs), Village Savings and Loans Associations (VSLAs), teachers and health workers. Stakeholders such as DPFSPCO, RLCs, EWCs, forecasters and CAHWS are now engaged in the PSP model to institutionalise the process.

The combination of the three feedback systems depicted above into the PRIME-adapted PSP model provides an effective means to assessing the PSP process and its effect. The examples each highlight various comparative advantages and limitations. Further to this, sharing of the different methods between the communities and processes allows to build on each other to move towards refining the process.

The PRIME-adapted PSP approach to integrating feedback systems follows a ‘learning by doing’ approach, which helps to improve on the process thereby leading to social learning of all stakeholders. PRIME PSP follows a systematic learning approach through the feedback learning loop that places an emphasis on communication. This will have the result of building trust, cooperation and ownership of the process, and thus greater sustainability.

[46] From June 20–30 2014, ACPA and Mercy Corps conducted a workshop with stakeholders to assess and monitor the dissemination of PSP advisories as well as the implementation of preparedness measures. See further: Q7 $IR_2$ PRIME Report.

## *4.2. Communication*

This section addresses the different channels used to communicate advisories in Ethiopia. For each channel, the reach and effectiveness are discussed as observations and analysis.

### *Observations*

During PSP workshops, scenarios are developed which serve as a base to generate advisories[47]. Also from the scenarios, advisory dissemination plans (ADP) are developed (Annex 2). ADPs provide participants with a clear way forward to use and share the knowledge gained through the workshop and the process. The advisories are disseminated through various channels which are outlined below.

- The pre-existing EWC embedded within the DPPO system for DRR is the official channel for information sharing. Advisories are structured into pre-developed templates that are translated into local languages for dissemination. Existing community-level EWCs have the local support and access to DPPO resources that assist during dissemination. Information on community advisories and a request for support for implementation are communicated to all concerned government departments by an official letter, e.g. Animal and Plant Health and Quality Control Directorate and the Agricultural Extension Directorate. In addition to community EWCs, the following means are identified as support mechanisms to the dissemination systems: i) extension workers – animal and human health; and ii) group representatives – for example, from rangeland management councils.[48]
- Another channel of communication used by the PSP process is mass media, particularly community radios. During FGDs undertaken in both Yabelo[49] and Awash[50] towns, radio broadcasts were recorded as one of the most reliable channels for dissemination of PSP advisories. However, it was revealed that this channel is mainly used by men and the youth rather than the community as a whole.
- Traditional and community-based systems are the most common channels for dissemination of PSP advisories, namely: i) community meetings; ii) markets; iii) mosques; and iv) informal gatherings, for example at water points. Additionally, in the Afar Region, there is a traditional system of communication called *dagu* – roughly translated to mean 'news' – which is used for PSP advisory dissemination. The *dagu* system is an institutionalised form of regular communication between communities in Afar, where information is transmitted through relaying messages[51].
- Participants at the PSP workshops are also one of the main channels for PSP advisory dissemination. This transfer of information occurs during community meetings in organised groups such as *inter alia*: i) women groups (e.g. VSLA systems; ii) chief *kebele* meetings, which can be as frequent as weekly or every fortnight; and iii) informal discussions and gatherings at various places (e.g. markets, water points, funerals and weddings). During the FGDs, non-PSP participants confirmed receipt of advisories from community members that were involved in the workshops. The most common channels for receiving the information was at *kebele* meetings and through informal gatherings.

[47] Advisories are generally developed according to three different rainfall scenarios, i.e. 'normal', 'above normal' and 'below normal'.
[48] EWC members are community representatives who can easily navigate amongst communities to ensure access of advisory information by community members.
[49] Borena Region.
[50] Afar Region.
[51] Menbere G & Skjerdal TS. 2008. The potential of *dagu* communication in north-eastern Ethiopia. *Media Development* 55:19.

