



KENYA COUNTRY REPORT



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



CARBON | CONSERVATION | CLIMATE | COMMUNITY

Authors

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Table of contents

Acronyms and abbreviations	ii
Executive summary	iii
1. Introduction	1
1.1. Climate change and the role of the Adaptation Learning Programme in Kenya	2
1.2. Objectives of the impact assessment	6
2. Analytical framework	6
3. Investigations and methods	7
3.1. Data collection	7
3.1.1. Selection criteria	8
3.2. Lines of investigation	9
3.2.1. Line 1: implementation process	9
3.2.2. Line 2: communication	11
3.2.3. Line 3: use and impact	11
3.2.4. Sustainability of the Participatory Scenario Planning process, communication, use and impact	12
4. Results and analysis	12
4.1. Implementation process	12
4.1.1. Differences in Participatory Scenario Planning processes across counties	13
4.1.2. Success factors and barriers for the Participatory Scenario Planning process in different counties	20
4.1.3. Participatory Scenario Planning principles in delivering user-responsive climate information services	24
4.2. Communication	48
4.2.1. Participatory Scenario Planning principles in delivering user-responsive climate information services	48
4.3. Use and impact	56
4.3.1. Impacts of Participatory Scenario Planning on different users	56
4.3.2. Impacts of Participatory Scenario Planning on intermediaries	63
4.3.3. Impacts of Participatory Scenario Planning on different climate information producers	64
4.3.4. Barriers to Participatory Scenario Planning benefits	66
4.3.5. Socially undesirable effects of the Participatory Scenario Planning process	69
4.4. Sustainability of the process, communication, use and impacts	70
5. Conclusions, lessons learned and recommendations	71
5.1. On the implementation process	72
5.2. On the communication process	76
5.3. On the use, impact and sustainability of the Participatory Scenario Planning process	78
List of Annexes	81

Acronyms and abbreviations

ACCRA	African Climate Change Resilience Alliance
ADESO	African Development Solutions
ADS	Anglican Development Services
ALDEF	Arid Lands Development Focus
ALP	Adaptation Learning Programme
ASALs	Arid and semi-arid lands
ASDSP	Agriculture Sector Development Support Programme
CBA	Community-based adaptation
CBO	Community-based organisation
CC	County Coordinator
CCAFS	Climate Change, Agriculture and Food Security
CCWG	Climate Change Working Group
CIS	Climate Information Services
CSO	Civil Society Organisation
DfID	Department for International Development
DRR	Disaster risk reduction
FGDs	Focus-group discussions
GCCWG	Garissa Climate Change Working Group
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
KARI	Kenya Agricultural Research Institute
KFS	Kenya Forest Services
KIIs	Key informant interviews
KLM	Kenya Livestock Marketing
KMD	Kenya Meteorological Department
LAC	Local Adaptive Capacity
M&E	Monitoring and evaluation
MAM	March-April-May
NCCAP-RAR	National Climate Change Action Plan, Risk Assessment Report
NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organisations
NMHS	National meteorological and hydrological services
OND	October-November-December
PSP	Participatory Scenario Planning
SCAO	Sub-county Agricultural Officer
ToT	Training-of-trainers
UK Met Office	United Kingdom Meteorology Office
VSLA	Village Savings and Loans Association
WARMA	Water Resource Management Authority
WISER	Decentralised Climate Information Services for Decision Making in Western Kenya under the Weather and Climate Information and Services for Africa
WMO	World Meteorological Organisation

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

Kenya Country Report

Executive summary

Users of climate information, who are decision-makers at household to local and national level, practitioners in various sectors and policy-makers, require effective climate information services (CIS) to better inform their decisions for coming months, seasons and years ahead. This is particularly important for those communities in remote regions that do not receive regular weather and climate forecasts to make climate-smart decisions. A community-based adaptation approach to CIS, known as Participatory Scenario Planning (PSP), was first introduced in Garissa County, Kenya, by CARE International's Adaptation Learning Programme (ALP) in 2011. Through partnership with the Kenya Meteorological Department (KMD), the Agriculture Sector Development Support Programme (ASDSP) and ALP, the PSP process was extended into all 47 Kenyan counties in 2014. PSPs in Kenya are conducted under the leadership of the KMD and ASDSP of the Ministry of Agriculture Livestock and Fisheries. This partnership attracts financing from a range of parties, including county governments and NGOs.

PSPs provide a platform that enables the collective sharing and interpretation of seasonal forecasts in a multi-stakeholder setting to produce advisories for informed decision-making. Through the PSPs, potential scenarios based on the received climate forecast for the coming rain season are developed. These scenarios are based on how much the rainfall pattern is estimated to deviate from the 'normal' patterns experienced in the past. Following the development of the advisories, they are packaged and communicated to the users through a variety of different means, including *inter alia* SMSs, radio broadcasts, chief gatherings known as *barazas*, brochures and informal meetings.

This country report forms part of a regional impact assessment conducted in Ethiopia, Ghana, Kenya, Malawi and Niger. Specifically, the Kenya Country Report presents the results of the impact assessment on the PSP process in various Kenyan counties. This report provides an analysis of data from face-to-face interviews in Kenyan communities and villages, as well as from PSP reports from previous rainfall seasons. The assessment identifies the success factors and challenges of the PSP process through analysis of the embedded PSP principles. A comparison of the counties has been conducted wherever possible to highlight areas that can be improved on to enhance the effectiveness and sustainability of the process. This comparison was also used to identify good practices that should be integrated into the PSP process to ensure its continued evolution for further upscaling and outscaling as well as for sustainability. The results and analysis have been divided into four sections, namely: i) the implementation process of the PSPs; ii) the various communication channels for delivering advisories and the effectiveness of the channels; iii) the use and impact of the PSP process

and advisories on the different stakeholders and users; and iv) the sustainability of the PSP process.

This impact assessment is part of a larger regional assessment of the impact of the ALP in developing CIS to address climate change adaptation in 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 to climate change. This will be done by generating learning and evaluating the effectiveness of CIS approaches developed by ALP and implemented through PSPs. This country report presents evidence that over the five years of PSP implementation in Kenya, local agricultural output, disaster risk management and community well-being have all been enhanced. The findings show that PSPs have transformed the nature of climate and weather information services in Kenya to be more responsive to user needs. In addition, they have improved communication systems of the meteorological department, which have moved from a 'dissemination' approach of one-way communication (top down) to a 'communication' approach of two-way communication (horizontal). The success of the PSP process implementation and its upscaling can be attributed to a broad stakeholder inclusion as well as the highly participatory nature of the process.

Although the PSP process has been successful in general across Kenya, the introduction and implementation of the process have had, as is to be expected, varying results within and between counties. The original PSP principles have for the most part been followed in all counties, with the exception of a reduced number of days for the PSP workshop in some counties. Importantly, PSPs have innovatively combined communication systems that are readily accessible to communities including *inter alia* through community monitors, local and religious leaders, public community gatherings, media, and information and communication technology tools. Furthermore, the PSP process has been proactively and continuously re-designed at the county level to alleviate specific social barriers that arise. This has allowed the communication of seasonal forecasts and advisories to reach further afield and to a wider audience of users than prior to the introduction of the PSP. The range of communication channels differs slightly across counties, however, the most common avenues for dissemination evident in all counties was through chief *barazas*, radio broadcasts and brochures.

There is considerable evidence of major use and impact of advisories from PSPs across a wide variety of stakeholders across all counties, with many on-the-ground users reporting increased agricultural yields as a result of implementing PSP advisories. PSP communication systems have also been generally successful. Assessment participants revealed a general satisfaction about the appropriateness of channels of communication and the relevance and usefulness of the received advisories. As a result, communities and other users were well prepared for the October-November-December 2015 El Niño effects, with no major negative impacts reported across the country.

The PSP process has contributed to improved relationships and increased interactions between the KMD and other relevant technical institutions. Firstly, it facilitated engagement between high-level stakeholders responsible for producing the climate forecasts, such as the

county-level KMDs and the ASDSP, through its multi-stakeholder platform. Secondly, it led to the formation of sector-wide partnerships between institutions to produce and communicate climate information to users. And thirdly, it assisted the KMD in packaging their information to be more relevant to technical departments.

Overall, there are a few remaining challenges for the PSP process to effectively communicate forecasts and advisories. For example, in communicating the element of uncertainty in predicting the probability of rainfall and climate patterns to rural users. This uncertainty is discussed at length during PSP workshops, however it is not always communicated through advisories. By only communicating the most-likely scenario to communities (developed during the PSP), there is considerable risk that the outcome of the PSP process will not be achieved. Further to this, observations revealed that advisory brochures often contain broad statements that are neither locally- nor sector-specific. This is a fundamental problem facing the PSP process given that a main objective of the initiative is to inform decisions made by users based on the specifics of available climate information. Another significant challenge across all counties is the limited availability and timeliness of resources to support the overall PSP process. While adequate timing of the production and communication of advisories and seasonal forecasts is a critical factor for PSP success, it has remained a challenge to achieve in many counties.

Building partnerships and increasing the involvement of development practitioners is promising evidence for the sustainability of the PSP process in Kenya. With the role of the ASDSP set to terminate at the end of 2017, an exit strategy is needed to ensure the PSP process is continued.

This impact assessment presents evidence that – through PSP implementation in Kenya – agricultural production, disaster risk reduction and community well-being have all been enhanced. The results show that PSPs have transformed the nature of climate and weather information services to be more responsive to user needs. Furthermore, PSPs have improved the communication systems of participating meteorological departments, which have shifted from a ‘dissemination’ approach to a ‘communication’ approach. The success of the upscaling of the PSP process can be attributed to the participatory nature of the process as well as the focus on broad stakeholder inclusion.

1. Introduction

Climate information services (CIS) comprise the generation, interpretation and dissemination of climate information¹ to targeted user groups, as well as ensuring the uptake of such information by the users. The World Meteorological Organisation (WMO) defines CIS as:

“...the dissemination of climate information to the public or a specific user. They involve strong partnerships among providers, such as National Meteorological and Hydrological Services (NMHS) and stakeholders, including government agencies, private interests and academia, for the purpose of interpreting and applying climate information for decision making, sustainable development and improving climate information products, predictions, and outlooks.”²

The Adaptation Learning Programme (ALP) is a CARE initiative that focusses on vulnerable communities to better manage climate risks and opportunities in response to changing climatic conditions. Access to and use of climate information in an understandable and actionable form is critical for small-holder farmers in Africa – 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. Such understanding and assessment also guides agricultural development and informs investments into what is known as ‘climate-smart agriculture’. This form of agriculture focusses on managing climate risks and opportunities so that agricultural practices are adapted to changing climatic conditions. Climate-smart agriculture should demonstrate well-informed decision-making and planning for short-term climate-sensitive agricultural operations as well as for long-term agricultural developments, investments and plans.

The ALP enables communities and local governments to use seasonal forecasts to develop climate-resilient plans and advisories for livelihoods and disaster risk reduction (DRR)³. ALP research, analysis and community-based adaptation (CBA) initiatives saw the start of the Participatory Scenario Planning (PSP) approach, with a focus on using seasonal climate information to support decision making at community to local levels. The PSP approach was first piloted in Garissa County in Kenya in 2011, before being rolled out in 2014 across all 47 counties by the Kenya Meteorological Department (KMD) and the Agriculture Sector Development Support Programme (ASDSP). CARE has since implemented PSPs in Embu County. The partnership between CARE, KMD and the ASDSP has played a major role in integrating PSP as an approach that supports the provision of stakeholder-focused CIS into agricultural and development planning across all counties in Kenya.

¹ Including short-term weather forecasts of up to fourteen days and seasonal forecasts, medium- to long-term climate projections on the inter-annual, decadal, multi-decadal and centennial timescales, and historical observations that can encompass formal, science-based measurements, as well as indigenous, local and traditional observations.

² Singh C, Urquhart P & Kituyi E. 2016. From pilots to systems: Barriers and enablers to scaling up the use of climate information services in smallholder farming communities – CARIAA Working Paper #3.

³ Community-based Adaptation (CBA): An empowering approach for climate resilient development and risk reduction. 2013. CBA brief.

1.1. Climate change and the role of the Adaptation Learning Programme in Kenya

The main climate risks that increase community vulnerability in Kenya and specifically affect agriculture and livestock pastoralism are listed below⁴.

- Erratic rainfall and shifts in the timing of both the short (October-November-December i.e. OND) and long (March-April-May i.e. MAM) rain seasons, which cause a decline in crop and livestock productivity. These shifts also contribute to lower predictability of yields.
- Incremental climate change, excessively high temperatures and increasing incidences of extreme weather and climate events such as droughts which cause *inter alia*: i) reduced livestock health (leading to e.g. declines in growth and poor reproductive performance); ii) livestock mortality; and iii) resource scarcity (of e.g. water, land and livestock). An increase in the frequency of droughts to more than one drought every five years will likely cause a significant and irreversible decrease in livestock numbers in arid and semi-arid lands (ASALs)⁵. Increases in the amount and intensity of seasonal rainfall cause *inter alia*: i) soil degradation and erosion; ii) an increase in livestock diseases; and iii) loss of livestock because of flash floods.

The abovementioned climate risks have severe consequences for rural livelihoods, food security and nutrition. Furthermore, they often lead to conflict over natural resources, with local and regional impacts. At the national scale, the agriculture sector contributes 51% of Kenya's annual GDP – 26% directly and 25% indirectly⁶. The agricultural sector also accounts for 65% of Kenya's total exports and provides more than 70% of informal employment in rural areas. The agricultural sector, therefore, not only underpins Kenya's economy, but also underpins the livelihoods of the majority of Kenyan people. On a regional scale, for example, approximately 75% of the population across sub-Saharan Africa are directly or indirectly dependent upon small-scale agriculture.

PSPs is a multi-stakeholder approach that is implemented in a five-step process:

- Step 1. Designing a locally relevant and appropriate PSP process, including deciding the level (e.g. national, county/province, district etc.) at which to conduct PSP and forming partnerships for support and sustainability of the process.
- Step 2. Preparing for a PSP workshop – through discussions with stakeholders at the chosen level, bringing out their information needs for the coming season and using this to plan for targeted workshop outcomes.
- Step 3. Facilitating a PSP workshop – held soon after national seasonal forecasts are released, creates a multi-stakeholder forum, bringing together meteorologists, local forecasters, community representatives, government ministries/departments, research institutions, NGOs/CBOs, county/district/commune governments and others to access, interpret and use seasonal forecasts and advisories to make climate informed decisions and plans for a season.
- Step 4. Communicating advisories from a PSP workshop – to reach all actors who need to use the information and in good time to inform their decisions and plans. This is done through various communication channels including community monitors, chiefs, religious

⁴ National Climate Change Action Plan, Risk Assessment Report (NCCAP-RAR) 2012.

⁵ Herrero M, Ringler C, van de Steeg J, Thornton P, Zhu T, Bryan E, Omolo A, Koo J & Notenbaert A. 2010. Climate variability and climate change and their impacts on Kenya's agricultural sector. International Livestock Research Institute (ILRI), KARI & International Food Policy Research Institute (IFPRI).

⁶ Kenya Agriculture Sector Development Strategy – Agricultural Sector Development Support Programme 2010 – 2020.

leaders, agricultural extension officers, community radio, print media, and email among others.

- Step 5. Feedback, monitoring and evaluation – to learn the challenges, benefits and impacts of PSP on decisions and choices and enable two-way communication and feedback between producers, intermediaries and users of climate information. This supports continuous, iterative and shared learning on climate information services and improving the PSP process and outcomes.

Emphasis is placed on ensuring a multi-stakeholder workshop setting over one to two days. The workshops are conducted as soon as a seasonal climate forecast is made available from the national meteorological services (i.e. the KMD). PSPs are consequently held in a particular area as many times in a year as there are rain seasons experienced. The PSP workshops create a space for meteorologists, community members, local government departments and Non-Governmental Organisations (NGOs) to share scientific and local knowledge. It allows stakeholders to find ways to combine and interpret these two sources of information – i.e. local knowledge and climate information available from meteorological services – into locally relevant and useful forms. Participants of the PSP workshops consider a number of factors in their assessment and develop scenarios that provide: i) probabilities of changes in the climate; and ii) assessments of likely hazards, risks, impacts and opportunities. The discussions on potential implications of these scenarios on livelihoods in the PSP workshops leads to agreements on plans that adequately respond to the identified levels of risk and uncertainty. These scenarios are then communicated to users and community members through multiple dissemination channels including *inter alia*: i) local radio; ii) chief meetings known as *barazas*⁷; iii) informal discussion; and iv) multi-media platforms such as SMS, MMS and WhatsApp.⁸

PSPs highlight the complementary nature of local and scientific knowledge and enable understanding of the different methods of climate observation and forecasting. This helps to build trust with regard to both sources of information and knowledge, encouraging participants to work together to support informed decisions and plans for livelihoods and DRR. PSPs are essential in environments where local knowledge is extensive and well-trusted⁹. Linking local knowledge of previous climate and livelihood impacts with past climate data can reinforce this further, and allow for improved interpretation of future forecasts.

To complement the upscaling of the PSP process, the International Fund for Agricultural Development (IFAD) has organised two learning routes in Kenya. These programmes include: i) bringing policy-makers and government staff from Ethiopia, Lesotho, Rwanda and Sudan together to learn from the PSP experience in Garissa County, Kenya¹⁰; and ii) updating national adaptation plans and committing to incorporate adaptation to climate change into relevant national policies and plans.

ALP also integrates the Local Adaptation Capacity (LAC) Framework into the PSP process. The LAC was developed by the African Climate Change Resilience Alliance (ACCRA) and analyses what communities do and how they do it, rather than looking at what the communities have¹¹. The LAC is enhanced by including communication and use of climate information in

⁷ *Baraza* is a Swahili word meaning public meetings organised by the village/location chief.

⁸ The various dissemination channels are described in detail in later sections of this report.

⁹ See further: the CICERO study for the GCFS in Tanzania.

¹⁰ Refer to Figure 1 for a map of Kenya including the positions of the 47 counties in relation to each other.

¹¹ Climate Investment Funds: Adaptive Capacity Assessment.

adaptation planning processes, enabling communities to live with the uncertainty and risk that climate change presents.

Furthermore, the Department for International Development (DfID) is funding a CIS initiative in Western Kenya¹² that falls under the Weather and Climate Information Services for Africa (WISER) programme. The WISER programme is commissioned jointly through KMD, CARE Kenya and the Meteorology Office in the United Kingdom (UK Met Office). The purpose of the WISER programme is to develop and deliver demand-led and decentralised services of the KMD in the counties of Kakamega, Kisumu, Siaya and Trans Nzoia. Forecasting from KMD will be streamlined to improve existing products and services, and will facilitate the delivery of new forecasts in response to demand from county users. Investments in improved seasonal forecasting techniques will produce better downscaled information that is disseminated well in advance of the rain season. Further to this, updates will be provided during the course of the rain season. The benefits of the WISER programme will include increased and better use of weather and climate information to inform decision-making and to minimise risks at the county-to household-level. This will reduce vulnerability of local communities to climate change and further contribute to economic growth and poverty reduction¹³.



Community rain gauge, Shantabaq, Stanley Mutuma 2014

¹² The full initiative is known as Decentralised Climate Information Services for Decision-making in Western Kenya.

¹³ Met Office UK. 2016. Decentralised climate information services for decision-making in western Kenya. Available at: <http://www.metoffice.gov.uk/about-us/what/international/projects/wiser/cis-kenya> [accessed 19.02.17].

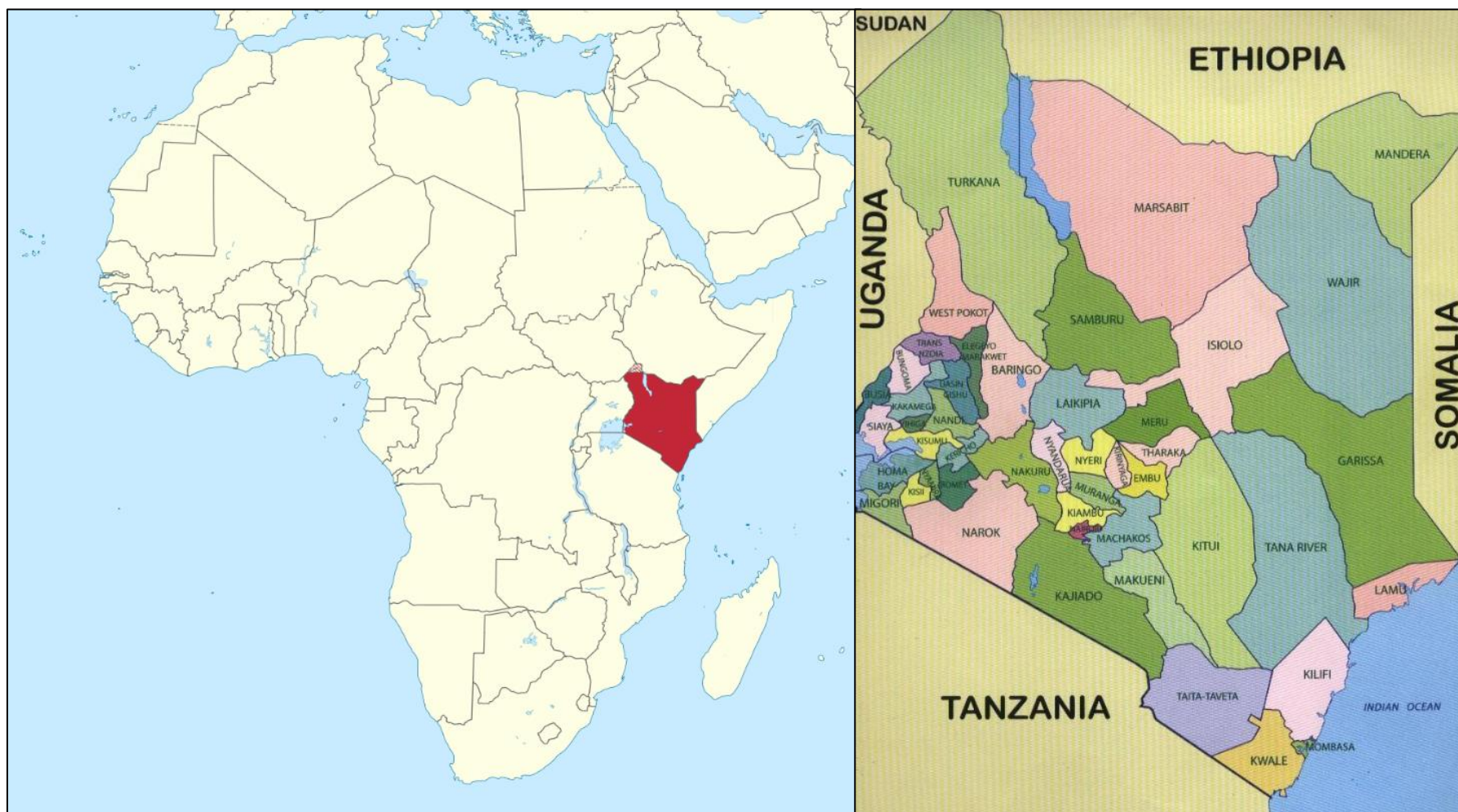


Figure 1. *Left:* Map of Africa indicating the location of Kenya in East Africa. *Right:* Map of Kenya indicating all 47 counties and the bordering countries. Source: SoftKenya.com 2017.

1.2. Objectives of the impact assessment

This impact assessment is part of the CARE-commissioned regional assessment of the impact of the ALP in developing CIS to address climate change adaptation in 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 to climate change. This will be done by generating learning and evaluating the effectiveness of CIS approaches developed by ALP and implemented through PSPs. In particular, the assessment aims to:

- develop a better understanding of the situations in which the ALP approach – through PSPs – to CIS has worked well, and in those situations where it did not, to advance the understanding of what works, where it works, for whom, and why;
- assess the overall value and impacts of CIS approaches developed by the ALP;
- draw on this understanding and assessment to advance and strengthen the continual upscaling of the PSP approach to CIS; and
- make recommendations for further development of good practices for user-based CIS.

This country report contributes to the overall regional assessment objective by using observations from past PSP reports, focus-group discussions (FGDs) and key informant interviews (KIIs) conducted in Kenya¹⁴. The interviews and discussions were structured as questionnaires to achieve the following:

- understand the level of PSP adoption/uptake and major changes or innovations of the PSP across time and space;
- assess success factors and barriers for the PSP process in different counties;
- evaluate the added value of each PSP principle in delivering user-responsive CIS;
- assess the level and effectiveness of communication sharing and use of tools;
- assess the value and impact of PSPs in Kenya, particularly how PSPs have strengthened adaptive capacity and community climate resilience; and
- assess the sustainability of the PSP process, communication and impact i.e. how it has enabled and can continue to enable user-based CIS for ongoing adaptation decision-making.

2. Analytical framework¹⁵

The analytical framework for this impact assessment was based on a social learning methodology and practice. The impact assessment is directed by the following underlying conceptual approaches: i) the CARE CBA approach; and ii) the subsequent LAC framework.

ALP notes that learning is 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.”

¹⁴ FGDs and KIIs are further outlined in Section 3.

¹⁵ The Analytical Framework provides a summary of the CARE regional impact assessment and underlying conceptual framework. A detailed breakdown is found in the Inception Report. The Final Regional Assessment Report will also include a further breakdown of the analytical framework.

Overall, successful adaptation is measured in terms of the learning and decision-making processes that *inter alia*: i) draw on knowledge about risks and uncertainties; ii) evaluate the planned and implemented response options; and iii) create the conditions for adaptation actions. Critically, adaptation and the enabling decision-making processes need to be dynamic in nature, not static. These processes constantly evolve and improve with newly emerging information and understanding.

3. Investigations and methods

3.1. Data collection

During the course of this impact assessment, four main tools were used for data collection. These were as follows.

- **Participation at selected 2016 PSP workshops.** In line with the objectives of the impact assessment, an exploratory mission was undertaken in Kenya to attend PSP workshops in Embu, Garissa and Nairobi to assess: i) the quality of PSPs; ii) participation during the workshops; iii) the overall social learning process; iv) products developed from the workshops; and v) dissemination of climate information in the different counties. Additionally, baseline information necessary for identifying participants for further assessment interviews and FGDs was collected. Consultations were held with relevant stakeholders and identified participants for in-depth discussions and KIIs during the surveys. Stakeholders from projects of similar initiatives that do not fall under the ALP umbrella were also consulted.
- **Literature review.** Extensive desktop reviews were undertaken to compare the objective and expected outcomes of the ALP initiative with its achievements. These reviews covered *inter alia*: i) the project document and baseline information; ii) the outputs produced during the project implementation period – such as publications and outcomes of capacity-building exercises; and iii) periodic progress reports produced during the project lifespan and various monitoring and evaluation (M&E) documentation – i.e. mid-term and terminal evaluations. These documents were reviewed to investigate the enabling factors underpinning the achievement of the project's expected outcomes, as well as to identify challenges involved in project implementation. The desktop review also identified case studies of successful implementation and derived lessons learned and best practices. The review concentrated particularly on the seasonal PSP reports produced by each county in Kenya. These were used to construct a metadata table to use as evidence to answer the three lines of investigations of the study, namely the implementation process, communication and impact¹⁶.
- **Key informant interviews (KIIs).** Face-to-face questionnaires were undertaken with the relevant participants and champions. These participants and champions were identified during the exploratory mission in Kenya and through consultations with CARE, and deemed relevant considering their: i) involvement in the PSP process; ii) role in the local community; and iii) gender, age and social grouping. The purpose of the KIIs was to: i) assess participants' perspectives on the PSP process, the steps, communication tools and impacts; and ii) generate evidence of CIS learning in the planning process, as well as sustainability and upscaling of the PSP process. Questions for the discussions were open-ended and included the themes outlined below.

¹⁶ The three lines of investigation are discussed in detail in Section 3.2.

- Participation in the PSP process: the participant's role, motivation, understanding of the steps and processes.
- Success factors and barriers to using PSPs.
- Range of benefits, i.e. evidence: practical examples of the before and after PSP in the local context.
- Evidence of the use of climate information in their activities: any relevant changes in response to interaction with PSPs.
- Challenges and recommendations for improvement of the dissemination of climate information through PSPs.

The relevant participants consulted for the data collection phase included three layers of stakeholders, namely national, county and members of local communities. In total, 57 KIIs were conducted with 5 national-level informants, 36 county-level informants and 16 community-level informants. Annex 1 provides the detailed list of all stakeholders interviewed.

- **Focus-group discussions (FGDs).** Group questionnaires were conducted in selected villages to capture the changes in local communities' knowledge, attitude and practice as a result of using PSP advisories and real-time rainfall information. Discussions were focused on the use of climate information and advisories as a decision-making tool and related evidence of increased capacity to adapt to climate change and variability. The FGDs were expected to be attended by 10–15 participants and to last for an average of two hours. In each selected village, two FGDs were held, one comprising only men, and one comprising only women. This make-up of groups was used to capture gender sensitive information. Within these groups, another division was made to separate the elders from the youth to minimise hierarchical influences. In total, 15 FGDs were undertaken with 6 women-only groups, 6 men-only groups, 2 youth-only group and 1 mixed group (women, men and youth). Annex 2 provides the detailed list of participants in all FGDs undertaken.

3.1.1. Selection criteria

To have a range of criteria for comparison, the following were used for the selection of counties for the KIIs and FGDs in Kenya.

- Different counties/districts were selected to capture a wide range of rainfall gradients. This range included those counties/districts in low, middle and high rainfall areas.
- Presence of other adaptation interventions, DRR and climate-resilient projects or programmes also involved in the PSP process.
- Presence of individuals and/or NGOs actively championing the PSP process.
- The establishment of a county climate change taskforce or working group specifically formed to facilitate PSP.
- The development of CIS plans – ongoing or completed.
- Diversity of livelihood sources and activities, sectors and institutional mandates.
- Number of years of PSP implementation – the number of PSPs conducted in the county/district to date.

The four counties selected for the study during MAM 2016 were Bungoma, Embu, Garissa and Murang'a.

3.2. *Lines of investigation*

As discussed above¹⁷, the main objective of the assessment was to generate knowledge and evaluate the effectiveness of CIS approaches developed by ALP in Kenya. These CIS approaches assist in the development and communication of information on climate and uncertainty to different community users to assist with seasonal decision-making. Furthermore, the assessment determined to what extent PSP workshops had been included in Kenya.

Three main aspects were investigated for the impact assessment, namely: i) the implementation process – i.e. the method; ii) communication channels; and iii) the use and impact of CIS. A fourth line of investigation was the sustainability of the PSP process, the different channels of communication, the level of dissemination and impacts.

3.2.1. Line 1: implementation process

The development of the ALP approach to CIS – namely the PSP process – has over the years revealed several fundamental principles for its successful implementation. CARE has collated these principles which are summarised below¹⁸.

- **Inclusivity of the CIS user.** The PSP process aims to include all users of climate information. This is to ensure the roles and contributions of each user is recognised and accounted for in the development of advisories. Users include women and men of different ages and ethnicities. A strong emphasis should be placed on users that take part in the PSP process and participate in the development of an efficient service that readily responds to their needs.
- **Timing of PSP workshops.** Ideally PSP workshops should be conducted as soon as seasonal forecasts are released by the national meteorological services¹⁹. This would ensure that there are no delays in disseminating vital information that users – particularly farmers – need to prepare for the ensuing rain season.
- **Feedback mechanism.** To continuously improve and develop the PSP process, a feedback mechanism is needed to include input from the users following the end of the rain season. This feedback mechanism would take the form of a review that focusses on user satisfaction with the advisories from the previous season. The following questions would be included in the review: i) how were advisories communicated to them; ii) which communication tools were used; iii) when were advisories received; and iv) how useful were the advisories.
- **Factoring in uncertainty.** It is essential to communicate uncertainties in seasonal forecasts to users. Uncertainty is presented as a probability in the developed scenarios. The consideration of uncertainty allows for flexible decision-making on adaptation planning. All scenarios developed during group discussions should be communicated to users so that they may make informed decisions for all potential scenarios.
- **Multi-stakeholder approach.** The PSP process aims to create a multi-stakeholder platform to promote dialogue among state and non-state actors at different levels. Such a platform promotes the co-production of climate information which results in a user-responsive service.
- **Dissemination.** It is essential that the advisories developed during PSP workshops are communicated in a timely manner to all users to enable preparedness in anticipation of

¹⁷ See Section 1.1.

¹⁸ CARE ALP. 2015. Climate information for resilient agricultural decision-making and planning: A practical guide to Participatory Scenario Planning. Draft version.

¹⁹ In Kenya, specifically the KMD.

the ensuing rain season. The relevant users include *inter alia*: i) line ministries within the national and county governments; ii) NGOs/community-based organisations (CBOs); iii) local communities; and iv) research institutions.

- **Advisories presented as options.** The advisories developed during the PSP workshops need to be communicated to all actors as options rather than instructions. This is to promote flexible decision-making by individuals based on the predictions for the local context.

The PSP process entails five steps, which are outlined below²⁰.

- Planning and developing a well-structured, locally-relevant and appropriate PSP process. This includes deciding the level – i.e. national versus county – at which to conduct PSPs and forming partnerships for sustainability of the process.
- Preparing for the PSP workshop in the upcoming rain season by engaging stakeholders. Involving the relevant stakeholders in the preparation of the workshop allows for valuable information for the coming season to be incorporated into the planning thereof.
- Facilitating a PSP workshop to create a multi-stakeholder platform to discuss: i) access to CIS; ii) understanding of CIS; iii) combining meteorological and local seasonal forecasts; and iv) translation of CIS data to locally-relevant and locally-actionable information for seasonal decision-making and planning.
- Communicating the advisories developed during PSP workshops to reach a wider and more targeted audience with a demonstrated need for the information.
- Using the feedback mechanism of the PSP process as a two-way communication between all producers, intermediaries and users of climate information. This would enable: i) continuous, interactive and shared learning; and ii) improved PSP process and outcomes.

Analysing Line 1 – the implementation process – involved assessing the overall quality of the process, focusing on: i) how the process is run and how successful it is; ii) if the process is adopted in line with the above principles; and iii) if any modifications have been made to the original PSP approach and the reasoning for these changes. This assessment has been conducted across select Kenyan counties²¹. It will then be compared with the implementation process across other countries at a later stage²². This will assist the development of best practices and guidelines for future adoption, upscaling and institutionalisation of CIS further across Kenya and in developing African nations.

Line 1 involves two main aspects described below.

- Evaluate to what extent the principles of the PSP process are maintained when the approach is adopted, replicated and upscaled, and to further evaluate how the process may have been adapted and changed. This evaluation includes assessing: i) the differences between different counties and their PSP implementation; ii) any modifications and/or innovative approaches to PSP implementation; iii) any features and/or drivers resulting in poor PSP implementation; and iv) all success factors as well as barriers and challenges to the implementation of PSPs across the different Kenyan counties.
- Evaluate the added value of each PSP principle in delivering user-responsive CIS. This evaluation involves analysing the extent and value of: i) involving all relevant stakeholders

²⁰ CARE ALP. 2015. Climate information for resilient agricultural decision-making and planning.

²¹ The selection of counties for field data collection is discussed in Section 3.1.1. above. For previous PSP reports reviewed, counties were selected based on availability of data, see Section 4 below.

²² This will be compiled in the final regional assessment of the CARE ALP initiative across Ethiopia, Kenya, Ghana, Malawi and Niger.

in the PSP process; ii) conducting PSP workshops as soon as seasonal forecasts are available from the national meteorological services; iii) ensuring multi-stakeholder interactions – i.e. between producers, users and intermediaries – during the PSP workshop; iv) interpreting seasonal forecast probability and uncertainty; v) ensuring the PSP process includes integrating feedback on specific climate information needs; and vi) presenting advisories as options – rather than instructions – to encourage users to make their own decisions and take actions relevant to their contexts.

3.2.2. Line 2: communication

Assessing the level and different forms of communication helps to understand the differential reach of the advisories. For this reason, communication formed Line 2 of the analysis. Communicating the advisories from PSP workshops to the intended audience of users across multiple livelihood and vulnerability groups at the local level is important in determining the success of a particular PSP process. Furthermore, it supports informed decision-making and planning for all stakeholders. Communication of advisories should be inclusive, reaching all genders and groups, local governments, organisations, private sector actors and other users within the chosen level. The timely communication of advisories is critical to empower stakeholders to take appropriate actions. Assessing the timely delivery of advisories and communication involved three aspects that are outlined below.

- Evaluate the quality of advisories communicated in relation to: i) responsiveness to climate information needs by users at different levels; ii) the reach of information; and iii) the inclusion of El Niño-specific information in communications. This includes advisories developed and communicated during the OND 2015 rainfall season.
- Evaluate the range of communication channels and their level of access by the different user groups, including: i) women; ii) men; iii) youth; and iv) other vulnerable groupings.
- Analyse barriers and opportunities for accessing climate information.

3.2.3. Line 3: use and impact

An assessment of the use and impact of the PSP process will provide evidence of the value and impact of PSPs on decision-making for: i) community livelihoods; ii) support and services at the local level (i.e. considering government sectors and different organisations involved as intermediaries); and iii) national/county/district-level meteorological services. To assess the use and impact of the PSP process in each county, each stakeholder grouping was considered separately – namely users, producers and intermediaries. The analysis of these groupings is briefly explained below.

- Users (i.e. farmers and agro-pastoralists). Assess: i) how seasonal forecasts and advisories are being integrated into decision-making and actions; and ii) if climate information needs are being met through information provided from the PSP process.
- Producers (i.e. the KMD). Assess: i) the level of understanding of different user information needs; and ii) the need to develop more user-responsive climate information products and services.
- Intermediaries (i.e. government sectors and NGOs). Determine the provision of climate-informed agriculture, DRR measures and other sectoral services to different users.

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

The sustainability of the entire 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 a continued user-based CIS for ongoing adaptation decision-making.

The analysis for the fourth line focused on the evidence of sustainability in different counties and contexts. The approach assists with identifying the enabling and challenging 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 PSPs attended, FGDs and KILs as well as the data from the review of past PSP reports and focuses on addressing the lines of investigations identified in Section 3.2.

The analyses are qualitative, with focused analysis conducted on the responses to 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, whilst interpretative results are what the data means. Additionally, case studies have been identified to illustrate assessment findings and lessons learned. From these, recommendations have been made to improve ALP's ongoing CIS approaches and inform broader development and support for user-based CIS in Africa.

4.1. Implementation process

Following the implementation of the PSP process in the 2016 rain season across different counties and based on previous PSP implementation, the assessment of the implementation process focuses on analysing the quality of the PSP process in different Kenyan counties. The assessment goes further to include the means and effectiveness of the PSP approach has been adopted in relation to key good practice principles, modifications being made to the PSP approach and the reasons for them across selected counties. This approach of including these focal points in the assessment is to inform good practices for further adoption, upscaling and institutionalisation of CIS.

These focal points are discussed in detail in the following sub-sections. Each sub-section is further divided into observations and analysis to illustrate the description and interpretive results.

4.1.1. Differences in Participatory Scenario Planning processes across counties

The differences in PSP processes across various Kenyan counties highlight several good practices. These practices are based on the essential principles and steps identified for successful implementation of the PSP process that considers improvements and innovations in design and implementation, and the potential of the process to be upscaled.

Observations

The main changes observed over the years of PSP implementation²³ across different Kenyan counties revealed through KIIs and during FGDs are summarised in point form below. Table 1 expands on each one of the points.

- **Reduced number of workshop days.** This change is because of insufficient funding for the process. Limited funding has often compromised the quality of advisories generated because of limited time to analyse past scenarios. However, in some counties, the reduced number of days has been described as a positive change as it has helped reduce workshop costs, made the process more focus-driven and has reduced the amount of days that farmers need to be away from their work.
- **Reduced number of stakeholders.** This is attributed to insufficient funding. Reduced stakeholder representation is likely to compromise representation from all relevant sectors. For example, in Garissa – one of Kenya's largest counties – the number of communities represented has decreased over the years. This is likely to slow the process of climate information dissemination to all relevant users on the ground. However, in some counties, the preparation of the PSP process includes working groups that meet prior to the workshop to deliberate and scale-down the forecast, resulting in a positive turn-out of stakeholders at the workshops. This means that the workshop only serves to generate advisories and for information dissemination. Because the preparatory meeting encouraged stakeholder participation, the workshop therefore only requires a small technical group and intermediaries to further refine the advisories.
- **More localised PSP workshops.** In some counties, PSPs are conducted at a sub-county level for three main reasons: i) reduced costs; ii) wider reach of users; and iii) a reduction in time spent in conducting PSPs to ensure effective dissemination of information before the onset of the rains.

Table 2 and Table 3 include further details on the above observations. Additionally, the following modifications and innovations from the PSP workshops were observed during real-time observations of CARE ALP representatives.

- In Embu, using cards to write down the risks, opportunities and hazards when developing the three scenarios.
- In Garissa, dividing the group according to different value chains to establish the Climate Change Working Group (CCWG).
- In Nairobi, using visual material such as photos and videos in the presentations to demonstrate practical examples for participants to better understand what they are developing with the advisories.
- In Kiambu, discussing climate-smart agriculture with the participants before the development of the advisories.

²³ The year of implementation differs for each county.

Table 1. Main differences in PSP processes across counties observed from the key informant interviews (KIIs).