Although the various dissemination channels have been recorded to be effective in reaching community members who were not present at workshops, not all non-PSP participants receive advisories. Through the first PSP process for the February to May 2014 rain season in Afar Region[52], advisories reached just over 500 people through dissemination at mosques, markets and community meetings[53]. For the same period in Borena Region, ~5,180 households received PSP advisories through various dissemination means[54]. In 2015 in Kebri Beyah town and Misraq Gashamo *woreda* of the Somali region, a total of 896 households received advisories through the *woreda* EWC[55] information package[56]. In the households reached in the Somali districts, 695 men and only 201 women received the advisories. Representatives that do not receive information advisories attribute this to weak *kebele* government structures and community EWCs that lack functioning support and management. The DPPO and *woreda* government units are situated within town centres, hence the flow of dissemination is quicker and more efficient. Communities closer to town centres have more access to advisories than those situated in the rural villages in harder-to-reach areas.

Since 2014, there have been improvements in the dissemination systems of PSPs with EWC. For example in the South Cluster, a total of 10,341 people received the PSP advisories, reaching 6,886 men and 3,455 women, and in East Cluster, ~9,198 people received the advisories[57], reaching 5,410 men and 3,788 women total for the 2016 *Sugum* season.

In *Sugum* 2016 in Afar Region, following the organisation of PSP events in all six *woredas* of Zone 3, PRIME partnered with DPFSPCO, to facilitate the packaging and distribution of 7,000 PSP advisory templates. The advisories were prepared in the local Afari language and distributed to households, local businesses, schools and sector offices[58].

A post-PSP M&E revealed the number of people receiving advisory information in an area depends on three factors. These are described below.

- The number of people in attendance at the workshop. This affects the spread and distribution of people amongst the region and as a result, affects the number of people the information reaches.
- The number of existing information dissemination channels. Making use of existing dissemination channels assists with distribution of information as people are accustomed to receiving information this way. Developing new channels contributes to furthering the reach of information as people are likely to receive the information in more ways than one, which can help with understanding and interpreting it better.
- The strength and level of activity of the community-level EWCs. Disseminating information through a community that is trusting of its people is much more efficient at reaching most, if not, all of its members than a community that is not active and does not have established EWCs.

[52] February to May rain season in the Afar Region is known as *Sugum*.
[53] CARE Ethiopia 2015.
[54] PRIME Quarter Report 7. 2014. PRIME Project Quarter Report No. 7. Submitted to USAID Ethiopia Mission, Addis Ababa.
[55] PRIME Quarter Report 13. 2015. PRIME Project Quarter Report No. 14. Submitted to USAID Ethiopia Mission, Addis Ababa
[56] As mentioned above, for non-PSP participants, information is disseminated generally through PSP participants, both at *kebele* meetings and in informal meetings.
[57] PRIME Q14 Report. 2016.
[58] PRIME Q14 Report. 2016.

PSP participants reported that they were happy with the way advisories are created and the options they presented for the user. The participants encouraged that the information be communicated to the public as soon as possible following the completion of the workshop.

*Analysis*

The FGDs highlighted social differences in the use of dissemination channels in traditional communication systems. Men expressed receiving information though traditional forecasters, the *dagu* system and at water points, while women received information through their husband or participation in women's groups. In the Afar Region, while the use of *dagu* is the most common to receive advisories, there is also a social structure and hierarchy within the system. Elderly men were recorded as using the system most commonly, with men frequenting the system more than women. Through comparing communication systems before and after PSPs during the FGDs, it was revealed that before PSPs[59] women did not have direct access to information from traditional forecasters. After PSPs, however, traditional forecasters openly discuss the forecasts in settings where women are present.

An effective CIS in which users can make use of the advisories to take action should involve the following principles: i) accessible communication channels; ii) timely delivery of information; iii) two-directional information flow between producers and users; and iv) tailoring to the specific capacities and needs of the user, i.e. language. These points are expanded on below.

- **Accessible communication channels**. The channel for communication of advisories in the PRIME-adapted PSP model demonstrates most of these principles, as it is built on a range of communication channels made readily available to communities. Rather than developing a new system, PRIME has built onto and expanded existing communication systems.
- **Timely delivery of information**. Information is posted in a timely manner as it relies on more informal fast-spreading traditional channels, namely through *dagu* and chief *kebele* meetings. The use of the *dagu* system to disseminate advisories amongst communities is one of the factors that has enabled dissemination to be most effective in reaching as many households as possible and enhancing community trust in the information. However, relying on traditional systems may continue to shape the social inequalities with regard access to information. Through the PRIME-adapted PSP model, efforts are being made to revitalise and evolve these social norms and inequalities. This is being done through working closely with *kebele* councils and CARE Ethiopia's SAAA programme[60] to include both women and men in the process and to value opinions and contributions equally. However, timing is not always organised well as was recorded by Huko Dulecha, a pastoralist from Chokal, Yabelo/Borena in Oromia Region:

[59] Approximately five years ago, 2011/12.