County	Main PSP changes over time	Reasons for changes
Garissa	Expansion of covered area – from CARE-specific areas to county-wide	Funding mainly from ASDSP – i.e. a county-wide programme
	Reduced number of workshop days from two to one	Limited funding
	Timeliness of dissemination – began on the final day of the workshop	To allow dissemination to start as early as possible before rain season
	Change in the main funding source – ASDSP took over from CARE and now includes other funders including <i>inter alia</i> ADESO, Kenya Livestock Marketing (KLM) and Woman Kind	Interest in and the value of PSPs is growing
Embu	No change identified by key informants since the start of the process in 2014	<i>No change observed</i>
Murang'a	Sub-division of the covered area – from only one county-level PSP to eight PSPs at sub-county level	The county is large and has different climatic zones – sub-division allows the development of more context-specific advisories
	Reduced number of participants	Limited funding
Bungoma	Reduced number of workshop days	Limited funding
	Reduced number of participants	Limited funding
	Inclusion of youth representatives amongst stakeholders	To ensure that all categories are included



Agropastoralist in Garissa Kenya reading PSP advisories. Credit: Eric Aduma/ALP 2014

Table 2. Summary of PSP workshops during exploratory mission for the MAM 2016 season.

County	No. of participants	Stakeholder representation	PSP workshop dates	Dissemination channels and timeliness	Quality of advisories
Embu	77	<ul style="list-style-type: none"> Kenya Meteorological Department Kenya Agricultural Research Institute (KARI) National Drought Management Authority (NDMA) Sub-county Department of Livestock Production Other county and sub-county government officials Environmental department CBOs Faith-based organisations Chiefs and students 	<ul style="list-style-type: none"> 7–8 March 2016 	<ul style="list-style-type: none"> <i>Barazas</i> 	<ul style="list-style-type: none"> An advisory on conflict management is included to prevent conflict over resources in times of reduced rainfall. To manage this, different ministries need to be working together. Recipients of advisories were satisfied and integrated them into the pre-season planning. Those who received second-hand information – through informal discussions etc. – communicated similarly.
Garissa	56	<ul style="list-style-type: none"> ASDSP Rice Marketing Council Met office Ministry of Agriculture Sub-county Office County Office Livestock Department Water Department Farmers NDMA County commissioner representative Chiefs Women representatives Kenya Broadcast Cooperation 	<ul style="list-style-type: none"> 9–10 March 2016 	<ul style="list-style-type: none"> Funds are used for <i>barazas</i>, brochures and announcements in mosques. Currently, no other media is used to disseminate information to the community. Timeliness of advisories was not adequate, entire crops were lost. 	
Nairobi	14	<ul style="list-style-type: none"> Kenya Forestry Services County Livestock Department ASDSP Kenya Red Cross Environment County KMD Murang'a KMD Community without borders 	<ul style="list-style-type: none"> 14–15 March 2016 	<ul style="list-style-type: none"> Banners have been abandoned. 50% of dissemination budget was dedicated to banners – only one person reported seeing one. City county decides where the banners are placed which is limiting because the chosen sub-locations are not always in well- 	<ul style="list-style-type: none"> People were generally alert and responsive to advisories, e.g. leaving the city early.

County	No. of participants	Stakeholder representation	PSP workshop dates	Dissemination channels and timeliness	Quality of advisories
		<ul style="list-style-type: none"> CARE Nairobi Water Council Nairobi City County Ministry of Agriculture and Fisheries Kenya Power Kenya Red Cross 		<p>trafficked areas, i.e. the information is not made available to everyone. In addition, there are too many banners in the city, so one on forecast warnings does not stand out.</p> <ul style="list-style-type: none"> Currently using posters, emails, <i>barazas</i>, radio and the AMS website. Visual representation of effectiveness of the applied channels and the response of the seasonal climate advisories is helpful. 	

Table 3. Main highlighted observations from the three PSP workshops in Embu, Garissa and Nairobi from the exploratory mission in Kenya in March 2016.

County	Highlighted observations
Embu	<p>General</p> <ul style="list-style-type: none"> ~10% of participants were present at PSP last year. Embu County – just as with Garissa – needs a task force to communicate the advisories. Support was requested from the county government to create a committee/task force to steer PSPs – i.e. mobilise resources, interact with stakeholders and other counties. Through this taskforce, CARE's role would be adopted. Participants shied away when asked what indicators from traditional forecasts are – the reason for this is unclear. Group discussions to develop advisories were divided by ecological zones. Each grouping had to develop advisories for each ecological zone. <p>Strengths</p> <ul style="list-style-type: none"> Language of the workshop was decided at the start by participants and facilitators together. Facilitator identified people to play specific roles including: i) team leader to summarise the workshop at the end; ii) timekeeper; iii) energiser for when energy levels dropped; and iv) a spiritual leader. Indigenous knowledge is promoted by asking all attendees to participate as the PSP process is to identify and exchange knowledge. Role of El Niño in planning for future was discussed at the very beginning of the workshop. <p>Shortcomings</p> <ul style="list-style-type: none"> Representatives from the county-level planning department were not present. Participants reminded facilitator to always conduct prayers before an event.

County	Highlighted observations
	<ul style="list-style-type: none"> Dictionary definitions were used to explain the hazards table for the developing of the advisories. These definitions did not accurately represent what was needed from the table.
Garissa	<p>General</p> <ul style="list-style-type: none"> In 2011 in Garissa, at the end of the first PSP, a task force was established where representatives of key sectors were represented, including health, agriculture and gender. After this success, CARE decided to replicate the process in other counties and the process has now been taken over by ASDSP. Support from the ASDSP has enabled the upscaling of the PSP process to all 47 counties. Group discussions were divided by production i.e. beef/agriculture/camel milk. <p>Strengths</p> <ul style="list-style-type: none"> Facilitator set rules and norms for the workshop including: i) respect people's opinions; ii) mobile phones on silent; iii) prayers at 13h00 and 16h00 – not included in the agenda; and iv) minimum disruption. The facilitator asked the group to select a: i) president; ii) time-keeper; iii) spiritual leader; and iv) welfare person to make sure tea and lunch were served. Local knowledge from the elders corroborate the scientific information generated by the KMD. This makes the seasonal forecast more robust as traditional local knowledge corroborates it. Opportunity to scale up to other sub-counties. Presentations that use visuals help to explain the El Niño effect in the scientific forecast. The visuals in effect 'translate' the information well to the participants. PSP impacts are better understood in Garissa than in Embu. The impacts to consider for users cover food security and impoverishment, with detailed technical information provided during discussions. <p>Shortcomings</p> <ul style="list-style-type: none"> No overview presentation was given in the plenary session to the stakeholders present at the PSP – as was done in Embu. PSPs can be improved to provide more accurate information. It is important that downscaled forecasts are shown visually. To a farmer in Garissa, the amount of rainfall in the north of the country is irrelevant whereas county-specific information is relevant and appeals to all the participants.
Nairobi	<p>General</p> <ul style="list-style-type: none"> The term 'cessation' should be clearly explained upfront and the definition should be included in all advisories e.g. in brochures. The accuracy of seasonal forecasting is important to present to participants. Groups were divided based on sectors i.e. disaster/agriculture/water/environment. <p>Strengths</p> <ul style="list-style-type: none"> The M&E process was deemed robust. Information was technical but was explained clearly. There was a good review of previous OND season with a good demonstration of rainfall per month. Presentation of the basis for forecasting strengthens the process, as it shows how the information is determined. Although it is highly technical, an understanding of underlying principles is important for understanding forecasting. <p>Shortcomings</p> <ul style="list-style-type: none"> Traditional forecasting may not exist in Nairobi as it is an urban centre. No specific roles were identified for participants as has been done in Embu and Garissa. Day 2 of the workshop had hardly any discussion, with many participants arriving late. The KMD should take more responsibility in coordination as PSPs are their mandate.

An overall review of past PSP workshops reports revealed the following main differences across the counties. Annex 3 includes further details specific to each county.

- **Conducting workshops at different county levels.** While the introductory PSP workshop is organised at the county level, a few counties in later seasons organised PSPs at more localised levels. These levels included: i) sub-county level e.g. Murang'a and Lamu Counties; and ii) community level e.g. Homa Bay County.
- **Number of workshops days.** The duration of the workshops varied between the counties from one to two days. Approximately 25% of the counties have reduced the number of workshop days to one²⁴.
- **Formation of discussion groups.** A varied approach was taken in different counties in forming discussion groups. Some workshops took a spatial approach where participants were divided according to agro-ecological zones or sub-counties²⁵. Other counties took a sectoral approach where participant groupings were divided according to economic sectors²⁶ or agricultural value chains²⁷. Another approach observed during the workshops was to split discussion into three groups representing the three different scenarios namely: i) above normal rainfall; ii) near normal rainfall; and iii) below normal rainfall.²⁸ The groups would then develop advisories according to hazards, risks, opportunities, impacts and actions.
- **Dissemination planning.** During PSP workshops, dissemination was not discussed explicitly across all counties. In most counties, the organising committee agreed on the dissemination plan after the workshop, while others developed a dissemination plan during the workshop²⁹. For example, in Lamu County, a representative group was selected to carry out the dissemination. Another observed difference was that dissemination may be value chain-oriented rather than based on coverage area. Examples of this include: i) Baringo County where the dissemination for 2015 focused on hotspot areas for El Niño; ii) Murang'a and Kakamega Counties where the value chain approach to advisory dissemination was deemed more important because the majority of the participants were representatives from various value chains; and iii) Kakamega County where not a single chief was invited to the meeting so *barazas* would not have been useful in dissemination.

Analysis

The original principles and steps of conducting PSPs have generally been maintained across the country from the start of the PSP process in 2011 in Garissa County to its expansion across all 47 counties. This is a direct result of the Ministry of Agriculture, Livestock and Fisheries being responsible – through ASDSP – for implementation across all counties.

The major change observed across most counties has been a reduction in the number of days to conduct the workshop. The reduction in days has been largely because of budget restrictions and has hindered the quality of the PSP process in some counties. FGDs in Garissa and Murang'a Counties revealed that the timeliness and delivery of CIS decreased

²⁴ Counties with two-day workshops: Baringo, Bomet, Embu, Homa Bay, Kirinyaga, Kitui, Kwale, Laikipia, Lamu, Machakos, Makueni, Mandera, Meru, Migori, Murang'a, Nairobi, Nakuru, Nandi, Nyamira, Samburu, Siaya, Trans Nzoia and West Pokot. Counties that have reduced the number of PSP workshop days to one: Bungoma, Elgeyo Marakwet, Garissa, Isiolo, Kajiado, Kakamega, Kiambu, Kilifi, Nyandarua, Taita Taveta, Tana River and Wajir.

²⁵ For example, in Baringo, Bomet, Kilifi, Machakos and Nairobi Counties.

²⁶ For example, in Kisumu and Nakuru Counties.

²⁷ For example, in Kakamega and Lamu Counties.

²⁸ For example, in West Pokot County.

²⁹ For example, in Elgeyo Marakwet, Embu, Homa Bay and Makueni Counties.

because of the reduced number of PSP workshop days as well as reduced funding. Reports highlight that discussions are too brief during the shortened workshops and consequently advisory development and dissemination are limited. During the MAM 2016 workshops in Garissa and Kiambu, discussions on uncertainty and probability were excluded from the one-day workshop. By contrast, in Embu and Nairobi Counties, the two-day workshops included in-depth discussions on uncertainty and probability as well as the importance of understanding the forecasts³⁰.

The reduction in the number and variety of stakeholders for participation in the PSP process is likely to ultimately compromise one of the main principles of PSPs, namely provision of a 'multi-stakeholder platform'. Such a platform would promote dialogue among state and non-state actors at different levels for the co-production of climate information. The absence of this platform will compromise social learning, i.e. the sharing, understanding and interpreting of climate information and learning. It is consequently recommended that PSP organisers should find a balanced trade-off between budget restrictions and the integrity of the PSP multi-stakeholder principle.

Organising a PSP at a sub-county or lower level results in increasing the reach of PSPs in both the number of individuals reached as well as amount of information provided. Furthermore, deepening the level of PSPs conducted results in advisories that are more aligned with local conditions and diversified to cater for different agro-ecological settings. For example, during OND 2015 in Murang'a County³¹, two sets of advisories were developed, namely for areas in the: i) upper zone³²; and ii) the lower zone³³. The two advisories included nuanced differences specifically tailored to crop production and the ideal seeds to plant for the predicted season in the two different zones.

A decision as to the scale at which to organise PSPs depends on many factors including *inter alia* budget and technical capacity. The change to conduct PSPs at deeper and lower levels has been found to greatly encourage the process amongst communities. PSPs at the local level provide a platform for more locally-specific advisories to be developed which are more relevant to users and therefore more likely to be adopted. The trade-off however, is that there is minimal cross-community planning, complementarity or discussions about transboundary challenges. These are essential when it comes to access and control over natural resources in pastoral areas and high production croplands.

Differences in the formation of discussion groups during the workshops were largely county-specific. The different approaches shaped the discussions to a certain extent but did not explicitly deviate from or compromise the principles of the PSP process. Advisories

³⁰ Another example of this was observed during the Kisumu County workshop, where facilitators eliminated discussion of dissemination and sustainability. See further: PSP real-time observations during the MAM 2016 season. Reported from ALP team representative.

³¹ Kuria GG & Ersi O. 2016. Participatory scenario planning report Murang'a County OND 2015. ASDSP Murang'a CCU.

³² Namely, Kimorori, Wempa Sabasaba, Kaharati, Ichagaki, and Nginda zones in the upper zone in Murang'a County.

³³ Namely, Kiri-miri, Makuyu, Kambiti, Kamahuha, Iganjo, Kamuiru and Maragua ridge in the lower zone of Murang'a County.

developed through the different groupings were open to interpretation by the local organising committees. The different approaches to setting up discussion groups demonstrated the flexibility that is necessary for successful and sustainable PSP workshops.

4.1.2. Success factors and barriers for the Participatory Scenario Planning process in different counties

Observations

KIIs revealed that there are differences in the barriers and success factors in conducting PSP workshops across counties. These differences are highlighted across four counties in Table 4. The most common challenge encountered across all counties was the limited availability of resources for effective dissemination of the advisories, particularly at the sub-county level³⁴. In Garissa and Murang'a County, KII participants reported that there were an insufficient number of rain gauges and weather stations to enable reliable downscaling forecasts. In Bungoma County, KII participants identified the lack of sufficient technical capacity of the KMD to produce accurate weather and climate forecasts as a main challenge.

Barriers identified by the KII participants to the success and continuation of the PSP process at the community, sub-county and county level in Kenya included:

- budget constraints reducing the number of stakeholders involved in the workshops and limiting the dissemination process (because the information reached a smaller number of intended users);
- buy-in from the county government into the PSP process;
- the timely production of the forecasts; and
- the timely dissemination of advisories.

According to KII participants, PSP success (Table 4) relies on the following critical factors:

- uptake of the concept by several organisations;
- integration of local and scientific knowledge;
- creation of the PSP organising committee involving many technical departments; and
- timeliness of the forecasts and advisories.

³⁴ The survey revealed that Agricultural Extension Services at sub-county level are usually in charge of the dissemination of advisories, working together with the KMD and other departments. This will be discussed more in Section 4.1.2.6 and 4.2.

Table 4. Challenges, success factors and barriers of the PSP process as determined from key informant interviews (KIIs) conducted in four counties, namely Bungoma, Embu, Garissa and Murang'a.

	Garissa County	Embu County	Murang'a County	Bungoma County
Challenges				
Data collection for reliable downscaling forecasts	X		X	
Limited staff and financial resources, equipment and transport for dissemination purposes	X	X	X	X
Limited technical capacity of KMD agents				X
Success factors				
Uptake of the concept by most partners	X	X	X	X
Community ownership of PSP	X			
Integration of traditional knowledge together with scientific knowledge	X		X	X
PSP process is informative and interactive	X			
Creation of a local PSP-organising team	X			X
Buy-in from the county-level government			X	X
Timing of the advisories	X	X		X
Ability to follow-up and ensure advisory implementation			X	
Barriers				
Limited funding	X	X	X	X
No buy-in from county-level government	X	X		

During the PSP workshops for MAM 2016, a number of challenges, barriers and success factors were identified across the three counties (Table 5). The difficulty in explaining the meaning of important terms during the workshop proved to be a challenge. For example, these terms included, hazards, risks, probability and uncertainty. Many groups struggled for example to differentiate between what constitutes a risk versus a hazard. The explanation of such terms is important for the group discussions and development of advisories. In Embu, the inability to effectively explain these terms was linked to the high illiteracy rate of the community and has been identified as one of the main challenges.

Other barriers for successful PSP results and sustainability of the process in Kenya were related to the limited financial and technical resources. Producing forecasts and ensuring wide advisory dissemination in a timely manner relies on the presence of these resources. During the review process in Embu, MAM 2016 participants identified the lack of technical expertise on climate-smart agriculture technologies as a challenge to producing relevant advisories to the communities. In Garissa, participants identified the lack of clear guidelines and procedures to capture the benefits of the PSP process as one of the main barriers. This highlights a M&E challenge.

In terms of critical success factors: participants from both Garissa and Nairobi PSP workshops identified the review of the PSP process for the previous season as a critical success factor. Timely organisation of PSPs and dissemination of advisories were also identified as critical. In Garissa, the communities' adoption of the PSP process was identified as one major success factor. By contrast, in Nairobi, communities differed in their trust of seasonal climate forecasts. Participants noted that without trust, the PSP process was considerably undermined.

Table 5. Summary of challenges and success factors by PSP participants during MAM 2016.

Garissa	Embu	Nairobi
Challenges		
<ul style="list-style-type: none"> • Security • Funding • Insufficient logistics for advisory dissemination • Unclear guidelines and/or procedures for PSPs • Large illiteracy rate • Selecting a competent individual from the community for rain gauge data collection 	<ul style="list-style-type: none"> • Limited technical expertise on climate-smart agriculture technologies • Finding new ways to expand outreach of advisories • Finding indicators for traditional forecasts as a result of environmental degradation • Providing more context (agro-ecological zones) relevant to advisories • Adequately explaining important terms during the workshop (e.g. hazards, risks, probability and uncertainty) 	<ul style="list-style-type: none"> • Funding • Insufficient logistics for advisory dissemination • Community distrust on seasonal climate forecasts
Success factors		
<ul style="list-style-type: none"> • Growing ownership of the PSP process by communities • A drafted bill for a County Adaptation Fund is in process • Free CIS to users • Engagement of traditional forecasters • Reviews build trust in the system 	<ul style="list-style-type: none"> • Starting of climate-field school 	<ul style="list-style-type: none"> • Good review process of previous OND
Failure factors		
<ul style="list-style-type: none"> • Late production of advisories 	<ul style="list-style-type: none"> • Non-participation of county level planning department 	<ul style="list-style-type: none"> • Poor timing of PSP as a result of heavy bureaucracy • High absentee level during second day of the workshop

A review of past PSP reports revealed that counties experience different challenges in terms of continuity and sustainability of the process. There are, for example, variations in the identified critical success factors across different counties. However, there was a common barrier identified, namely: i) securing adequate resources to facilitate dissemination; and ii) a need to extend the PSP process to a more localised level to produce locally-specific and relevant advisories.

Overall, planning and facilitation of PSPs was identified as a critical success factor across many counties. The full participation and engagement of traditional forecasters in the PSP workshops had a direct impact on the success of the PSP. County-level engagement and timely production of the advisories were also relevant success factors (Table 5 and 6).

Table 6. Summary of challenges and success factors from the review of past PSP reports.

Challenges	Counties
The need to extend PSP to the community level	Bungoma
Inclusion in county government	Laikipia; Tana River
Timely organisation of PSP workshops	Bungoma
Adequate resources to facilitate dissemination	Bungoma; Garissa; Kilifi; Migori
The need to shift the focus of PSPs from agricultural-centric to include other sectors	Kakamega
Overlapping ecological zones for making area-specific advisories – makes advisories difficult to follow	Kwale; Laikipia
Success factors	Counties
Engagement of traditional forecasters – full participation and harmonisation with scientific forecasters	Baringo; Bomet; Elgeyo Marakwet; Kisumu; Marsabit; Samburu; Vihiga
Awareness raising amongst communities	Bungoma; Garissa
Timely and effective delivery of advisories	Bungoma; Kisumu; Nairobi
Establishing a good working relationship between KMD and ASDSP	Bungoma
Dissemination plan developed	Elgeyo Marakwet; Embu; Makueni, Mandera
Advisories delivered in English and local languages	Embu
Good overall planning and facilitation	Garissa; Homa Bay; Kirinyaga; Kitui; Laikipia; Mandera; Marsabit; Meru; Nandi; Trans Nzoia; West Pokot
Participation from county-level government	Marsabit; Murang'a; Trans Nzoia

Analysis

A cross-analysis of the identified success and failure factors, barriers and challenges³⁵ from the three sources of observations reveal that the following were critical to the delivery of CIS through the PSP process.

- **Institutionalisation of feedback processes.** A feedback system helped to determine whether: i) users received the information they needed; ii) the information was reliable; and iii) there was a process for identifying gaps for future improvement.
- **Timing, reach and effectiveness of dissemination.** This entails not only the timely production and dissemination of forecasts and advisories, but also the extent of their reach in terms of number of users and user categories.
- **Accuracy and relevance of the forecasts and advisories.** Adequate coverage of the area in terms of weather stations is necessary for more accurate downscaling of forecasts and organisation of PSPs at the local level for the production of area-specific advisories.
- **Building of trust, ownership and appropriation of the process** for full engagement by the community and the local county government. This promotes the uptake of advisories and ensures the sustainability of the process.

The above four critical factors are interlinked for the overall success of the PSP process. Specifically, delivering user-responsive CIS (including advisories that are received, understood and acted on) and for ensuring the process is sustainable. A review process should be included into the overall PSP process. This would assist with getting communities to trust the process as well as building ownership of the process within the community. It would also result in the inclusivity of communities and the integration of local knowledge and scientific forecasts. In addition to the review process, engaging local government in providing financial and technical support for the production of accurate and relevant seasonal climate forecasts and advisories is of critical importance for shifting PSPs being viewed as short-term – through

³⁵ See Table 5.

ASDSP and CARE – to a long-term, sustainable programme. The above-described elements were identified in this assessment as critical factors to be included in PSP design as core principles for the process. In most counties, these critical factors were still found to be challenges and have yet to be overcome. Indeed, there was no Kenyan county where all the identified success factors were found to have been achieved. Some counties were, however, found to be managing the lack of these elements relatively well³⁶.

4.1.3. Participatory Scenario Planning principles in delivering user-responsive climate information services

The PSP process entails seven fundamental principles outlined above³⁷. This section breaks the process down using six of the steps. The seventh one is discussed in Section 4.2. on communication.

4.1.3.1. Involvement of all relevant stakeholders to enable a responsive participatory process

Observations

Previous PSP reports for all counties since the beginning of the process³⁸ and participation levels during MAM 2016 of selected counties were reviewed to assess total participant numbers, gender representation and types of stakeholders. Observations are summarised below.

- **Total participant numbers.** From 2014 to 2016, the number of participants attending PSP workshops varied between 30 and 80. The number of participants has varied considerably through time and between counties. In Wajir County, the number of stakeholders decreased from ~80 during MAM 2014 to less than 40 at the subsequent PSP during MAM 2016. Whilst in Garissa, participant numbers were consistent at ~50, in other counties – such as Nakuru and Tana River – there was no consistent trend of participant numbers (Figure 2).

³⁶ Detailed discussions on how these principles – necessary for a successful PSP process – can be achieved and evidence on how it has been adopted in different counties is provided in Section 4.1.2.

³⁷ See Section 3.2.1.

³⁸ The beginning of the PSP process varies between counties.

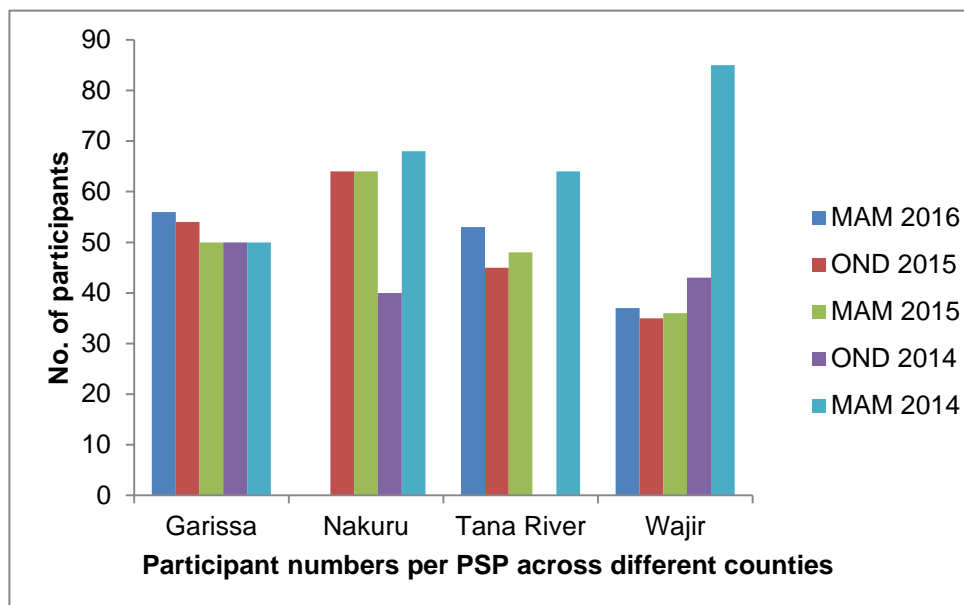


Figure 2. Number of PSP participants across four selected counties for the period 2014 to 2016.

- Gender consideration.** During OND 2015, women participation in PSPs varied across the counties. In Baringo County, women made up 77% of participants while in other counties – for example, Laikipia – less than 15% of the total workshop participants were women. Generally, women participation varied between 10% to less than 50% of the total workshop attendance across all counties (Figure 3). Wajir County decreased from ~25% in MAM 2014 to less than 15% during OND 2015. In Garissa County, participation by women varied over the years between 20% and 25% with no clear trend (Figure 4).

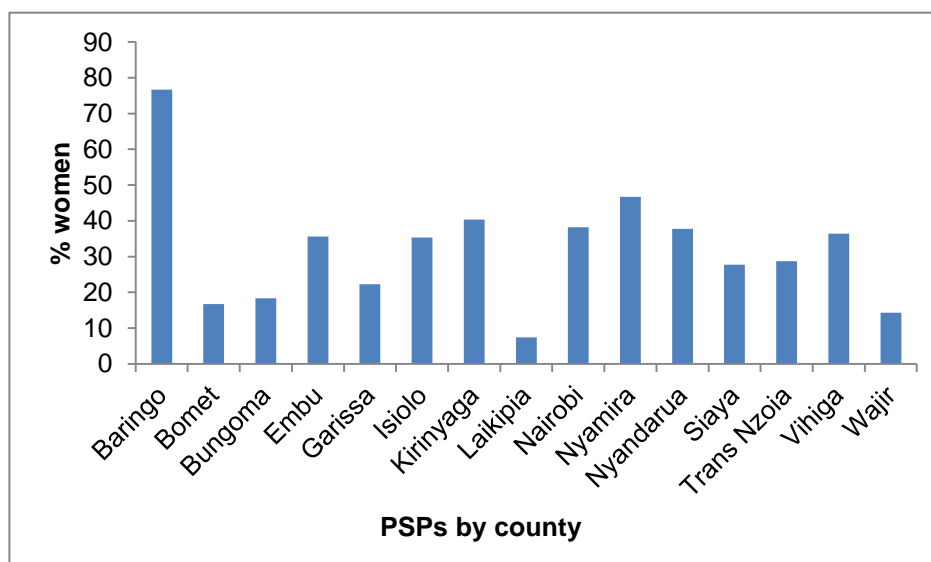


Figure 3. Percentage (%) of women participation at PSP workshops during OND 2015 in selected counties.

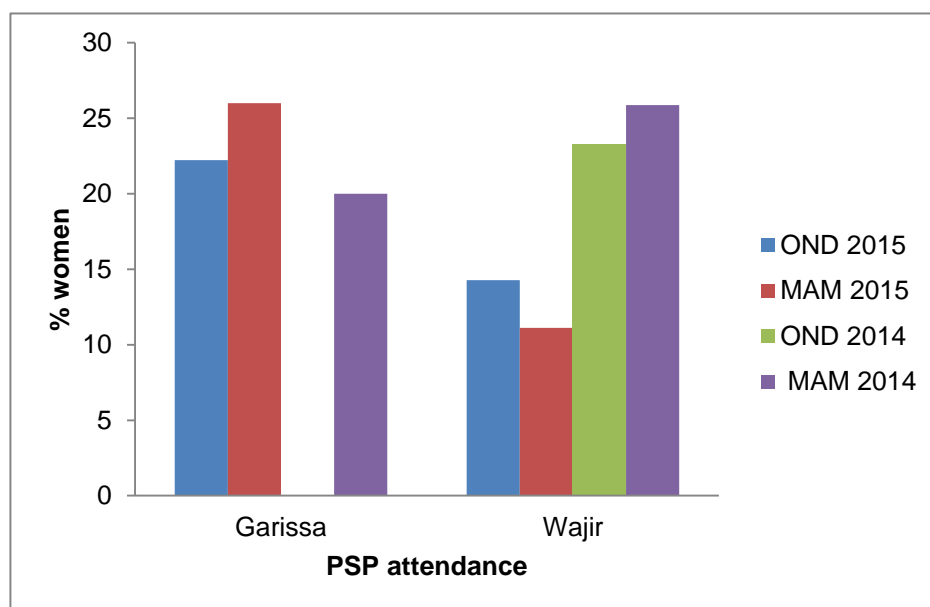


Figure 4. Percentage (%) of women participation at PSP workshops from 2014 to 2015 in Garissa and Wajir Counties.

- Categories of stakeholders.** In most counties, participants at PSP workshops were from diverse backgrounds including: i) government departments (agriculture, livestock, water and disaster management authorities); ii) intermediaries (NGOs, media and the private sector³⁹); and iii) users (value chain actors, farmers, pastoralists, chiefs, traditional forecasters and religious leaders). The different categories of stakeholders varied across counties. This was attributable to the preparation stage for the PSP workshop that involved reaching out to various stakeholders for engagement. In most counties, the majority of participants represented the government and different technical departments, with a large proportion of community representatives. Technical departments and community representatives were the two principal actors in the regular top-down extension services delivery approach. These departments provided the means for advisory dissemination, where the communities were the recipients. PSPs engaged both groups on a participatory level to encourage co-production of advisories. For example, in Kirinyaga County, communities represented the largest number of participants, while in Bungoma County, the technical departments formed the largest grouping (Figure 5). While CARE is the NGO responsible for introducing PSPs into Kenya, the adoption of PSPs has gone beyond CARE's scope to become an accepted common tool for CIS among development practitioners. Various organisations participated in PSPs across the counties including: i) NGOs, such as Women Kind, African Development Solutions (ADESO), Oxfam; and ii) faith-based organisations, such as CARITAS and Anglican Development Solutions (ADS). Such organisations in the PSP process tended to provide a programme facilitator and coordinator, however, in some cases included providing financial support. In some counties – such as Garissa – the NGO, ADESO, provides financial support to community members to facilitate participation at PSP workshops. And in Bungoma, ADS supports advisory dissemination to communities by creating a forum between PSP facilitators and the community groups – known as common interest groups.

³⁹ The private sector usually involves agricultural input dealers.

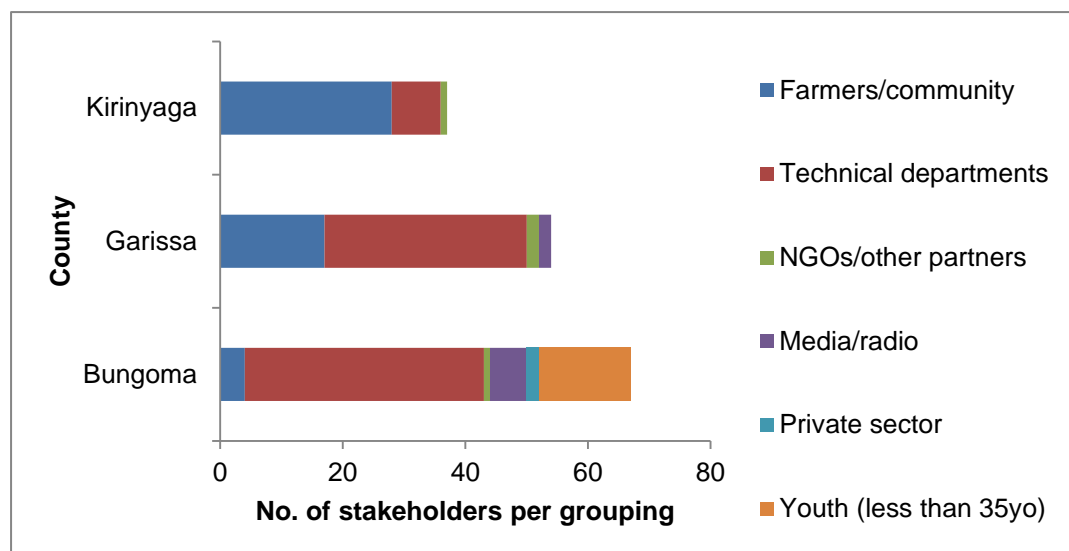


Figure 5. Stakeholder representation at the PSP workshops during OND 2015 in three select counties namely Bungoma, Garissa and Kirinyaga. *Note: farmers/community includes all community representatives, traditional forecasters and chiefs.*

Analysis

Following the review of previous PSP reports for all counties and the observations made during the PSP process from MAM 2016, the following items emerged as most relevant for detailed analysis: i) the number of participants and the different stakeholder categories they represent; ii) the representation of users versus intermediaries; and iii) the inclusion of vulnerable groupings.

- Number of participants and representative categories.** There was a wide range in the number of participants attending PSP workshops across different counties and during the period that PSPs have been implemented. Budgetary constraints and the size of the county generally determined participant numbers. The different types and number of stakeholders is decided at the PSP preparatory meeting⁴⁰ to ensure the workshop has diversity and is a strong representation of important interest groups in the county. Regional distribution within each county for most counties⁴¹ was generally well-balanced with representation from all sub-counties and lower administration levels. Having equal regional representation at the PSP workshops was found to be an important factor for successful PSPs as it was linked to the success and reach of advisory dissemination to communities. The KMD County Director in Garissa County, for example, reported inequality in terms of access to climate information at sub-county level as PSP participants had not been invited from all the representative sub-counties in Garissa. By contrast, stakeholders included chiefs, sub-county technical advisors and community representatives from the five sub-locations of the ALP-CARE programme – namely Balich, Kone, Nanighi, Saka and Shanta Abaq. As a result, the five sub-locations received seasonal information in time compared to the villages in the regions that were not covered by the pilot CARE programme. Another case demonstrating the importance of equal regional representation was the sub-county

⁴⁰ The preparatory meeting notes are rough and do not include criteria for selecting stakeholders. Mostly, invitations were sent out to all previous participants.

⁴¹ Equal representation for each sub-county was not evident in Garissa County.

of Kangema in Murang'a County. During the FGDs, the interviewees⁴² were not previously aware of the PSPs and as such had never attended any PSP-related meetings or workshops. The FGD participants reported receiving seasonal forecasts on the radio, however they stated their reluctance in applying the recommendations (Table 7). It is evident that equal regional representation is imperative to the PSP dissemination and advisory process in order to gain trust from users and promote the implementation of advisories.

Table 7. A comparison between areas in different counties, the level of participation at PSPs and the decision to apply advisories.

PSP event/ decision	Balich sub-location, Garissa County	Kangema Sub-County, Murang'a County
Community representation at the PSP workshops	Yes	No
Community representation at chief <i>barazas</i>	Yes	No
Decisions made by the community following advisory dissemination	Livestock management decisions – either to move/sell or retain	Ignored the advisories received

- Difference in representation between users⁴³ and intermediaries⁴⁴.** Some counties indicated a preference for more technical department representatives at PSP workshops while others indicated a preference for community representatives. Ideally, a successful PSP would have a balance between these two types of participants, which would result in quality, scientific-based advisory production with significant influence from local knowledge through community members and an extensive reach of advisory dissemination. It was revealed during MAM 2016 that PSP workshops can be run with minimal stakeholders as well as a wide range of stakeholder participants. However, the MAM 2016 PSP process also found that the different levels of stakeholder expertise dictated the content and quality of the advisories. Ensuring that all technical departments are represented provides safeguards for the production of quality advisories in each relevant area. However, community participation is necessary for three main reasons. Firstly, the participation of communities allows sharing of traditional forecasts and collective interpretation with scientific climate forecasts. This has led to more downscaled and better understood seasonal forecasts, while building confidence and trust in information provided through the KMD. Secondly, communities provide local knowledge informed by experienced changes in risks, vulnerabilities, capacities and impacts; this knowledge is critical for shaping advisories based on the needs of communities. Reviewing the previous season during the PSP workshop further contributed to building trust among communities. Local communities were able to compare the impacts they experienced during the previous season with the predicted seasonal forecast. Thirdly, a larger number of community representatives during the PSP workshop is more likely to ensure that advisories are shared and communicated as efficiently as possible. This means of dissemination was found to be both cost- and time-effective relative to other means. The participation of communities and their subsequent ownership of the advisories is also likely to increase adoption. The ownership assists with overcoming the cultural norms and practices that are entrenched in various socio-cultural African settings that can influence farmers' perceptions and adoption of new technologies.

⁴² The FGD interviews involved both women and men groups.

⁴³ Users include *inter alia* farmers and pastoralist communities.

⁴⁴ Intermediaries include *inter alia* technical departments and other government actors.

- Inclusion of vulnerable and marginalised groups.** Some counties considered equality by ensuring multiple and interactive participation by women, men, youth and people with disabilities in the PSP process. Such innovative processes of engagement assist previously marginalised groups and those unable to physically use climate information. They are innovative in that previously marginalised groupings were not included in similar workshop settings. Furthermore, through this inclusive approach, it assists in such groups understanding the relevance of climate information and the importance of using it to inform their decisions. The PSP process also highlights to various groups the different means of gaining access into the CIS value chain through PSP participation. Gaining access to the value chain means that they form a part of the market in supplying goods and products. In Garissa County, for example, CARE assisted with gaining this access by setting up a women's group with a Village Savings and Loans Association (VSLA). This is primarily a micro-finance model under which savings groups are formed at the community level to foster a culture of savings and to enhance economic empowerment.

During PSP workshops, a representative of VSLA groups in each village participated at the PSP. As a result, women are now better-equipped to access climate information through their VSLA groups and have a wider reach into the community through increased contacts. In the FGDs, women in Balich and Nanighi sub-locations, for example, reported that prior to the introduction of the PSP in 2011, access to climate information for women was limited to notification through their husbands. This is because traditionally women were not allowed to go directly to local forecasters and do not own radios. However, since PSPs have been introduced into Garissa County, women now feel they are well-informed as they receive information and the advisories during their weekly VSLA meetings. Women are now better-equipped to plan for the coming season as evident in a quote from one of the women FGDs in Balich sub-location, Garissa County:

"Now we have more information than five years ago since we start[ed] [the] project with CARE. The information flow [is better] than before so [we are] more able to take actions. During VSL[A] meetings we received information from PSP advisories as well rain gauge recorders."⁴⁵

- Intermediary role in the PSP process.** The role played by intermediaries during PSP workshops as well as in the advisory dissemination process includes: i) agricultural extension officers; ii) agro-dealers; iii) NGOs; and iv) community mobilisers and leaders. Intermediaries are integral in the delivery and upscaling of the PSP process and integration of CIS in Kenya. These intermediaries serve as brokers between providers and users of information and interpret scientific climate information to better-inform user decision-making. In the ASAL counties of Kenya, both international and national NGOs helped to strengthen the PSP process. This was primarily because the NGOs involved had long-term experience in managing food security challenges in areas prone to climate variability. Furthermore, the NGOs contributed valuable materials towards PSP workshops. This highlights the importance of, wherever possible, involving stakeholders – in particular, intermediaries including NGOs – with long-term experience on climate change adaptation in the planning for PSPs. Such involvement was found to greatly strengthen the PSP process, making it more reliable to users.

⁴⁵ Quote taken from the women's group FGDs in Balich location, Garissa County.

- **Facilitation role of the ASDSP and KMD.** ASDSP currently provides financial support, while KMD provides technical guidance in the organisation of the PSP workshops at the county level. In most counties, the county government was also involved in the PSP process with various representatives of the relevant sectors present at the workshops. Furthermore, the presence and participation of relevant county executives – i.e. local government officials – throughout the PSP process promotes sustainability, as it is the first step towards the buy-in of the county government⁴⁶.

Overall, PSPs were found to be evolving towards a multi-disciplinary and multi-sectoral approach. This strengthened the PSP process as it involved more individuals with broader backgrounds and expertise, which brought in new thinking and novel approaches.

4.1.3.2. Timing of Participatory Scenario Planning workshops

When PSPs were first introduced into Kenya in 2011, planning for the timeliness of the workshops was a challenge. The workshops were held too late in the rain season because the seasonal forecasts were released from the KMD later than the start of the rain season. More recently, the disbursement of funds from stakeholders has been late, further delaying workshops. The channels of communication used, often do not effectively enable information to reach users in time to inform preparation decisions for the rain season. However, during MAM 2016 it was observed that most counties conducted PSPs before the onset of rains which provided sufficient time to make decisions for the preparation of the rain season.

Observations

The PSP process and the timing of the workshops for all counties from 2011 to 2016 were reviewed to determine: i) the release of forecasts from the KMD; ii) timing of PSP workshops; and iii) the development of a review of workshop timing from various stakeholders and users. These observations are summarised below.

- **Forecast release.** It was found that PSPs should be conducted as soon as the seasonal climate forecast is made available from the KMD. This means that PSPs should occur as many times in the year as there are rain seasons. The number of PSPs also needs to be area-specific because some areas have two distinct rain seasons while others only have one full rain season. In addition, the process and number of PSPs should be tailored to these needs. For example, a more detailed and region-wide PSP is required for the region that only receives one full rain season. Currently PSPs are conducted twice a year as a standard in Kenya, in March for the long MAM rain season and in September for the short OND rain season. However, there is variation in the length of time between receiving the KMD forecast and the start of the rains for the two seasons. The KMD generally releases the forecasts three weeks prior to the start of the MAM rain season and approximately six weeks before the start of the OND season (Table 8). The number of PSPs should be directly related to the number of rain periods experienced in a year cycle rather than restricted to traditional rain seasons.