[60] Social Analysis and Action for Adaptation (SAAA) is an approach developed by PRIME under CARE Ethiopia initially to enhance health-related issues in a more comprehensive manner, specifically addressing social, economic and cultural factors known to influence health. SAAA as a communication tool and iterative process, where 'community dialogue' and 'collective action' work together. The tool can be contextualised to address underlying drivers of vulnerability to climate change, as well as the behavioural and socio-cultural factors limiting adaptive capacity, from personal to more advanced structural levels. It can also be adopted to help households, communities and local stakeholders reflect on their own perceptions of underlying causes and their impacts. Through the SAAA approach, PRIME effectively addresses social and personal challenges and provides for the adoption of climate-smart practices. See further: CARE 2007 ideas and actions: Addressing the social factors that influence sexual and reproductive health. Available at: www.care.org/reprohealth

> *"…immediately after [the] PSP workshop, advisories are communicated to the local people. The problem is that sometimes PSPs are not organised in time and when the CARE staff are asked about the time they blame the meteorology office for delaying the forecast. But generally, it is good in terms of timing."*

- **Two-directional flow of information**. ADPs are developed during the PSP workshop in a participatory manner, which allows the dissemination process to be defined and for all participants to agree on the dissemination methods.
- **Information package tailored to the needs of the user**. While packaging of the information is in a formal template, the local languages are also included, which caters specifically to the needs of the on-the-ground users.

## *4.3. Use and impact*

### 4.3.1. Impacts of Participatory Scenario Planning on different users

The review of previous PSPs workshops reports, KII discussions and FGDs revealed that PSPs have impacted users, particularly pastoralists, farmers, agro-pastoralists and small community businesses. These impacts are noted in two different ways, namely by: i) a change in knowledge, attitude and practices; and ii) a change in productivity gains and resulting effects.

#### 4.3.1.1. Change in knowledge, attitude and practices

- **Knowledge development**. PSPs empower communities with knowledge on seasonal forecasts, climate change and variability, flexible planning and risk management. The evidence of learning by community members is through their participation during PSP workshops and is further illustrated through the following statements:

> *"…CARE gave us training on how to interpret forecasts and how to make adaptation plans. In addition, I received some skills on how to harvest and save pasture for dry seasons from [the] PSP workshop. We also have our village-level SAA group where we discuss about the PSP information and make decisions on saving money, collecting milk and selling as a group."* Berito Doya, a female pastoralist in the Doh, Awash/Afar Region.

> *"…she has high regards for the PSP workshops. Crop and fodder farming has long been a predominantly male activity in the Boran pastoral community but thanks to the PSP workshop she has managed to overcome the cultural barrier and became a model agro-pastoralist in her village."*
> Huko Dulecha, a female agro-pastoralist in Chokal, Yabelo/Borena, Oromia Region.

- **Adjusting attitudes**. PSPs present communities with an opportunity to interact with technical personnel. A mixed group FDG in Haleydegi *kebele*, Awash District in the Afar Region, revealed that there have been changes in their knowledge and understanding of consultative meetings. During the first workshop, the group reported not actively participating in the discussion as it was their first exposure to such high-level meetings. The group also revealed that they were tentative about the PSP concept. Now, however, members of the group have established good working contacts with various workshop participants. For some, this positive interaction is during their first attendance. The PSP workshop has made it possible for interactions with different stakeholders which were not

an option previously[63]. The community now trusts traditional forecasters when the predictions are combined with scientific forecasts, as the alignment between the two become clear. The traditional forecasters have earned their respect back from workshop participants and the community for their trustworthy and reliable forecasts. During PSP workshops, they are usually the first to discuss possible scenarios. The traditional forecasters also reported changes in the community's willingness to accept and implement advisories during subsequent workshops.