⁴⁶ Please see the section on sustainability of the process, Section 3.2.4 for further details.

Table 8. Comparison of KMD seasonal forecasts released and the onset of the rains between different rain seasons for 2013, 2014 and 2016.

Season	KMD forecasts released	Expected start of rains	Rain window length
MAM			
MAM 2013	27 February	3–4 th week of March	3–4 weeks
MAM 2014	4 March	3 rd week of March	Less than 3 weeks
MAM 2016	1 March	4 th week of March	4 weeks
OND			
OND 2013	28 August	3 rd week of October	7 weeks
OND 2014	1 September	2 nd –3 rd week of October	6–7 weeks
OND 2016	5 September	3 rd week of October	6 weeks

- Timing of PSP workshops.** PSP workshops are organised at different times in all counties. Between counties there was a significant difference in the timing between the MAM and OND period. For example, in MAM 2014, few counties organised the workshop ahead of the rain season with a window length of seven days⁴⁷. Instead, many counties organised the workshop late into the season, ranging from a few days to an entire month after the rains had started (Table 9; Figure 6). During OND 2015 by contrast, many counties conducted the workshops ahead of the rain season from as early as a month to just two days before it. Only a few counties conducted the OND 2015 PSP late i.e. after the start of the rain (Table 10). There are a variety of reasons for counties conducting the PSP workshops late including *inter alia* poor preparation planning and engagement of stakeholders as well as the late release of funding to host the workshops. A comparison from MAM 2014 to OND 2015 for certain counties showed a trend towards conducting PSP workshops before the start of the rains. For example, in Garissa, the workshop for MAM 2014 was conducted just 1 week prior to the start of the rains, however in OND 2015, the workshop was organised 21 days before the rains began. In Bungoma County, a similar trend was observed where the workshop was conducted 20 days after the rains in MAM 2014 and 21 days before the rains during OND 2015 (Figure 7).

Table 9. Organisation and timing of the PSP workshops in select counties during MAM 2014.

County	PSP workshop dates	Expected start of the rains	Rain window length
Organisation: PSP conducted less than 2 weeks prior to rain season			
Garissa	18 March 2014	3 rd week of March	7 days
Machakos	13 March 2014	4 th week of March	7 days
Late organisation: PSP conducted after rain season begun			
Mandera	8 April 2014	1 st week of April	-7 days
Laikipia	3 April 2014	4 th week of March	-10 days
West Pokot	3 April 2014	4 th week of March	-10 days
Nyamira	1 April 2014	3 rd week of March	-15 days
Trans Nzoia	1 April 2014	3 rd week of March	-15 days
Makueni	2 April 2014	3 rd week of March	-17 days
Nakuru	3 April 2014	3 rd week of March	-18 days
Bungoma	4 April 2014	3 rd week of March	-19 days
Kirinyaga	16 April 2014	3 rd week of March	-20 days

⁴⁷ The ASDSP implemented the first PSP training session over 17–19 March 2014. As this was the first time that many of the counties were conducting PSPs, they did not have enough time between the training and the onset of the rains to make the necessary plans and preparations for the PSPs. Therefore, many counties held the workshops late. Garissa, Machakos and Kakamega Counties had prior experience working with the ASDSP and the PSP process, explaining why they were able to organise the workshops ahead of the rains onset.

County	PSP workshop dates	Expected start of the rains	Rain window length
Vihiga	5 April 2014	3 rd week of March	-20 days
Samburu	10 April 2014	3 rd week of March	-25 days
Homa Bay	9 April 2014	3 rd week of March	-26 days
Migori	4 April 2014	3 rd week of March	-30 days
Lamu	24 April 2014	3 rd week of March	-31 days

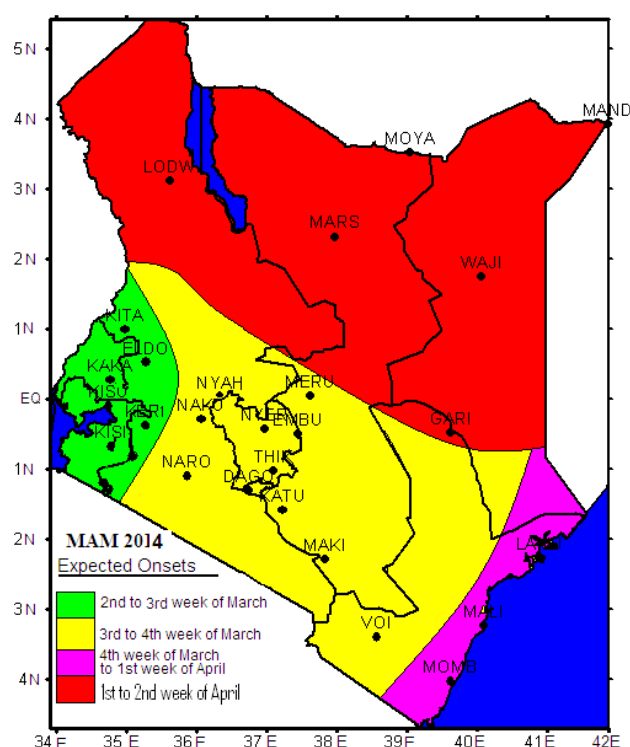


Figure 6. Expected March-May 2014 seasonal rainfall onset. Source: KMD forecast press release, 4 March 2014.

Table 10. Organisation and timing of the PSP workshops in select counties during OND 2015.

County	PSP workshop dates	Expected start of the rains	Rain window length
Early organisation: PSP conducted between greater than 2 weeks before the start of the rain			
Embu	16 September 2015	2 nd week of October	27 days
Garissa	21 September 2015	1 st week of October	22 days
Baringo	22 September 2015	2 nd week of October	21 days
Bungoma	22 September 2015	2 nd week of October	21 days
Elgeyo Marakwet	22 September 2015	2 nd week of October	21 days
Isiolo	22 September 2015	2 nd week of October	21 days
Kirinyaga	25 September 2015	2 nd week of October	19 days
Bomet	25 September 2015	2 nd week of October	18 days
Kilifi	25 September 2015	2 nd week of October	16 days

County	PSP workshop dates	Expected start of the rains	Rain window length
Organisation: PSPs conducted less than 2 weeks before the start of the rain			
Tana River	16 September 2015	1 st week of October	14 days
Kitui	17 September 2015	1 st week of October	13 days
Nairobi	17 September 2015	1 st week of October	13 days
Kwale	18 September 2015	1 st week of October	12 days
Makueni	18 September 2015	1 st week of October	12 days
Machakos	22 September 2015	1 st week of October	8 days
West Pokot	23 September 2015	1 st week of October	7 days
Nyandarua	24 September 2015	1 st week of October	6 days
Trans Nzoia	25 September 2015	1 st week of October	5 days
Wajir	29 September 2015	1 st week of October	2 days
Late organisation: PSP conducted after rain season had begun			
Kakamega	16 October 2015	2 nd week of October	-1 day
Nakuru	9 October 2015	1 st week of October	-9 days
Siaya	14 October 2015	1 st week of October	-14 days
Laikipia	23 October 2015	1 st week of October	-22 days
Murang'a	25 October 2015	1 st week of October	-25 days
Nyamira	29 October 2015	1 st week of October	-29 days

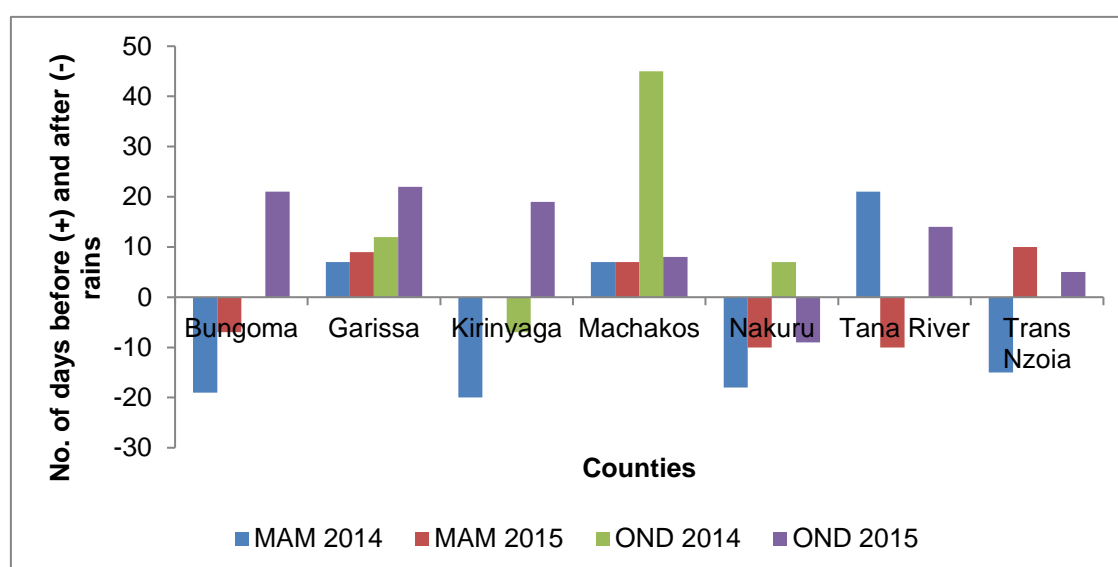


Figure 7. Timing of PSP workshops before (+) and after (-) the onset of the rain season in select counties from 2014 to 2015.

- **Review of workshop timing from KIIs, FGDs and users.** The FGDs revealed that satisfaction levels concerning timing of the PSP workshops and delivery of the advisories differed by sub-location. In Garissa, Murang'a and Bungoma Counties, farmers expressed their satisfaction about the timing of the PSP workshop, reporting that advisories were received in time to prepare before the start of the rain season. The KIIs revealed that participants felt PSPs have always been well-timed, conducted a week or two before the

start of the rain season. In Embu however, there were differing opinions on the timing of PSP workshops across the different regions. In Mutuabare sub-location, farmers reported satisfaction with PSP workshop timing, while farmers in Kamarandi sub-location reported that the timing was inefficient as there were delays in the relay of information:

“The timing of the PSP [workshop is] not so good, [we] need [a] longer time [to prepare] before [the] start of season as there are delays in the relay of information.”⁴⁸

KIIs from Embu showed that at the beginning of the PSP introduction to the county there was a delayed release of funds which further delayed the PSP process. However, in recent PSPs, the funds were released in time and PSPs could be conducted in a timely manner for the coming rain season. The review of past PSP reports revealed that different communities in various sub-locations and counties had wide ranging views on PSP timeliness. For example, a review of the PSP process during MAM 2014 in Machakos County showed 69% of the interviewees were satisfied with timeliness of the forecast. Delays in the relaying of information were also linked to funding release as a delay in funding delayed the process of setting up dissemination channels.

Analysis

The observations revealed that when PSPs were initially introduced into the counties, timing the workshops with the onset of the rain season was a challenge. The workshops were conducted either: i) just prior to the onset of the rains, not allowing a large enough window for dissemination, advisory interpretation and implementation; or ii) once the rain season had already begun, resulting in no preparation time. There were two main reasons for the timing challenge in conducting the workshops: i) late release of county seasonal forecasts from the county KMD; and ii) late disbursement of funds. These problems appear to now be resolved as PSPs in most counties are currently being conducted prior to the onset of the rain season. The timing of PSP workshops relating to the different results observed in the counties revealed that receiving advisories with enough preparation time encouraged users to make the necessary preparations to implement them. Users that had enough preparation time were able to purchase the necessary seeds and tools. If, however, they received advisories after the rains had begun they were unable to prepare as per the advisories. They would often already have implemented their regular methods, relying on the seeds they had been using in previous years.

Participants from the KIIs reported that the timing of PSP workshops should be tailored to the needs of the users⁴⁹. This assessment found that the PSP process – including workshops, communication and the dissemination of advisories – should take place a week to two weeks before the estimated planting date and predicted onset of the rain season. This would provide a large-enough window for users – in particular, farmers – to prepare for their farming activities and to implement advisory recommendations. KII participants consequently advised that the MAM PSP workshop be organised towards the beginning of February and the OND PSP workshop the beginning of September.

⁴⁸ Quote taken from the FGD in Kamarandi location.

⁴⁹ It is important to note that many of these interviews were conducted with farmers, therefore they report on behalf of users.

4.1.3.3. Multi-stakeholder interactions during Participatory Scenario Planning workshops

Observations

The following themes emerged from a review of the PSP process and the different interactions between stakeholders for all counties from 2011 to 2016: i) building local partnerships; ii) building development partner relationships; iii) increased interaction and coordination between sectors; and iv) increased communication between communities and government. Observations pertaining to these themes are summarised below.

- **Building local partnerships.** A review of the PSP process across the counties in Kenya provides evidence of sector-wide partnerships among various institutions to produce and communicate climate information to users. Partnerships varied from an informal arrangement to a more formally-structured agreement. The role of each stakeholder in the partnerships varied between counties. KMD and ASDSP were the main actors responsible for organising and facilitating the PSP process. In some counties, a preparatory meeting was facilitated by the KMD and ASDSP where all stakeholders were invited. Participants at this preparatory meeting agreed to act as the informal local committee for the organisation of the PSP process. In other counties, a structural form of partnership amongst stakeholders was established to organise the PSP workshops where the local organising committee was embedded in a formal recognised structure of the process. For example, in Bungoma County, the sub-committee on environment, climate change and development within the county steering committee had been mandated to organise the PSP. In other counties, a new structure was created. For example, in Garissa County, this was reflected in the establishment of the Garissa Climate Change Working Group (GCCWG), which acts as the local PSP organising committee, coordinating local government and Civil Society Organisation (CSO) dialogue and contributing to overall county development and risk reduction plans.
- **Building development partner relationships.** Adoption of the PSP process involves being recognised as a CIS approach among development practitioners. Participation from various organisations is important for the sustainability of an effective CIS tool such as PSP workshops. Such organisations include *inter alia*: i) NGOs – e.g. Women Kind, ADESO and Plan International; and ii) faith-based organisations – CARITAS and ADS. There is no formal partnership agreement between these organisations and the ASDSP. Each organisation decides on their role in the PSP workshop. Some will provide funding for the organisation process (e.g. Plan International), while others will support mobilising communities to the workshop (e.g. ADESO in Garissa County). In other instances, the organisation process will support the dissemination and communication of the advisories to the users (e.g. ADS in Bungoma County).
- **Increased interaction and coordination between sectors.** PSP is a forum where other sectoral experts interact with KMD personnel to adopt the forecast and to ensure the development of area-specific advisories. There is evidence of a close collaboration among the different sectors and KMD. According to KII participants, before PSPs were introduced, KMD communication of forecasts was one-way only. Forecasts were produced by the KMD, disseminated via different media channels and also sent to a high-level official. Using these methods of communication, the forecasts and advisories did not, and do not, always reach the on-the-ground technicians. By contrast, PSPs forecasts are communicated directly to on-the-ground users. This allows the users to better understand and interpret the forecasts and to communicate directly to the users together with the KMD

officials. Typical quotes taken from KIIs regarding their interaction with the KMD are presented below:

- Bungoma County Environmental Officer, NEMA Kenya:

“With [KMD] before it was quite distant and difficult to get data. Now through the PSP platform, there is improved working relations, we meet regularly, share data this help us then.”⁵⁰

- Mbalambala Sub-County, Garissa County, Head of Sub-County Livestock Officer/M&E Officer:

“Now we can interact and interrogate [KMD] freely about seasonal forecasts.”⁵¹

- Bungoma County, Training Officer, Ministry of Agriculture:

“We used to hear about the [KMD] agents, now we directly interact with them because of the PSP platform.”⁵²

- **Increased communication between communities and government sectoral services⁵³.** During PSPs, users and climate forecasters are brought together to exchange climate knowledge. This exchange builds on both scientific and local/traditional knowledge to co-produce localised climate services that meet the needs of communities that are vulnerable to the impacts of climate change⁵⁴. Furthermore, since the introduction of PSP processes, the government now values the role of communities as important stakeholders in decision-making. According to the ASDSP Garissa Environmental Resilience and Social Inclusion Officer, a traditional forecaster's presence gives ownership of the PSP process to the community. It also brings local knowledge together with traditional expertise often not available from government officers because they are not necessarily from the county in which the PSP is being held⁵⁵. For KMD agents and agricultural extension officers, PSP workshops have been a channel through which communities can be reached more effectively. During the PSP workshop, community members have been provided with contact numbers of government agents in case they needed to request additional information. This was seen as an innovative method to increase communication and its reach. As a result of this method, there has been an increase in demand-driven requests for climate information from communities, and the flow of communication between communities, agricultural extension officers and KMD agents has increased. Quotes taken from FGDs and KIIs regarding the change in interaction levels between agencies and communities are shown below.

⁵⁰ Quote taken from discussions held on the 30 May 2016 with the Bungoma County Environmental Officer.

⁵¹ Quote taken from discussions held on the 21 May 2016 with Mbalambala Sub-County, Garissa County, Head of Sub-County Livestock Officer/M&E Officer.

⁵² Quote taken from discussions held on the 30 May 2016 with the Bungoma County Training Officer, Ministry of Agriculture.

⁵³ Government agencies include inter alia extension officers and KMD agents.

⁵⁴ Tall T, Kristjanson P, Chaudhury M, McKune S & Zougmore R. 2014. Who gets the information? Gender, power and equity considerations in the design of climate services for farmers. Working Paper No. 89, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

⁵⁵ Quote taken from discussions held on the 18 May 2016 with ASDSP Environmental Resilience and Social Inclusion Officer of Garissa County.

- Nanighi sub-location, Garissa County, women FGD:
*"Now we have a better interaction with the government because before we did not know what ways to use or what people to speak to in the government."*⁵⁶
- Kiambere Ward, Mbewe South, Mutabare sub-location, Embu County, women FGD:
*"It is easier to communicate with other stakeholders. Like last year, the agricultural officer for this region came to pray with us so that the rains would come but he told us to plant crops that would take one month to grow. We are free with them."*⁵⁷
- Garissa County, Director of Livestock, Ministry of Agriculture:
*"The community members have become our friends and they now ask questions about their preoccupations. PSP has given relevance to the [KMD] at the community level."*⁵⁸
- Bungoma County, County Director, KMD:
*"There is improvement in interaction levels. Now we understand users (farmers) needs which are: i) onset of rains; ii) cessation of rains; iii) weekly update; and iv) estimated amount of rainfall."*⁵⁹

Analysis

The observations above highlight how the PSP process has formed an innovative platform of learning and sharing climate information. It has resulted in transforming, creating and redesigning new and old relationships. In addition, interactions among the different actors has been an integral role in the process. As a result of the innovative approach of the PSP process, a considerable transformation in the CIS delivery process has been observed. The focus on co-production of actionable and meaningful climate information between the KMD, government agencies, other partners and local users has built trust in the KMD by the partner institutions⁶⁰. Furthermore, it has helped communities appreciate the value of climate information in developing innovative solutions for managing risk and identifying opportunities to benefit from climate variability and change.

One important result of the multi-stakeholder interaction provided by the PSP platform is the influence it has had on knowledge, attitude and practice of communities and users. Sharing and acquiring new knowledge is occurring amongst stakeholders, including institutions, intermediaries and users. KMD personnel – who are now more knowledgeable about the required climate information needs of local users – are, for example, exchanging information with technical government officers who are better equipped in understanding climate forecasts from the KMD officials. These technical officers are then able to understand the climate information needs of local users, and because of this, can interpret and bridge the gap between the two. The ASDSP Environmental Resilience and Social Inclusion Officer in Bungoma County illustrates this in the following quote:

*"The real value of PSP is the sharing part. I learned that for [KMD], a small drop of rain means it is raining whereas for farmers, rain means observing runoff. At the workshop, we are able to share [every person's] views, learn from terms from each other and get common understanding what is relevant for each other."*⁶¹

⁵⁶ Quote taken from women's group FGDs held on the 19th May 2016 at Nanighi sub-location, Garissa County.

⁵⁷ Quote taken from women's group FGDs held on the 24th May 2016 at Kiambere Ward, Mbewe South, Mutabare location, Embu County.

⁵⁸ Quote taken from KII discussions held on the 30th May 2016 with the Bungoma County Environment Officer.

⁵⁹ Quote taken from KII discussions held on the 19th May 2016 with the Director of Livestock, Garissa County.

⁶⁰ For example, the statement taken from the KMD County Director in Bungoma County above.

⁶¹ Quote taken from KII discussions held on the 30th May 2016 with the Bungoma County ASDPS Environmental Resilience and Social Inclusion Officer.