- **Adjusting practices**. PSPs inform better decision-making for climate-resilient livelihoods and the integration of DRR methods. In addition, they provide improved access to climate information which promotes a shift in practices. This shift in practice is viewed in the implementation of *inter alia* improved management of rangelands and livestock resources, soil and water conservation techniques, planned sale of animals and mobility patterns, diversification of income sources increasingly towards climate-resilient activities including interest to grow and manage feed and fodder resources. This is evident in the following statements:

> *"This year, me and my husband managed to dig a small water pond in our farm to produce fodder. We received the advisories that there is good rain to save water and produce fodder and food crops. So, we prepared a pond and planted fodder seeds (Alfalfa and Cow Pea) mixed with maize."*
> Agro-pastoralist and co-facilitator of the SAA group in Halaydege *kebele*, Awash Fentale District, Afar Region.

> *"Now we make decisions based on PSP advisories, for instance, planting the right crop, saving pasture etc. We also use advisories to select crop varieties we should be planting to avoid losses from pests and heat stress."*
> Kotola Bidu, a male agro-pastoralist from Derito, Yabelo/Borena in Oromia Region.

The following are three examples from the FGDs with non-PSP participants in Derito *kebele*, Yabelo District and Borena Region:

> *"Usually two rainy seasons, during the small season they do not plant normally. With the knowledge of the good rains from the El Niño, we did plant and got good yield."*
>
> *"We use to arrange ponds to get catchment but this year good rains (above rains) we do not do this."*
>
> *"…improve saving of pasture and use to how we can minimise risks of drought…"*

The following is an example of decisions made as a result of advisories taken from a mixed FDG group in Haleydegi *kebele*, Awash District, Afar Region:

> *"[we implemented] controlled grazing [which involved]: i) grazing on rotation; ii) emptying swampy areas in order to prevent outbreak of malaria; iii) cleaning ponds for better water storage; iv) [seeking] veterinary services and vaccination of livestock; v) using boiled and chemically treated water for drinking; vi) using mosquito nets; vii) storing crop leftovers for dry seasons; and viii) destocking."*

[63]These multi-level interactions include with the meteorological services, agricultural and pastoral development office, disaster management, extension officers, district administration, health, education, and water sectors and other community members.

#### 4.3.1.2. Change in productivity gains and resulting effects

Shifts in productivity gains have been evident in household economic empowerment through promotion of joint decision-making with spouses. In addition, a culture of savings is being integrated into everyday livelihoods as well as the capacity building for managing disasters.

In rural Ethiopia, as a result of recurrent extreme weather events, many households depend on the government or NGO aid. However, with the ability to make informed decisions through the PSP participation, many farmers were able to avoid requesting aid assistance, for example

> *"… [it is] helpful in devising coping mechanisms. Last year, before our area [was] hit by El Niño, we were told during the PSP meeting that a bad season is coming and you should sell some of your animals before they lose body weight and also we were told to save water and pasture. Some of us who used the information benefited and survived the drought. Others who lost confidence lost animals and assets. These people are now depending on food rationing from the government and the NGOs."*
> Agro-pastoralist from Chokal, Yabelo/Borena in Oromia Region.

> *"The seasonal forecasts are very useful as they are made in consultation with traditional forecasters and the scientific forecast. In particular, the information about choice of stress tolerant, short-maturing and high yielding food and feed crop varieties is helping [for] us [to] improve our production and the condition of our animals."*
> Kotola Bidu, a male agro-pastoralist from Derito, Yabelo/Borena in Oromia Region.

> *"…from the PSPs my family now has some money saved in the commercial bank of Ethiopia at Awash town. This will help us mitigate risks if and when they arise. We have also water which can be used for up to two months. Our crops in our farm are in good shape. The body condition and milk productivity of my animals is good. I thank God for helping me make informed plans because of the messages I get from the PSP process."*
> Agro-pastoralist and co-facilitator of the SAA group in Halaydege *kebele*, Awash Fentale District, Afar Region.

### 4.3.2. Impacts of Participatory Scenario Planning on intermediaries

NGOs that are already working or are involved with PRIME are generally integrated as facilitators for PSP workshops. As a result, PSPs are no longer a CARE-branded concept but have become a common approach for communicating climate information to communities. PRIME-associated NGOs work together to coordinate actions to most effectively communicate and disseminate advisories.

PRIME has integrated an evolved and developed approach into the PSP process through implementing three on-the-ground approaches in addition to PSPs to increase community ability to adapt to a changing climate. The three approaches include: i) community DRM and early warning dialogues; ii) social analysis and action methodology to empower communities to explore and challenge the social norms, beliefs and practices that shape their lives and livelihoods; and iii) rangeland management planning workshops. This integrated approach created a multiplier effect and a greater benefit for use of PSPs. A representative from CARE Ethiopia commented:

> *"For better communication and utilisation of advisories, we relied on extension agents, follow-up community meetings and door-to-door visits. We also use the SAA approach to promote dialogue and community conversations to promote trust and informed planning and early actions."* Alebachew from CARE Ethiopia.

#### 4.3.3. Impacts of Participatory Scenario Planning on different producers

The main observation for impacts on producers was the increased interaction and coordination between the production sector and the DDPO. Through PSP organisation, interaction between DDPO and the production sector (including agricultural and livestock management) has increased and evolved to provide more coordinated extension actions for communities. This has resulted in a more proactive focus rather than reactive to climate change, variability and extreme weather events. The DDPO focus specifically has shifted to a preparedness approach rather than relief programmes.

### *4.4. Sustainability of the process, communication and impacts*

The pastoralist and agro-pastoralist communities experience numerous livelihood challenges. For example, pastoral areas in Ethiopia experience frequent and recurring droughts, for which the local government tends to rely on emergency assistance from development partners to mitigate the impacts of such droughts on local communities. However, these emergency assistance interventions rarely incorporate innovative approaches to deal with climate change impacts. By contrast, PSPs are proving to be an innovative and effective approach to building the adaptive capacities of pastoral communities.

There are a number of opportunities to further improve the PSP approach and upscale it across the country. In Borena Region[70], for example, the Deputy Commissioner District Ministry of Food Security stated a willingness to support PRIME and to integrate and adopt the PSP process in non-PRIME areas. In Afar region, local government representatives from non-PRIME areas were actively participating in the ToT workshop. There is thus evidence of political will and interest to upscale and continue PSPs. However, for successful implementation of the PSP process in new areas, external funding support will be required. There are opportunities for donor support from international NGOs such as USAID and Mercy Corps. While USAID was initially reluctant to get involved in the process, this position was reconsidered after the evidence of the PSP success had been showcased, and PRIME recently reached an agreement with USAID to continue with PSPs following CARE's[71] exit in February 2017. USAID has undertaken to continue sponsoring the PSP process until the end of the programme in September 2017. In addition, USAID and Mercy Corps have confirmed that in PRIME II they will ensure that the PSP process and CIS continue to form a major component of climate-resilient initiatives going forward.

Even with funding for PRIME II now available, the continuing success and future sustainability of the PSP process in Ethiopia faces the following challenges.

[70] Borena Region is the largest geographical region in Ethiopia.
[71] Through $IR_2$.

- **Timing**. Strong coordination to ensure efficiency in the timing of the PSP workshops and dissemination of forecast and advisories is one of the major current concerns going forward. Often, timing concerns have resulted from national meteorological agencies not releasing seasonal climate forecasts early enough to allow for adequate time to organise PSP workshops and disseminate advisories.
- **Shortage of staff and limited technical capacity in the meteorology office**[72]. The resolution of forecasts from the meteorological agency is relatively coarse in relation to the area of concern for the communities involved. There is a growing need to provide more localised, fine-scale weather and climate forecasts to improve accuracy of the seasonal forecasts and therefore build community trust in the PSP process. There is also a need for integrating traditional knowledge into scientific forecasts. Furthermore, including more localised information encourages valuing and documenting of community experiences on observations, trends and events in their localities. However, this has inherent challenges. For example, it can be difficult for meteorology experts – who are not accustomed to working at the community level – to present concepts such as probability in ways that are understandable to intended recipients. This is an even greater challenge for participants with low literacy levels. Discussions on forecasts therefore become even more important in order to restructure and place the broader scenarios in a more specific local context, which helps to build a deeper understanding on both sides.

Several initiatives are currently underway in Ethiopia that support improvement of national meteorological agencies and services. These are described below.