Further to the importance of having multi-stakeholder inclusion at the PSP workshops, including various local community members and representatives has resulted in more widespread learning and knowledge sharing. Local communities are becoming more confident in making decisions for the coming rain season and subsequently their future. Barriers to communities for undertaking effective action on climate resilience are related to how messages about climate change and adaptation options are constructed and disseminated⁶². The observations mentioned above result in demand-driven climate information that provides evidence for the PSP process contributing to overcoming these barriers within communities. This information is collected by undertaking appropriate actions for climate variability and change. Undertaking such actions require participation from all levels of the PSP process, including institutions, intermediaries and users, i.e. participation is essential when it comes to holding chief *barazas* and the dissemination of information thereafter. Table 7⁶³ demonstrates the link between participation by users in different dissemination channels and their subsequent actions taken according to the advisories received. While in Garissa County, the Balich sub-location members have adopted the advisories for implementation because of their attendance at the PSP workshop, communities in Murang'a County have been hesitant to act on the advisories as they are limited to receiving the advisories via radio, with none of their community members participating in the PSP workshop.

A further effect of the multi-stakeholder platform provided by the PSP process is the increased collaboration among institutions on climate change and building of community climate resilience. The establishment of the GCCWG in Garissa is an example of such an effect.

4.1.3.4. Interpreting seasonal forecast probability and uncertainty

Observations

Based on the review of past PSPs reports, FGDs, KIs as well as participation at selected PSPs during MAM 2016, several themes emerged concerning the factoring of uncertainty into PSPs. These themes included: i) challenges in understanding concepts by participants and users; ii) innovative ways to present prediction scenarios to users; and iii) the most-likely scenario to have positive effects is the on-the-ground scenario. Observations on these themes are summarised below.

- **Challenges in understanding the concept of uncertainty and probability by workshop participants and users.** During all PSP workshops, meteorologists presented three rainfall prediction scenarios, namely: i) above normal; ii) normal; and iii) below normal. These prediction scenarios included seasonal forecasts with their associated probabilities of occurrence. The predictions were discussed within groups during the workshop to develop advisories based on each scenario. However, as participants covered a wide range of people including *inter alia* technicians, intermediaries and users, they did not all fully understand the meaning and importance of uncertainties and probabilities. Most participants struggled to understand how to develop scenarios from the three probabilities given. Even participants who had previously attended PSP workshops were unclear about the specifics of the concept. Dictionary definitions for the concepts

⁶² Ensor 2015.

⁶³ See Section 4.1.3.1. on involvement of all relevant stakeholders for Table 7.

were often provided without further elaboration or explanation, and without using real-life examples during the workshop. An example of this was during the MAM 2016 PSP in Embu County. At the end of the first day of the workshop when opportunities for further questions arose, the majority of participants did not know or could not provide the correct answer to what the probabilities as shown on the climate outlook were. This indicated that the concept remained unclear even after the definitions were given. Furthermore, FGDs revealed that farmers and pastoralists were unable to provide clear definitions of the concepts of uncertainty and probability⁶⁴.

- Innovative ways to present scenarios and uncertainty to users.** Although explaining the concepts of uncertainty, probability and alternative scenarios is challenging, some counties have introduced innovative ways to explain these terminologies to users. In Garissa County for example, reference to an analogue year or visual representation – known as ground mapping – was used when presenting the seasonal forecast. For example, the MAM 2016 season was predicted to have similar effects to that of the MAM 1983 season. The MAM 1983 season was therefore the analogue year in this reference. By correlating the experience from the analogue year to a specific predicted scenario, participants – including community members and users – were able to understand the potential effect of the coming rain season on their welfare and livelihoods, and were able to respond accordingly. This method of translating technical concepts to simple and practical examples is innovative to PSPs and integral in the sustainability of the process. These practical examples help bridge the gap between the technical officials and the on-the-ground users. The Director of Livestock from the Ministry of Agriculture for Garissa County, for example, revealed that there is a major gap between what the KMD defined as normal, below and above normal rainfall amounts versus what the community understood these terms to mean. Using the analogue year approach to describe uncertainty and probability explained these concepts more effectively to participants compared with simple definitions of terms. The real-life examples extracted from the analogue year illustrated practical and possible impacts, using on-the-ground experience from the analogue year, to improve the understanding of the scenarios. From the community perspective, the ‘above normal rainfall’ scenario would have a positive effect on their livelihoods. However, if there is an excess in what the community members understand to be either above or below normal rainfall levels, this would result in negative impacts on their livelihoods, no matter the outcome. Whereas the KMD interpretation includes any rainfall over the ‘normal’ range to be above normal, and *vice versa*. During the MAM 2016 rain season in Nairobi County, uncertainty was explained to PSP participants using the example of the price variability of a maize bag. The real-life experience of uncertainty regarding the price of a single bag of maize at a certain time in the near future assisted participants to grasp the concept of uncertainty.
- The most-likely scenario is the on-the-ground scenario.** During PSP workshops, scenario development and discussions on the three predicted rainfall scenarios were debated at length. In most counties however, the discussions were not included in all communication channels used to disseminate the outcomes and advisories for the coming season. The advisory brochures, as well as all messages relayed via the media or at *barazas*, were limited to the most-likely scenario⁶⁵. This limitation could be for a variety of reasons including page limits for brochures, as well as not wanting to confuse users with presenting all scenarios. As a result of this limited knowledge transfer, uncertainty amongst

⁶⁴ To the question ‘What difference has interactions at PSP workshops made to your access and understanding of seasonal forecasts and probabilities and scenarios?’, FGD participants did not provide any answers.

⁶⁵ This is different in Garissa County, as the chief and other informants in Nanighi village have indicated communicating and receiving information for all scenarios. Taken from KIIs in Nanighi village.

potential scenarios was not effectively communicated to users. According to many KII participants – particularly with government agents – the concept of uncertainty and probability are not essential when relaying information to users. Their view is that it avoids confusion in the communicated advisories. The plethora of potential scenarios is consequently only discussed with technical government officials and community members participating at the PSP workshops. In Bungoma County, for example, the adopted strategy is to not discuss uncertainty and probability to users. Instead, they convey the most-likely scenario to the communities and provide weekly updates to correct for the deviations from forecasts through SMS.

Analysis

There are considerable challenges in communicating uncertainty and probability to users. However, by only communicating the most-likely scenario to communities there is considerable risk that the entire PSP process fails. Importantly, the probable nature of forecasts is currently not accurately relayed to users. Therefore, if a low probability event occurs, users will perceive the forecast to be wrong and subsequently their confidence in the scientific methods of prediction will decrease⁶⁶. For the OND 2015 PSP in Embu county, for example, the following forecast was communicated to the communities:

“Embu County is likely to experience above normal (enhanced) rainfall in the [sic] all areas during the short rains season. The rainfall distribution, both in time and space, during the 2015 short rains season is expected to be generally good.”⁶⁷

The advisory was delivered without any provision for alternative scenarios. It is consequently not unexpected that during FGDs in Mutuabare location, Kiambere ward in Embu County, farmers reported that they do not trust the advisories anymore because the rain actually experienced was minimal compared to the forecast that predicted enhanced rainfall.

Garissa County, by contrast, provides an example of how to communicate uncertainty and the presentation of alternative options in an effective way. During the MAM 2013 PSP workshop, the forecast indicated that normal to below normal rainfall was most probable. In addition to discussing what was most probable, participating stakeholders developed an impact scenario and action plan for all scenarios, including for the case of above normal rainfall. The Nanighi sub-location chief reported that *barazas* were held in all sub-locations, namely Abagdera, Guyo and Nanighi, and all were well-attended. Subsequently, the scenarios and contingency plans for all possibilities were communicated at these *barazas*. This method was successful as the community members were prepared for all possible scenarios, even though there was only one predicted forecast. Parts of the county experienced flooding similar to that caused by above normal rainfall, although in this specific case, the flooding was caused by an overflow of the Tana River. Based on actions developed for the predicted above normal rainfall scenario, officers from the Ministry of Agriculture monitored the river and were able to alert farmers living along the river banks in time. Minimal losses were recorded as community members used their contingency plans to act on the forecasts by removing themselves and all assets from the river banks where flooding was predicted to occur.

⁶⁶ Visman E. 2014. Unlocking the potential of science and technology to enhance community resilience through knowledge exchange. Network Paper 76. Overseas Development Institute, London.

⁶⁷ Quote taken from the OND 2015 brochure for Embu County.

Working with information on uncertainty is useful in DRR practices, specifically regarding preparedness, monitoring, early warning and early action. The case in Garissa County over the MAM 2013 rain season demonstrated good practice in communicating climate information. Furthermore, it illustrated that communities are able to understand the concept of uncertainty and can make informed decisions to deal with future challenges and to adapt socio-economic activities to an evolving environment⁶⁸.

4.1.3.5. Applying user experiences and results from previous seasons

Observations

Four different types of feedback were observed during the exploratory mission to Kenya and the mission to collect KII and FGD data. The four types of feedback are detailed below in relation to the following themes: i) ASDSP review process; ii) community leader review process; iii) workshop review session; and iv) other sources of information.

- **ASDSP review process⁶⁹.** Feedback to the ASDSP occurs following the dissemination of advisories to value chain groups, communities and stakeholders. This feedback is provided at the end of each season to assist: i) in determining if advisory recipient were satisfied with the information; ii) whether the information given was integrated into their planning; and iii) determining if the recipient would follow the guidance of the advisories in the future. The ASDSP team include the environmental and resilience officers, i.e. agriculture extension officers and the KMD. Data collection methods differed between counties, for example: i) check lists (used in Bomet⁷⁰ and Kilifi Counties); ii) questionnaires (used in Elgeyo Marakwet and Kirinyaga Counties); iii) group discussions (used in Garissa and Kwale Counties); iv) transect walks (used in Homa Bay County); v) key informants; vi) review workshops (used in Embu County); and vii) a combination of the above methods (used in Laikipia County). The collected information was subsequently used to develop the county-level M&E report. As the M&E data collection methods differ between counties, so does the level of reporting. Some counties produced separate M&E reports detailing the results and approach, whereas other counties included M&E results into the PSP workshop reports. The results of the review process are generally presented at either the national-level or county-level review workshop or during the county-level PSP.

Following the first series of PSPs organised in the 47 Kenyan counties in 2014, CARE Kenya and the ASDSP held a two-day review workshop of the PSP process. This workshop covered several aspects of PSPs including: i) timing; ii) funding; iii) development of specific and smart advisories relevant to ASDSP value chains; iv) information dissemination; v) workshop duration; and vi) programme and itinerary. The aim of the workshop was to provide ASDSP and CARE Kenya with lessons learned based on experiences to improve future PSPs. All counties indicated that review processes are undertaken and are included in all planning and preparation.

⁶⁸ Visman 2014. Unlocking the potential of science.

⁶⁹ Extracted from KII discussions and the report on the ASDPS/CARE Kenya PSP review workshop held on 29 August 2014.

⁷⁰ Bomet County M&E OND 2015.

The main findings of the workshop included:

- questionnaires used for the review process are not uniform for all counties, presenting a challenge in reporting on CIS impact;
- reports are varied between counties making them difficult to consolidate and to produce a national-level report; and
- the importance of locating a suitable number of people that are known to be using climate information to conduct questionnaires with.
- **Community leaders review process.** A follow-up review is conducted by chiefs, selected community members and selected elders to determine if individuals have received and acted upon the advisories. This follow-up includes producing evidence through observations on how communities react to the advisories. For example, if the advisory indicated flooding, the reviewer checks if communities migrated during that time. Chiefs also produce reports on when and who attended the *barazas* following the PSP workshops. The observations are shared with the ASDSP M&E team during the ASDSP review process discussed above and are presented during the review session in the next PSP workshop.
- **Workshop review session.** During the PSP workshops, sometimes a session is included where participants review the previous rain season. Community leaders share their observations about the previous rain season in terms of their perceptions of the: i) quantity of rain; ii) timing of rain; iii) information about different community actions; and iv) the community's level of satisfaction regarding the forecasts and advisories received. This session is a platform where KMD also provides a review of the previous rainfall season. Furthermore, the ASDSP M&E results are shared during this session.
- **Other information sources.** Feedback is also sometimes assessed through the media⁷¹, SMS and by phone call. In some counties, there is collaboration with local radio – e.g. Nyota FM in Bungoma County – where there is an agricultural programme on seasonal forecasts and agricultural advisories. These agricultural programmes are interactive, with farmers and other community members able to phone in and provide feedback, comments and ask questions⁷². Farmers can also make direct phone calls to the agricultural extension officers to provide feedback on the forecasts and advisories. In addition, Bungoma County has integrated an SMS system as an alternative channel to assess feedback from communities.

Analysis

The above four types of feedback mechanisms for the PSP process provide an effective approach in the assessment of the PSP as well as for improving the process. All information received from the various sources is combined and assessed at the county level to improve the CIS and the dissemination of information. In Bungoma County, three types of feedback mechanism are used, namely: i) M&E reports produced and reviewed during the climate change sub-committee meetings; ii) email platforms; and iii) comments received during PSP meetings. This 'learning by doing' approach was found to improve the PSP process leading to social learning for all stakeholders. The feedback process is used to assess: i) if the information has had an impact; and ii) if people are receiving information and taking action as a result of the information. The local PSP committee uses the M&E report to learn and improve on PSP facilitation.

⁷¹ The term 'sometimes' is used, as it is difficult to attain information from inter alia all the radio stations, telephone companies and service providers on the exact numbers and how often it occurs.

⁷² In Bungoma County, the programme is aired every Tuesday on Nyota FM.

For example, the Bungoma County ASDSP Environmental and Social Inclusion Officer reported the following:

“Through the feedback [M&E], this has help[ed] in setting the weekly weather update and also buying the automatic weather stations, because through the feedback from the communities we learn that information was not always reliable so [we] needed [it to be] update[d]. Also, field visit[s] make us observe that [the] rain gauges’ report was not done appropriately so we bought automatic weather stations.”⁷³

This M&E approach is an innovative practice in CIS. Previously when KMD provided forecasts, there was no review process to learn from the needs of the users. Through this iterative feedback process embedded in the PSP process, KMD officials now better understand the needs of the users. For example, a Bungoma County Environmental Officer reported that initially the KMD used technical terms such as ‘scattered rains’. Through the feedback received, it was shown that users could not understand such terminology. KMD consequently now translates such technical terms into local languages.

Each feedback system has its own comparative advantages and limitations. Where there are gaps in one system, they can invariably be filled by other systems. The ASDSP review process is the main point of contact through which feedback is received about the PSP process. The review process is conducted twice annually between the two rainfall seasons – around January for OND and June for the MAM rain season. The local county-level PSP organising committee is then able to analyse the information before the next PSP workshop and is therefore likely to take results of M&E into account which improves the overall PSP. The PSP review system has an opportunity to be more rigorous since the data collection methods used to gather information were elaborated. This tool provides a systematic way to monitor and evaluate the PSP process. At the national level, although the M&E report is submitted to the national ASDSP coordinator, there is no evidence on how the results from all counties are integrated and acted on at the national level. This is because each county has its own system of data collection, as well as different systems for analysis and reporting. For the 2016 year, a common questionnaire was developed for M&E for all counties, however there is flexibility for each county to add extra questions to capture local specificities.

The community leaders’ review process has the opportunity to build strong ownership of the PSP process by the communities. This is because the process is led directly through the community leaders. However, there is a risk involved that chiefs and other community leaders may be tempted to portray a more positive picture – i.e. a higher adoption rate of advisories – if they feel that it will reflect better on them and their community. During the field missions to Kenya, a social disconnect between the chiefs – i.e. community leaders – and the community themselves became evident. Therefore, feedback on the process could be biased through this feedback mechanism. For example, during the men’s FGD in Balich location of Garissa County, it was recorded that the chief and community monitor does not provide the community with information about seasonal forecasts and advisories. They recommended therefore that the selection of people attending the PSP workshop should be on a rotational basis. In

⁷³ Extracted from KII discussions held on 30 May 2016 with the Bungoma County ASDSP Environmental, Resilience and Social Inclusion Officer.

contrast, the women's FGD group highlighted that they have confidence in their two representatives – i.e. the chief and rain gauge monitor. They noted that these representatives do provide the required seasonal forecasts and advisories during organised *barazas*. This confidence meant that the women were able to take proactive measures for livestock management.

The workshop review session provides an open space for the participants to critically review past seasons. Furthermore, it allows their opinions and experiences on the forecasts and use of advisories to be expressed and included in discussions. This feedback session is a catalyst for effective discussions involving all stakeholder opinions. However, because the feedback process is only done during the workshop, facilitators do not usually have the necessary time to act on it for the next season.

Feedback through media sources is complementary to other methods. The feedback received from users has the advantage of being spontaneous and independent. It is not controlled by the PSP local committee organisers. However, it is not clear how information provided is recorded for integration into the process later.

Overall, embedding the review process into PSPs will result in building trust, cooperation and ownership of the process, and thus greater sustainability.

4.1.3.6. Advisories

Observations

Themes pertaining to the development of advisories that emerged from a review of the PSP process, previous PSP workshop reports, KIIs and discussions with community focus groups included: i) development; ii) changes in the content included and the form between counties; and iii) changes in the content included and the form over time. A summary of observations relating to these themes is presented below.

- **Development of advisories.** Following the presentation of seasonal forecasts on the first or second day of the PSP workshop, advisories are developed by participants. Advisories are based on hazards, risks, opportunities, impacts and plans for each identified sector/livelihood for each of the three scenarios⁷⁴. Discussion groups for developing advisories are divided and formed based on one of the following factors: i) spatial (i.e. area); ii) sectoral (i.e. livelihoods); iii) value chains; and iv) three scenarios of the seasonal forecasts.⁷⁵
- **Changes in content and form of advisories between counties.** Following the workshops, organisers summarised the advisories developed by the groups. The advisories were then compiled into brochures. Although during the workshops and discussion groups advisories were developed for all three potential scenarios, the brochures only included the most-likely scenario. The format as well as the content and amount of detail included in the brochures differed between counties.

⁷⁴ The three scenarios being 'above normal', 'normal' and 'below normal' rainfall.

⁷⁵ The division of discussion groups is discussed in Section 4.1.1.

- Most advisory brochures were presented using various sub-headings that include one or more of the following factors:
 - per sector – including *inter alia* agriculture, water and health, and livestock⁷⁶;
 - per hazard – including *inter alia* flash floods, slippery road and diseases⁷⁷;
 - per sub-county level with further sub-divisions by sectors and/or hazards⁷⁸; and
 - per sector and disaggregated at the sub-county level⁷⁹.

In some counties, general advisories are given that do not follow any formal structure with sub-headings⁸⁰. Advisories also differ between counties in terms of the level of detail in the content (Table 11). Often advisories are detailed and include crop-specific information disaggregated for each value chain or advisories that include information specific to the sub-county level. Other counties limit advisories to general information. During the 2015 OND season in Kirinyaga County, agricultural regions were divided into three zones with specific advisories for each. This approach is useful to farmers as the types of crops they work with varies from farmer to farmer. For Mandera County during the same period, advisories were developed without being specific to sector or sub-county. Another notable observation is that in some counties, the advisories are developed according to the value chain that is the priority of the ASDSP programme in that county. For example⁸¹, in Vihiga County, advisories are developed for dairy, banana and poultry value chains i.e. the value chains focused on by the ASDSP programme in the county.

Table 11. Advisory structure between two different counties, Kirinyaga and Mandera.

County	Kirinyaga County	Mandera County
Structure of advisories	1. General advisories to farmers <ul style="list-style-type: none"> 1.1 Upper tea/coffee zone 1.2 Middle coffee zone 1.3 Lower zone 1.4 Climate-smart practices <ul style="list-style-type: none"> a) Crop management b) Crop health c) Livestock management 2. Disaster management 3. Transport and public safety 4. Kirinyaga County Government 5. Industry 6. Health sector 7. Environment 8. Agro-input dealers	1. Specific advisories 2. General advisories
Example of advisory provided	In the upper tea and coffee zones, farmers are advised to plant the following crop varieties: i) maize – H625, H626 and H628; ii) fruit trees – pears, plums and peaches; iii) fodder crops or shrubs – Kakamega 1 and 2, Bana, Rhodes, Calliandra, Leucaena; and iv) other heavy biomass forage species.	People living in higher rain-fed areas are advised to take advantage of the enhanced rainfall and increased acreage under crop cultivation while pastoralists should re-stock to benefit from expected good pastures.

- **Changes in content and form of advisories over time.** An analysis of three cases in Bungoma, Embu and Garissa Counties reveal the content of advisories has not changed significantly over time (Table 12). Furthermore, while seasonal climate forecasts vary,

⁷⁶ This format is used in advisory brochures in Garissa, Kericho, Kiambu and Kisumu Counties.

⁷⁷ This format is used in advisory brochures in Elgeyo Marakwet and Nandi Counties.

⁷⁸ This format is used in advisory brochures in Isiolo and Trans Nzoia Counties.

⁷⁹ This format is used in advisory brochures in Embu County.

⁸⁰ This format is used in advisory brochures in Nyandarua and Mandera Counties.