- Ethiopia has formulated an investment plan for the period 2016 to 2025. This plan highlights the following eight investment objectives: i) expansion and modernisation of observational stations; ii) communication, interpretation and dissemination of climate and weather information; iii) modernisation of computer equipment; iv) increased capacity of national meteorological agency staff; v) modernisation of infrastructure and equipment within the NMA office; vi) improved meteorological services for specific sectors; vii) medium- and long-term climate predictions; and viii) modernisation of equipment, including inspection, maintenance and improvement of weather station components.[73]
- The 'Enhancing National Climate Services' (ENACTS) initiative supports decision-makers in climate-sensitive sectors by filling spatial and temporal gaps in existing climate observations. The ENACTS project mainly supports the agriculture, water and public health sectors. Specifically, in Ethiopia, ENACTS has produced raw satellite data for the past 30 years.
- The UNDP-GEF project titled 'Strengthening climate information and early warning systems in Africa for climate-resilient development and adaptation to climate change' has the objective to increase the capacity of hydro-meteorological services to monitor and predict weather events and climate change. This objective will be supported in two ways. Firstly, the capacity within NMAs and the Hydrology and Water Quality Directorate to monitor extreme weather events and climate change will be increased. Secondly,

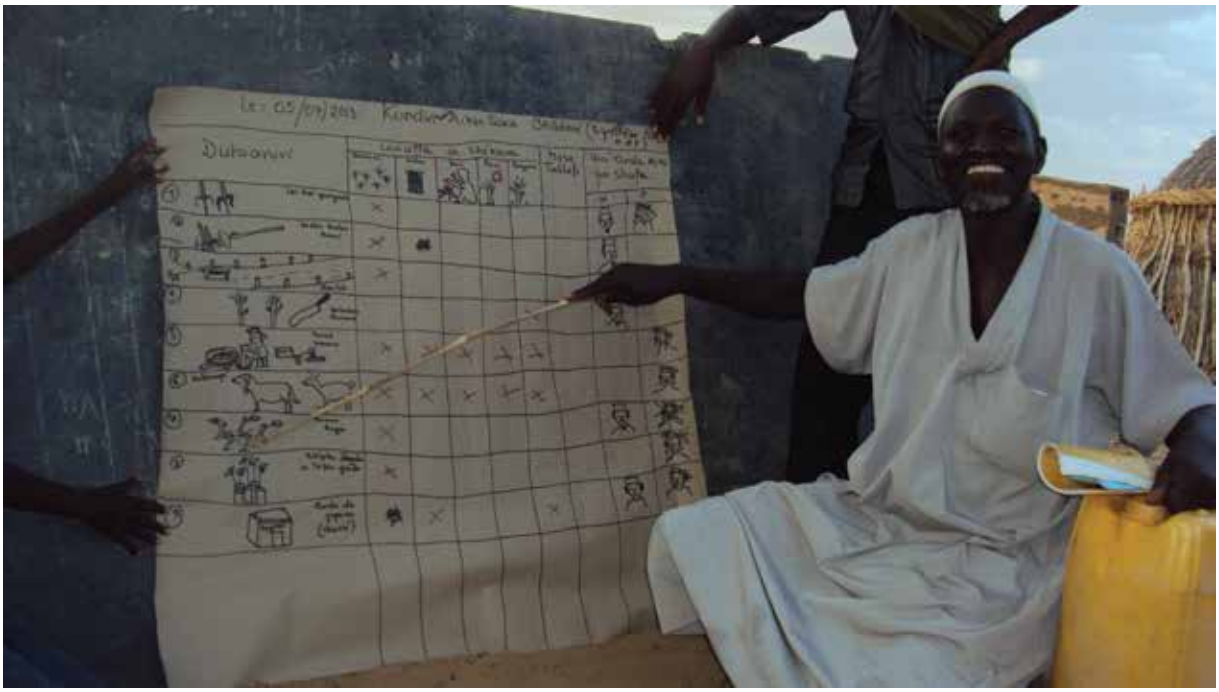
[72] A recent study highlighted that NMAs observational and analytical capacity is limited, resulting in incomplete forecasts, which prevents optimal responses to extreme weather events. Consequently, the negative effects of climate-related hazards on a range of sectors – including food, water, and energy – is exacerbated. The limited capacity within the agencies is attributed to *inter alia* the following obstacles: i) limited geographical coverage of the NMA station network; ii) limited budget for managing and administering station network; iii) insufficient capacity and budget to maintain and expand the national meteorological station network; iv) inadequate channels to communicate climate and weather data; v) limited technical capacity of national meteorological agency staff; and vi) inefficient connectivity between head and branch offices. For further details see: Mills A, Huyser H, van den Pol O, Zoeller K, Snyman D, Tye N & McClure A. 2016. UNDP Market Assessment: revenue generating opportunities through tailored weather information products. New York, USA. License: Creative Commons Attribution CC BY 3.0 IGO.

[73] Mills et al. 2016. UNDP Market Assessment.

hydro-meteorological and environmental information for early warning and long-term adaptation will be improved through improving existing weather infrastructure and adding new weather infrastructure[72].

- Under PRIME, efforts are underway to facilitate capacity building of the Ethiopian NMA and its regional branch directorates and local meteorological stations to downscale, contextualise and disseminate timely forecasts to satisfy information needs of users. CARE Ethiopia signed a Memorandum of Understanding in 2016 with the NMA for an 18-month workplan, to include *inter alia*: i) both institutional and technical strengthening; ii) upgrading of the NMA station instruments; iii) building the capacity of its regional meteorology institutions and personnel; and iv) data collection, processing and dissemination methods in pastoral areas.[74]

The above examples and discussion demonstrate prospects for sustainability of the PSP process. However, with it not yet fully institutionalised and integrated into government structures, the future of the process is not certain in Ethiopia.



[74] PRIME Q9 $IR_2$ report. 2016.

## 5. Conclusions, lessons learned and recommendations

Pastoral and agro-pastoral communities in Ethiopia are facing increasing threats from weather- and climate-related impacts. These threats are exerting immense strain on their overall socio-economic welfare. Providing means to better prepare for the effects of climate change and variability would greatly improve the welfare of Ethiopian communities. The provision of improved climate information and prediction products and their integration into decision-making systems can be an effective and efficient tool that facilitates informed and forward-looking decision-making as well as builds resilience and adaptive capacity by improving rural livelihoods. Such an effective tool is evident in the CBA approach to climate information, the PSP process. PSPs are a CBA initiative developed for CIS in 2010 by the CARE ALP initiative in Kenya. The PRIME project adopted and replicated the PSP approach in partnership with CARE Ethiopia in 2015 in selected districts of the Afar, Oromia and Somali Regions. Based on the early experiences with PSPs in Ethiopia, this impact assessment was undertaken to determine the level of PSP adoption in the country and to identify any major changes or innovations of the PSP process. Further to this, this assessment investigated the impact of the PSP process in terms of building climate resilience in Ethiopian communities. This country report illustrates the results of an impact assessment conducted on the PSP process across various Ethiopian communities.

Although the PSP process is relatively new in Ethiopia, and assessment of the impacts remains limited, this country report highlights evidence that PSP events are one of the most effective and empowering ways to promote access to localised early warning and seasonal forecast information to communities, local planners and decision-makers. According to interviewees, PSPs inform better decision-making for climate-resilient livelihoods and the integration of DRR methods into community-level planning and decision-making. In addition, they provide improved access to climate information which has promoted a shift in practices. The following discussion highlights various aspects that have been revealed through this impact assessment that are novel to the PSP process in Ethiopia, and that contribute to, as well as those that pose further challenges to, sustainability for initiative in the country.

**Shift in focus from agriculture to DRR and EWS**. This shift is one of the main highlights of the assessment in that it demonstrates that the PSP process is a flexible tool that allows for modification and refinement to suit the local context. To support this integration into livelihoods at the local level, Ethiopia's newly-approved DRM policy recognises the role of communities in EWS and highlights the need to enhance early warning through participatory and bottom-up planning for DRR. To address this need, the PSP process in Ethiopia has been restructured to align it to the DRM policy and fill gaps in the implementation of the policy. Moreover, the PSP process has been re-aligned from being primarily an agriculture-focused process in Kenya, to having a focus on DRR and EWS in Ethiopia. This shift in the focus has been beneficial to the process in the Ethiopian context and will continue to be important for the future of the programme in the country.

**Creating linkages for support tools amongst communities**. In addition to the shift in focus of the PSP process in Ethiopia, another innovative approach is the linkages created between PSPs and other support tools for the communities, specifically under Component 2 of the PRIME project. These tools include: i) community DRM and early warning dialogues; ii) social analysis and action methodology; and iii) rangeland management planning workshops. This integrated approach has had a positive effect on the PSP process amongst communities in Ethiopia. This effect has been evident through numerous communities, which has improved coordination and enhanced community ability to act on advisories.