⁸¹ In Trans Nzoia County, advisories are given for specific value chains depending on the sub-location they are in. In Endebes Sub-County, the value chains considered are dairy, local poultry, beans and maize while in Cherangani sub-location, there is an additional chain considered for fish.

there is no clear trend in the difference in content of advisories in Embu and Bungoma. In Embu, additional crop varieties were recommended for the forthcoming season. In Bungoma, there was no clear difference in the advisories for both seasons. In Garissa, the seasonal forecasts were the same, however some of the recommended advisories from the previous season were removed.

Table 12. Comparison of advisory content between Embu, Garissa and Bungoma Counties across different rain seasons.

	Rain season	
	MAM 2016	OND 2015
Embu County		
Seasonal climate forecasts	<ul style="list-style-type: none"> Near-normal to normal in the highlands and upper-middle altitude zones Depressed rainfall is expected over various low-lying parts in the lower southern and eastern parts of the county Distribution is expected to be poor both in amount and coverage of area in most parts of the county 	<ul style="list-style-type: none"> Above normal (enhanced) rainfall The rainfall distribution – both in amount and coverage – during the 2015 ‘short rains’ (OND) season is expected to be generally good
Advisories	<ul style="list-style-type: none"> In the upper zones, plant the following maize varieties: H614, H629, H500Q, H513, H514, H515, H516, H517, PAN67, PAN4M19, WS 505, WH505, DK C9089, Pioneer 30-619 and Pioneer 3253 In the middle zones, farmers are advised to plant the following maize varieties: H513, H514, H515, H516, Duma 43, DK 8031, DH04, KDV4 and KDV6, PHB 3253, P2859W, Simba 61 and WS403 Farmers are advised to conserve excess fodder Lower zone crops should include: maize – DH01, DH02, KCB and KDV1/2 	<ul style="list-style-type: none"> In the upper zones, farmers are advised to plant the following maize varieties: H614, H625, H626, H628, Pannar 691, H9401 and KH600-14E In the middle zones, farmers are advised to plant the following maize varieties <i>inter alia</i>: H500, H516, H515, H514, H513, Duma 43, DK 8031, Pioneer 3253, Simba 61, Western seed 505 and KDV 4&6 Farmers are advised to conserve excess fodder Lower zone crops should include: maize – duma 43, DH01, DH02, DH04, KCB, KDV, DK 8031, PAN 4m19 and WSC 403
Analysis of changes	<ul style="list-style-type: none"> There is a slight difference in the varieties of crops recommended 	
	MAM 2016	MAM 2014
Garissa County		
Seasonal climate forecasts	<ul style="list-style-type: none"> Poor rainfall, below normal 	<ul style="list-style-type: none"> Poor rainfall, below normal
Advisories	<ul style="list-style-type: none"> Attend food security community <i>barazas</i> Do early land preparation Plant at the onset of rains Acquire appropriate farm inputs in time Plant early-maturing crops Plant drought-tolerant varieties Do <i>in situ</i> water harvesting Diversify appropriate crop enterprises Diversify livelihoods 	<ul style="list-style-type: none"> Attend food security community <i>barazas</i> Do early land preparation Plant at onset of rains Acquire appropriate farm inputs in time Plant early-maturing crops Plant drought-tolerant varieties Do <i>in situ</i> water harvesting Diversify appropriate crop enterprises Diversify livelihoods Conduct soil moisture conservation measures Do integrated pest management Undertake supplementary irrigation Undertake integrated soil fertility management Practice proper handling of farm produce Observe storage hygiene Do timely harvesting Do value addition

	Rain season	
Analysis of changes	<ul style="list-style-type: none">• The main advisories over the two seasons are the same• While the forecasts are the same, some of the advisories (~10–17) were removed	
Bungoma County		
Seasonal climate forecasts	<ul style="list-style-type: none">• The county is expected to have ~45% chance of receiving normal rains• The distribution both in space (region covered) and time (duration of rainfall) is expected to be generally poor across the county	<ul style="list-style-type: none">• Expected to have a ~45% chance of receiving above normal, slightly enhanced rainfall
Advisories	For maize: <ul style="list-style-type: none">• early planting;• use of certified inputs;• timely weeding;• crop insurance to be done earlier;• pests and disease management;• planting wind breakers;• practicing agroforestry;• training on safe use of chemicals; and• practice contour farming to prevent erosion.	For maize: <ul style="list-style-type: none">• early planting;• use of recommended inputs;• timely weeding;• crop insurance to be done earlier;• pests and disease management;• planting wind breakers;• practicing agroforestry; and• training on safe use of chemicals.
Analysis of changes	<ul style="list-style-type: none">• No substantial change is observed in the advisories while weather forecasts are different	

Analysis

The observations outlined above highlight the main factors influencing the content of the advisories, including *inter alia*: i) expertise and knowledge of the PSP workshop participants; and ii) the strategy used to divide the participants into different discussion groups. These observations show the importance of the multi-stakeholder nature on the quality of advisories. Communities and users are integral in the advisory development process and require a platform to communicate their needs. Intermediaries⁸² are also important to the process as they provide the necessary technical expertise. If one of the groups is missing – i.e. institutions, intermediaries or users – for example, it is likely to compromise advisory quality.

Despite revisions to the PSP process over time, there is still a considerable challenge in producing sector-specific advisories. Advisory users are the agro-pastoralist families that combine smallholdings of semi-subsistence, rain-fed crops with livestock as their main livelihood source. These families are well-aware that seasons are variable and appear to have become more so with climate change. To ensure food security for the season, these families require information and/or advice upon which to base numerous major agricultural decisions. For pastoralist activities, these decisions include *inter alia*: i) types of animals/livestock to keep for the season; ii) when to migrate for grazing pastures; iii) routes to take for migration; iv) selection of alternative livelihood options; v) when and how to manage pests and diseases; vi) how to evade livestock losses; and vii) when to re-stock animal supply and when to return animals to kin. And for smallholdings, the decisions include *inter alia*: i) which seeds to plant; ii) when to plant; iii) whether to apply fertiliser and/or pesticides; iv) whether to weed; v) when to harvest; vi) when to dry and winnow; and vii) how/when to store harvests. The observations show that many of the advisory brochures still provide general and broad statements and do not adequately highlight the specifics.

⁸² I.e. technical government representatives from various sectors.

Furthermore, the above observations indicate that advisory content does not always change over time. Often, they only include a broad advisory with general good practices – mostly risk reduction strategies – which do not depend on the three different scenarios. This is a fundamental problem facing the PSP process given that a main objective of the programme is to alter behaviour of users based on the specifics of the climate information available.

In line with PSP Principle 7⁸³, advisories should be presented as options so as to promote decision-making at the individual level based on the local context. Currently the advisories in the brochures are presented as instructions with only one possible scenario given. Major changes in the manner in which advisories are developed are consequently required.

4.2. Communication

The range of communication channels and their different levels of accessibility is integral to assessing the success of the PSP process in communities. This includes identifying preferences for different groupings and reliance. The different channels are discussed in detail in the following sub-sections. Each sub-section is further divided into observations and analysis to illustrate the description and interpretive results.

4.2.1 Participatory Scenario Planning principles in delivering user-responsive climate information services

4.2.1.1 Range of communication channels and their accessibility

Effective communication to deliver forecasts and advisories that are packaged to respond to user needs is at the core of CIS. Forecasts and advisories delivered through appropriate channels in a timely manner empower stakeholders to make informed decisions⁸⁴.

Currently, the end goal for climate information is to be ‘communicated’, rather than just ‘disseminated’. This variation defines communication as a two-way exchange between the communicators and the users, with dissemination as a predominantly one-way, scripted broadcast of information. However, during this impact assessment, the use of the term ‘dissemination’ encompassed the successful delivery of climate information to the user as well as interpretive communication of it through the PSP process. This means that the user was aware of the information that was to be delivered and that it would involve potential climate scenarios and possible options to implement into preparations for the coming rain season. Furthermore, it meant that the information was generated in an interpretive and participatory manner that encouraged feedback. In other words, this impact assessment measured the level of communication, i.e. two-way delivery and understanding of the information.

Observations

Through past PSP reports, KIIs and FGDs, the following observations were made about PSP communication channels and their access.

⁸³ Refer to Section 3.2.1.

⁸⁴ PSP report for MAM 2014, Migori County.

- **Various communication channels.** The chain of communication for climate information – including seasonal forecasts and advisories – from the PSP workshops to the users on the ground is presented in Figure 8. The different links include the PSP participants, intermediaries and users. Various participants at PSP workshops co-produced the localised seasonal forecasts and advisories, which are first communicated to the intermediaries and then to the users on the ground.



Figure 8. Climate information communication chain.

Communication tools generally used to disseminate advisories and seasonal forecasts across Kenya include the following.

- **Written materials:** i) bulletins/brochures; ii) banners; and iii) posters at schools and at public places within the community.
- **Media:** i) newspapers; ii) radio; and iii) television.
- **Field visits:** community visits (schools and field days) by agricultural and livestock extension officers.
- **Meetings and community gatherings:** i) *barazas* held by chiefs; ii) religious gatherings (churches and mosques); and iii) group meetings (e.g. VSLA groups, women groups and farmer forums).
- **Word of mouth** (other face-to-face encounters): informal meetings or social gatherings such as market places, weddings and funerals.
- **Information and Communication Technology (ICT) tools:** i) SMS/MMS; ii) email; iii) WhatsApp; iv) KMD office website; and v) social media, including Facebook and Twitter.

Between the counties, a combination of three to six different communication channels was generally used for dissemination of seasonal climate forecast advisories. The most commonly used channels were *barazas*, brochures and radio⁸⁵. It was also observed that within counties, different selections of communication channels were used based on areas and locations. For example, Nairobi County has three zones, each representing a different selection of channels as presented below.

- Zone 1: Central Business District (Hurlingham, Outering Road): radio, posters, SMS and WhatsApp.
- Zone 2: Lower Nairobi (Kaserani, Njiru area): radio, *barazas*, churches, schools, social networks, social centres, extension officers and TV.
- Zone 3: High rainfall zone (Dagoretti): media i.e. newspapers and radio broadcasts, posters, *barazas*, churches, schools, extension officers, youth groups/organisations and SMS.

⁸⁵ All counties used the three forms of dissemination channels.

- Users per channels.** Based on the selected county PSP reports for OND 2015⁸⁶, it was found that radio and religious gathering (churches/mosques) reached the greatest number of users in all counties. Across all counties, radio reports reached ~7,900 people with a maximum of 18,000 in Kitui County. Information shared through church gatherings reached ~6,000 people across all counties, with a maximum of ~23,000 in Kitui County. Public *barazas* included ~3,800 people with the number varying from a minimum of 488 in Makueni County to a maximum of 11,500 in Kitui County. On average, 1,700 brochures were distributed and 1,160 SMSs were sent out to users (Figure 9).

Over time, the reach of different communication channels has increased. For example, in Busia County and Kwale County, between MAM 2014 to OND 2015, the number of people receiving advisories via the radio has increased from 570 to 836 and from 4,000 to 9,000, respectively (Figure 10). A similar increasing trend was observed for the reach of information through *barazas* in the selected counties (Figure 11).

In terms of gender access, data gathered from previous PSP M&E reports show that all channels of communication were accessible to both men and women. However, the proportion of men receiving advisories through all channels of communication was higher than for women. Youth also received forecasts and advisories via many different channels, however the numbers were substantially lower than for adult women and men.

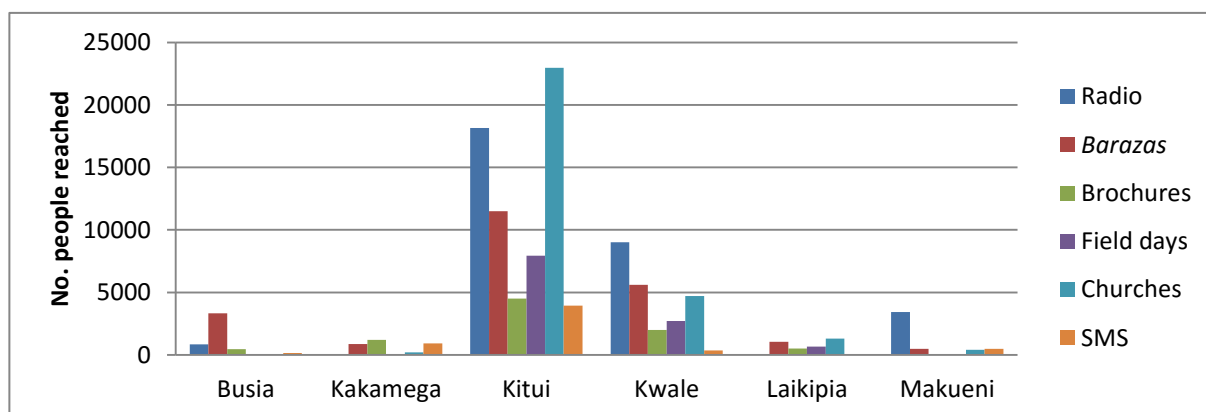


Figure 9. Number of people reached via different channels of communication in selected counties during OND 2015.

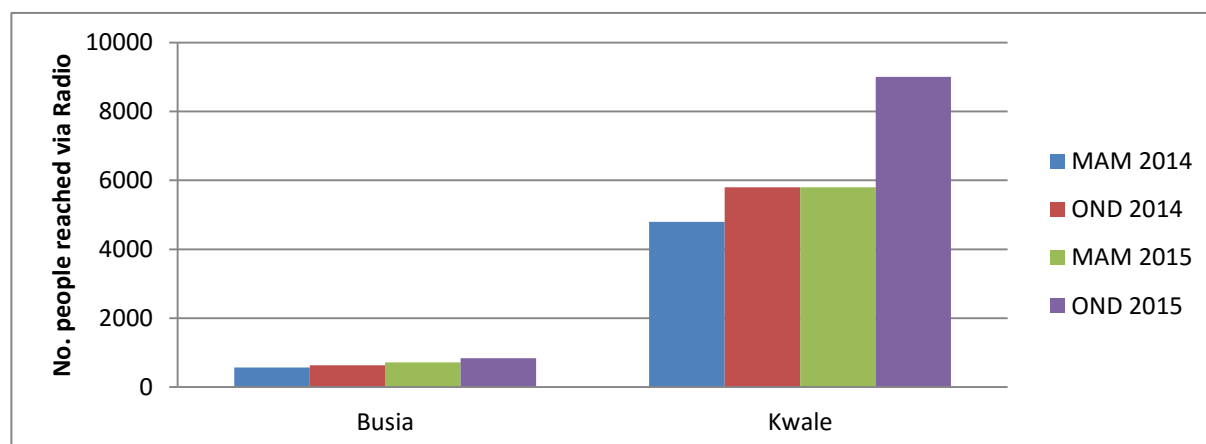


Figure 10. Number of people reached via radio for two selected counties, Busia and Kwale.

⁸⁶ Busia, Kakamega, Kitui, Kwale, Laikipia and Makueni Counties.

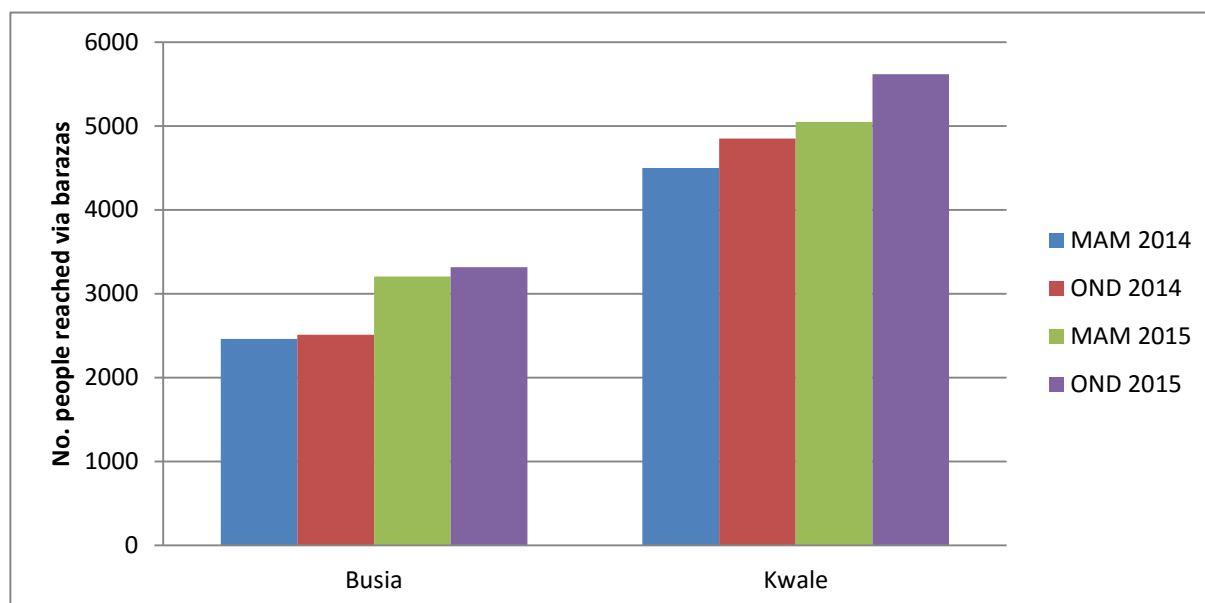


Figure 11. Number of people reached via *barazas* for two selected counties, Busia and Kwale.

- Preferred channels.** The preferences of users and local PSP organising committees with regard to means of communicating the seasonal climate forecasts and advisories depended on various factors. FGDs showed that men generally preferred public *barazas* or radio. By contrast, women preferred group meetings, specifically referring to women groups or VSLA groups. This is because such women-only groups provide freedom for women to talk more freely without fear of breaching social norms/behaviours. As a result, women were also more comfortable asking questions or for more details on the PSP concepts. Women-only groups also led to a greater number of women ultimately receiving information because there was a greater number of women who understood the concepts well enough to pass them on effectively to other women not able to attend the meetings⁸⁷. While the older generations of both men and women preferred meetings, informal gatherings and traditional media forms such as radio, the youth preferred ICT tools including WhatsApp and Twitter. Various KII participants, by contrast, revealed that their preferred channel of communication was through chief *barazas*. The reason for this was that chiefs have a direct link to the communities and are able to further disseminate information through members of their chief council.

In the first few years of PSP implementation, public *barazas* were the main channel for advisory dissemination. Currently, however, there is a shift being observed in many counties from *barazas* to radio, particularly by the local county organising committees. This shift is predominantly because of budgetary limitations combined with the aim to increase the number of users. For example, in Baringo County during OND 2015, to ensure a larger user group at an affordable cost, the local organising committee agreed to disseminate advisories through radio announcements. Through radio broadcasting, there is a once-off cost that reaches a wider audience rather than the costs incurred to hold numerous *barazas*, including for people to travel in from their homes which may be quite far from where the *baraza* is being held. Public *barazas* were only carried out within the hotspot

⁸⁷ In general, one woman representative attends each PSP workshop. In her community, she will then organise a VSLA (women-only group) and communicate the advisories received. Each woman who participated at the community-level women's meetings is also then responsible for communicating the advisories to other women who did not attend the meetings.

areas recently affected by floods⁸⁸, namely Ngarua and Ngambo, and the identified landslide-prone areas⁸⁹.

Analysis

- **Effectiveness of different communication channels.** Choosing an appropriate communication channel for different groups is critical for ensuring that the communication is well-received as well as accurate. Each channel has various strengths and weaknesses. The above observations revealed that the channels for communication of seasonal climate forecasts and advisories have shifted over the past few years. This shift is predominantly because of budgetary limitations combined with the aim to increase the number of users reached. A review of previous PSP M&E reports highlighted that community users were generally satisfied with the various channels used. For example, in Elgeyo Marakwet County, the M&E report for OND 2015 showed 81% of respondents indicated that channels they received advisories through were sufficient⁹⁰. This example highlights that a variety of communication channels caters for a large range of users, including *inter alia* community members, farmers and agro-pastoralists.

The use of radio for dissemination is increasingly becoming the most preferred channel by the local county organising committees⁹¹. Radio broadcasts have the advantage of reaching the largest audience in the most cost-effective way. However, determining the effectiveness of radio dissemination with regard to the resulting actions by users still remains a challenge. The sub-county of Kangema in Murang'a County illustrates this challenge. During the FGDs, participants reported receiving seasonal forecasts through radio broadcasts, however they admitted their reluctance to apply the advisories in the preparations for the ensuing rain season. The reluctance was revealed to be because of their inability to trust in the source of the information and the link the advisories have to the adverts by agro-input dealers⁹² that often followed the advisories on the radio.

Advisory dissemination should not be limited to mass media broadcasting. Effective communication requires interaction such as the level provided by PSP workshops, public *barazas* and groups meetings. This level of interaction enables better understanding amongst stakeholders and builds trust between participants, intermediaries and users. Communication channels need to be credible and persuasive to users and advisories need to promote a behavioural change in informed decision-making to reduce risk and take advantage of the opportunities presented by climate change (Box 1). This can be done through the process of selecting community leaders and group representatives. Chiefs are seen as credible and trusted points of information, and are encouraged to participate in PSP preparation and workshops so that they are seen as a link between the informed (those present at the PSPs) and those community members who could not attend the workshops. Building this trust promotes the necessary behavioural change amongst communities and users.