PRIME has already begun to create linkages with existing DRM mechanisms to develop the necessary capacity to take PSP workshops forward. Further, PRIME intends to ensure that communities have the support they need to manage climate risks over time. However, for the continuity and upscaling of PSPs in Ethiopia, this will depend largely on stakeholders' ownership of the process, specifically the DRMFSS and NMA. Their involvement requires their full understanding of the PSP process to provide an accurate assessment of the relative costs and benefits of PSPs.

**Creating networks for interaction**. The PRIME-adapted PSP model innovatively builds a network of established government institutions involved in DRR to create linkages across different levels to build the process. PRIME partnered with the NMA, DRMFSS and the Ministry of Agriculture at the national level, with the DPPO at the regional/*woreda* level, and with the *kebele* EWCs and community rangeland management committees at the community level. Furthermore, PRIME provides relevant training and support to the partnering institutions to encourage smooth transitions and operationalisation of the PSP process. Building the capacity of regional meteorological agency representatives is imperative to communicate seasonal forecasts in ways that are relevant and accessible to engage participants, including community members with low literacy.

**Inclusive nature of the process encouraging participation and building trust**. The inclusion of women and traditional forecasters in the PSP process has been a major success factor for the PRIME-adapted process in Ethiopia. This has resulted in the process being viewed as open and inclusive, and has encouraged further participation from vulnerable and marginalised groups. Regardless of minor differences between the traditional and scientific forecasts, there is evidence that workshop participants have developed advisories based predominantly on scientific forecasts. This demonstrates cooperation, acceptance and trust by communities in scientific knowledge and forecasts. Through PSP organisation, the interaction between local DRR institutions (e.g. DDPO), the production sector and NGOs has increased and evolved to a more coordinated approach to extension services for communities. This has resulted in a more proactive – rather than reactive – approach to adapting to climate change and variability. Specifically, the DDPO focus has shifted to a preparedness approach rather than focusing solely on relief programmes.

**Challenges and further questions revealed from the impact assessment**. Cultural[75] and social[76] barriers are currently challenging the communication of probability and uncertainty to users. Effective communication of these concepts is beneficial and integral to sustainability of the PSP process. Additionally, it helps users to make better decisions as well as helping service providers to manage the expectations of users for accurate forecasts. This encourages trust in and sustainability of the process. While communicating alternative scenarios, in addition to the most-likely scenario, is the default approach of communicating uncertainty in PSP, many participants still struggle to understand the difference between such scenarios. While there are various approaches to explaining these concepts[77], the appropriate approach for a certain PSP workshop will depend on the local context. Because of this, special training is needed for the facilitators responsible for explaining these concepts. Sharing of experiences between participants from different regions and communities encourages necessary knowledge transfer, which further assists with the understanding of these concepts. A further micro-level analysis would be required to effectively assess this.

Continuous monitoring of outputs, outcomes and impacts following PSP workshops is critical as more in-depth and evidence-based studies are needed to demonstrate the full benefit of the PSP process in Ethiopia. Designing an M&E system that can isolate PSP-related benefits from socio-economic development gains achieved by other initiatives would be beneficial to accurately represent the investment potential of PSPs.

In summary, this impact assessment illustrates that contextualising the PSP process and tailoring advisories to the local context is necessary for sustainability. Existing governance structures will determine the extent to which this shift in approach will facilitate the sustainability of the PSP process in Ethiopia.

[75] I.e. religious beliefs.
[76] I.e. illiteracy among community members.
[77] E.g. participatory games and visual teaching aids such as decision maps.

The Adaptation Learning Program (ALP) for Africa aims to increase the capacity of vulnerable households in sub-Saharan Africa to adapt to climate change and climate variability. Since 2010, ALP has been working with communities, government institutions and civil society organisations in Ghana, Kenya, Mozambique and Niger to ensure that community-based adaptation approaches and actions are integrated in development policies and programmes. This is achieved through the demonstration and dissemination of innovative approaches for CBA, supported by practical tools, methodologies and evidence of impact. ALP is also working to create an enabling environment for CBA by working with civil society groups to influence national and international policy frameworks and financing mechanisms for adaptation.

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