⁸⁸ These areas were affected when the Perkerra River experienced flash floods during 2013.

⁸⁹ Cherutich RK. 2016. Baringo 4th PSP Workshop report. ASDSP.

⁹⁰ ASDSP. 2015. Participatory Scenario Planning (PSP) Draft Report for October-November-December 2015 season.

⁹¹ five out of seven KII participants reported a preference for radio broadcasts. The review of PSP reports from 28 counties revealed that a total of 21 participants (~75%) used radio broadcasting as their preferred communication channel.

⁹² See Table 7, Section 4.1.3.1. Agro-input dealers are those dealerships that provide *inter alia* fertilizer and seeds to farmers.

Based on the above observations, it was revealed that community leaders chosen by the chiefs provide a line of communication for engagement, as well as the necessary social support and accountability for the community. Furthermore, the chosen leaders serve as relevant examples to the community which assists with facilitating the necessary behavioural change. Box 1 illustrates the relevance of practical examples within communities that result in behavioural changes.

PSPs leverage on existing government structures⁹³ to reinforce the provision of seasonal forecasts and the development of advisories. Box 2 illustrates an example in Murang'a County of the importance of effective communication channels that are built on existing networks. In addition, PSPs provide evidence that effective communication can be achieved through a variety of channels. M&E reports highlight that users receive seasonal forecasts and advisories from various sources, as well as that repetitive messages – for example, messages repeated on a radio broadcast – promote behavioural changes on the ground. For example, in Makueni County, 43% of discussion participants reported receiving advisories and seasonal forecasts from three to four different sources⁹⁴. This is evidence of the different channels making contact with users⁹⁵.

Box 1. Case study of taking advantage of the opportunities presented by climate change.

Effective communication through a 'doing' example in Kamutu village, Embu County

Phenima Mbura Nyaga is a 41-year-old woman working and living in Kamutu village, Ndenderu sub-location in Embu County. She is a local shop teller and owns a smallholding, cultivating maize and farming chicken and goats.

Phenima has been selected as a community monitor for Kamutu village. She has participated in two PSPs workshops, the first being OND 2015 and most recently, MAM 2016. Following the workshops, Phenima actively shared the seasonal forecasts and advisories with the women in her sub-location during women's group meetings as well as in more informal discussions. During preparation for OND 2015, Phenima recalled that many of the women did not trust her and as a result, did not act on the advisories in preparation for the ensuing rain season. However, she applied the advisories in her own farming practices. In particular, instead of using a drought-tolerant hybrid maize variety, Phenima chose to trust in the forecast to take advantage of the expected promising rainfall distribution, choosing a local maize variety instead. At the end of the OND 2015 season, Phenima received a significant harvest, one of the largest she has experienced. She managed to sell the maize at a good price and was able to increase her number of chickens and goats.

Based on Phenima's success during OND 2015, women from the village became more interested in the PSP and workshop process. Both Phenima and the forecasts were better trusted by the village women during preparations for the MAM 2016 rain season. Phenima is now known as 'the weather lady' amongst the village and is well-trusted as a point of communication for dissemination of seasonal climate forecasts and advisories.

⁹³ For e.g. agricultural extension officer and administrative chiefs.

⁹⁴ ASDSP Makueni Council. 2016. Monitoring and evaluation report on participatory scenario and planning activity.

⁹⁵ Although the quality of the advisories was not measured, the various users expressed satisfaction on receiving the advisories through different means. This suggests that they were able to reinforce the advisories as they were being relayed them on numerous occasions. It also allows further opportunity to interpret and understand the advisories.

Box 2. Case study of effective communication channels.Communication channels built on existing networks, an example from Murang'a County

Murang'a County has eight sub-counties. Each sub-county has at least four individual PSP trainers-of-trainers (ToT) drawn from agriculture, livestock, veterinary, irrigation or other sectors. These ToTs carry out extension services in the sub-counties. Once the seasonal climate forecasts are released by the KMD, they are shared at the sub-county level to the ToTs. Under the leadership of the sub-county agricultural officer, ToTs host a one day workshop of ~10 stakeholders in their respective sub-counties. During this workshop, plans and advisories are developed for the ensuing rain season. As soon as the advisories are generated, they are sent to the County Coordinator (CC) of the ASDSP. The ASDSP then, together with the County Natural Resource Management Working Group⁹⁶ organises two workshops, one for the lower dry parts and one for the upper parts of the county. This process is to ensure a thorough review of the produced sub-county-level plans and advisories.

Once the advisories have been finalised and released, they are then sent to the County Commissioners office and the Ministry of Agriculture. The advisories and seasonal forecasts are then shared through the administrative network to all the sub-sector heads down to the extension officers in the Department of Agriculture and further to sub-county administrators as well as all chiefs. Advisory dissemination to the users is led by the chiefs and extension officers, and is done through field days, *barazas*, church gatherings and agricultural forums. For the OND 2015 rain season, more than 12,000 farmers received advisories.

Additionally, under the leadership of the Director of Meteorology for Murang'a County, Kangema Rannet FM Station 106.5Mhz organised special programmes on air specifically to disseminate the advisories. During OND 2015, 23,000 farmers were reached through these broadcasted programmes.

The radio station now runs a continuous programme that deals with climate issues, called '*Kinya kia riera na imera*'⁹⁷, which broadcasts every Tuesday from 19h00 to 20h00. In addition, the KMD office has also been sending out short weekly weather forecasts via emails and SMSs as well as disaster preparedness reports. There are currently 54 primary recipients which comprise mostly of county and sub-county officers, sector ministries, actors in the value chains and service providers. ASDSP and KMD also worked together with NGOs⁹⁸ in the dissemination of advisories through church gatherings and community groups.

- **Quality of communicated advisories.** The advisories communicated from PSP workshops were of particular value if they met the needs of the different users. One of the criteria used to determine this was if users would be able to use the advisories to make informed decisions in planning for adaptation and resilience. During FGDs, it was recorded that there was general satisfaction concerning the relevance and usefulness of the received advisories. Participants acknowledged, for example, that during the OND 2015 rain season, El Niño conditions were forecasted which indicated a likelihood of enhanced rainfall over most parts of the country.

Advisories were developed and disseminated through *inter alia* group meetings, *barazas*, village elders, radio FM stations, extension officers, phones, bulletins/brochures, informal gatherings, TV, Twitter, religious groups, women groups, SMSs/MMs from the

⁹⁶ The County Natural Resource Management Working Group consists of the Kenya Forest Services (KFS), Water Resource Management Authority (WARMA), National Environment Management Authority (NEMA) and Ecumenical Church Loan Fund (ECLOF).

⁹⁷ The literal meaning in English is 'to demystify what is in a guard', which refers to current weather forecasts and its implications in terms of mitigation and adaptation.

⁹⁸ NGOs such as CALITAS and ADS.

Agriculture Department, traditional forecasters, KMD, NDMA, farmer forums, schools, field days and local newspapers. As a result, communities and users were well-prepared for El Niño effects with no major hazards reported across the country. Women in Kangema Sub-County of Murang'a County indicated that El Niño advisories were received in a timely manner which allowed them to adequately prepare and harvest their crops on time⁹⁹. Women in Mutuabare location, Mbeere South, Kiambere Ward in Embu County similarly reported:

*"We experienced El-Niño last year and it was different from 1997 because that one was large and it destroyed farms but the one for last year was productive. We were earlier informed about the El-Niño's coming."*¹⁰⁰

In Nanighi community of Garissa County, the women also confirmed that they received the El Niño warning early enough, which allowed the people in the lower areas time to migrate north and safeguard their tools¹⁰¹. In Makueni County, during M&E interviews for OND 2015, 95% of respondents acknowledged receiving advisories in a timely manner before the onset of the rains, 77% of them found the language used for communicating the advisories highly appropriate, 86% found the advisories relevant, with 93% confirming that they used the information to make decisions in their activities. Overall, 95% of the respondents reported benefits of using the advisories¹⁰². The remaining 5% reported receiving no benefits. The advisories included those that chose not to implement the advisories as they did not trust them as well as those that were unable to understand and interpret the received advisories. The activities undertaken as a result of the advisories included: i) planting of trees; ii) early planting; iii) constructing and renovating water harvesting and conservation structures; and iv) cropping mung beans¹⁰³.

The analyses of the advisories¹⁰⁴ indicate that a large number of the summary advisories brochures provided a broad statement rather than a specific forecast¹⁰⁵, and that the content of the advisories sometimes did not change over time. This is detrimental to the process as it shows that details are not being included and that the advisories are not necessarily specific to that season. However, the above examples highlight that in general there is trust in the advisories from PSP workshops and that users make use of the advisories for the coming rain season.

- **Barriers and opportunities for communicating and accessing climate information.** According to KII participants, the main challenges for communicating PSP advisories included the following.
 - Translation of advisories and seasonal forecasts from English to local languages. A main challenge frequently reported was the difficulty in accurately translating technical terms into local languages without some element of misinterpretation. Part of the problem is that extension officers, although generally fluent in Swahili, often do not speak the local language of the area. In addition, local languages are commonly composed of various different dialects. This poses a challenge when translating

⁹⁹ Quote taken from the women's group FGDs in Kangema sub-county, Murang'a County.

¹⁰⁰ Quote taken from the women's group FGDs in Mutuabare location, Mbeere South, Kiambere Ward, Embu County.

¹⁰¹ Quote taken from the women's group FGDs in Nanighi village, Garissa County.

¹⁰² ASDSP County Co-ordinating unit, Makueni County. 2016. Monitoring and evaluation report on participatory scenario planning activity.

¹⁰³ In Kenya, mung beans are locally known as green grams.

¹⁰⁴ See Section 4.1.2.6.

¹⁰⁵ Either locally- or sector-specific, based on the current forecast. See Annex 4 for an example of a broad advisory.

advisories. Many of the other channels, i.e. brochures, only include the advisories in one language and do not translate them into all the local languages of the regions. While radio broadcasting is generally done in the local language of the region where broadcasting takes place, it is important to ensure that careful translation takes place of scientific terms to effectively communicate the correct meaning.

- Limited technical staff (extension officers), funding and logistics (e.g. vehicles). Insufficient resources (i.e. human, financial and logistical) limited the number of field visits for extension officers which in turn made counties rely heavily on radio broadcasts to disseminate seasonal forecasts and advisories.
- The inability for community members to trust in their community representatives as they believe they are involved for personal gain rather than to efficiently communicate the advisories to fellow community members. This was illustrated in the Balich sub-location in Garissa County. This distrust leads to miscommunication of forecasts amongst community members.

During the FGDs, community members from all four counties visited reported that they did not experience specific barriers/constraints in accessing seasonal forecasts and advisories. Instead, participants revealed that PSPs removed some of the previous communication barriers experienced when accessing climate information. Across all counties visited, before PSP implementation, communities would rely solely on traditional forecasters or their own predictions based on traditional weather and climate indicators. This was the case particularly for the women of Balich sub-location in Garissa County. The Balich women indicated that prior to the PSP process being implemented in Garissa, their only access to climate information was through their husbands who would receive it directly from traditional forecasters. However, since the introduction of the PSP, the women are readily able to retrieve weather and climate forecasts and advisories from various sources including women VSLA meetings, radio, *barazas*, as well as local rain gauge monitors.

Overall, although there are a few remaining challenges to effectively communicate forecasts and advisories, PSPs have innovatively combined communication systems that are readily accessible to communities including *inter alia* through community monitors, local and religious leaders, public community gatherings, media and ICT tools. The PSP process has been proactively and continuously redesigned to alleviate social barriers that arise¹⁰⁶. Therefore, this redesign has allowed the communication of seasonal forecasts and advisories to reach further afield and to a wider audience of users than prior to the introduction of the PSP.

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 the users, particularly pastoralists, farmers and agro-pastoralists, in two different ways: i) change in knowledge, attitude and practices; and ii) change in productivity gains and resulting effects.

¹⁰⁶ Social barriers such as gender considerations where women did not have direct access to traditional forecasters prior to PSP implementation.

i. Change in knowledge, attitude and practices

The way in which PSPs impacted users is explained under the following three themes:

- empowering communities;
- encouraging multi-level dialogue; and
- informing decision-making.

Knowledge development: PSPs empower communities with knowledge on seasonal forecasts, climate change and variability, flexible planning and risk management

This empowerment provided a shift in the placement and direction of existing knowledge as it evolved with new information. The evidence of learning by community members through their participation at PSP workshops was illustrated through the following statement by the Nanighi sub-location chief of Garissa County:

“...I have attended PSPs since 2011 when [it was] introduced by CARE. Through my participation, I have learn[ed] to combine local and scientific meteorological seasonal forecasts. At first, we disbelief [sic] the scientific approach, but after discussions and comparison with the traditional forecasts, we now take the information. I also understand now that there are different possible scenarios for the seasonal forecasts. Therefore, I am able to plan depending on the [relevant] scenario...”¹⁰⁷

The above comment emphasises the value PSPs add in promoting a discussion platform on various possible scenarios. This platform for discussion enables flexible planning and risk management rather than treating a forecast as prescriptive and a guaranteed outcome. The advisories developed during PSP workshops provided communities with necessary information to plan for a specific course of action based on the ‘most likely’ scenario. Further to this, advisories emphasised to users the importance of preparing contingency plans. During the dissemination campaign for MAM 2013, for example, communities in Nanighi sub-location were provided with the most likely scenario as well all other scenarios and accompanying advisories, i.e. for ‘below normal’, ‘normal’ or ‘above normal’ rainfall. Communities were then able to sufficiently prepare for all scenarios. This approach was of critical importance for communities when the unexpected flooding scenario¹⁰⁸ took place rather than the predicted ‘normal rainfall’ one. Since the advisories covered all scenarios, farmers had managed to prepare for the floods and as a result minimised their losses.

Through PSPs workshops, communities now appreciate the importance of acquiring seasonal forecasts before the start of the rain season. During a review of MAM 2014 in Garissa County, for example, a participant from Bura sub-location commented that the benefit they received was an increased interest as a community in gaining access to and interpreting seasonal climate forecasts¹⁰⁹. Similarly, during the review of the PSP process for MAM 2013 in Machakos County, a farmer from the Central Division revealed that he is part of a team of 24 small-scale farmers in his village who gather to discuss weather forecasts and share their knowledge with fellow community members.

¹⁰⁷ Extracted from KII discussions held on 19 May 2016 with Nanighi village chief.

¹⁰⁸ This flooding event was as a result of an overflow of the Tana river, which has been discussed in Section 4.1.3.4.

¹⁰⁹ Kimenia D. 2014. PSP, Advisory Dissemination, Monitoring and Evaluation Report. ERSIO-ASDSP Garissa County.

Additionally, the chief of Kathiani location in Machakos, a pastoralist and crop farming community, commented:

*"We have a problem when rainfall lacks and if we don't [sic] use weather information beforehand. Most people lose their livestock mostly in 'below normal' rainfall scenario. To avoid this, we now receive information from [the] Ministry of Agriculture officials and disseminate [it] into groups within the community."*¹¹⁰

The above comment highlights the community ownership of the PSP process and the impact it has had on this location. The provision of new information has encouraged local communities to integrate their existing information with the advisories and share their newly-acquired knowledge with fellow community members. This highlights how communities now trust the seasonal forecasts provided through the PSP process.

Adjusting attitudes: PSPs present communities with an opportunity to interact with technical personnel¹¹¹

The multi-stakeholder principle embedded in PSPs has provided the opportunity for communities to interact and engage with government technical departments. During FGDs, various community groupings expressed satisfaction with the platform provided by PSPs to easily communicate with technical departments and personnel. This interaction has provided a platform for discussion with technical personnel for further communication and clarification. Further to this, this level of interaction promotes informed decision-making that is of specific relevance to their livelihoods. As a result, communities have more confidence in the advisories and in their decision-making, and have taken ownership of the PSP process. Community members that participated in the workshops were ready and willing to share, disseminate and discuss seasonal forecasts and advisories amongst their fellow community members. The example above of the Machakos farmer sharing and disseminating advisories with other small-scale farmers illustrates this point¹¹². Accepted community leaders¹¹³ have learnt through others and are now actively championing the dissemination of advisories. In addition, there is evidence of a shift in attitude amongst community members with an increased number of demand-driven requests for agricultural inputs such as: i) climate information including seasonal forecasts and weather updates; ii) climate-tolerant seeds; and iii) training on adaptation and mitigation measures.¹¹⁴ MAM 2014 in Garissa revealed that some farmers proactively went to the Sub-County Agricultural Officer (SCAO) to enquire about the availability of the recommended seed varieties for the season¹¹⁵. Furthermore, communities made contact directly with agricultural extension officers to provide feedback and updates on the forecasts and advisories.

¹¹⁰ OND 2013 Machakos PSP Notes Report.

¹¹¹ See Section 4.1.3.3.

¹¹² See above sub-section, Section 4.3.1.i. Knowledge development: PSPs empower communities with knowledge on seasonal forecasts, climate change and variability, flexible planning and risk management.

¹¹³ For example, youth and women's group leaders, chiefs and religious leaders.

¹¹⁴ In small-scale farming across Africa, the provision of agricultural advisories has tended to be through a top-down approach. Here, PSPs are an illustrative example of how knowledge can empower communities and drive the demand for more locally-specific advisories.

¹¹⁵ Kimemia D. 2014. PSP, Advisory Dissemination, Monitoring and Evaluation Report. ERSIO-ASDSP, Garissa County.

Adjusting practices: PSPs inform decision-making for climate-resilient livelihoods and the integration of DRR methods

Providing access to seasonal forecasts and advisories to farmers, pastoralist communities has allowed users to integrate a number of climate-smart agricultural practices and DRR strategies with existing farming practices. Although many of these users have used the advisories to their benefit¹¹⁶, not all who received the advisories have undertaken steps to implement them¹¹⁷. M&E reports of previous PSPs indicated 6^{118;119} to 20%^{120;121} of users who received the advisories chose not to implement them¹²². Some counties¹²³ reported that over 35% of all users interviewed confirmed receipt of advisories but did not implement them into their preparations for the rain season^{124;125}.

Farmers reported that the use of climate information and advisories was evident in the: i) shifting of planting dates; ii) changing of seed varieties and/or crops; iii) integrating of soil conservation techniques; and iv) implementing water harvesting methods.

Knowing the onset date of the rain season has the potential to greatly influence the crop-growing calendar. PSP advisories have been demonstrated to be useful for a number of aspects of agricultural planning. Examples of such planning are detailed below.

- Farmers in Balambala sub-location of Garissa County reported that knowing the date of rain onset allowed them to make preparations in advance, including purchasing their seeds in time for an early onset of the rain season¹²⁶.
- Women farmers in Embu County reported that prior to the provision of advisories they would only plant when the rains started. However, as they are now better informed through advisories, they reported being able to plant earlier, pre-empting the rains and maximising crop growing time¹²⁷.
- Communities have learned how to prepare and maximise crop growth using the full rain season. This has been done by timing planting with the dates indicated in the climate forecast and advisories.
- During MAM 2014 preparations in Trans Nzoia County, a dry spell of two to three weeks was forecasted following the onset of the 'long' rain season¹²⁸. As a result, some farmers

¹¹⁶ Benefits include *inter alia* planting drought- or other climate-resilient seeds and planting earlier or later in the season.

¹¹⁷ The various factors that hinder the effective implementation of the PSPs advisories are discussed in Section 4.3.5.

¹¹⁸ e.g. Elgeyo Marakwet and Makueni Counties.

¹¹⁹ Draft Report PSP OND 2015 Elgeyo Marakwet County. 2016. ASDSP, 2016 and Monitoring and Evaluation Report on Participatory Scenario Planning Activity, Makueni County.

¹²⁰ Participatory Scenario Planning Report OND Season. 2015. ASDSP Wajir and KMS Wajir.

¹²¹ e.g. Homa Bay and Wajir Counties.

¹²² There are various possible reasons for receivers of advisories choosing not to implement them including *inter alia* inadequate resources, distrust in the advisories and PSP process and inability to interpret the advisories. They are all discussed during various sections of this impact assessment.

¹²³ Namely, Garissa and Kirinyaga Counties.

¹²⁴ Participatory Scenario Planning Report OND Season. 2015. Kirinyaga County, ASDSP Environmental/Climate Change Committee.

¹²⁵ e.g. Kirinyaga County.

¹²⁶ Kimenia 2014. PSP Report, Garissa.

¹²⁷ Taken from the FGDs held on the 24th May 2016 with a women's group in Kiambere ward, Mbeere South, Mutuabare location, Embu County.

¹²⁸ The rain season would continue as forecasted following the dry spell.

in Salama town shifted their planting date from the rain onset to approximately six weeks later¹²⁹ and used early-maturing seeds¹³⁰.

- Farmers reported substituting certain crops with others or the use of specific seed varieties to account for possible forecasted rainfall. During MAM 2013 preparation in Machakos County, coffee farmers chose to plant maize instead of coffee in the open fields for this particular season as the rainfall was predicted to be 'below normal', which was deemed not suitable to produce a feasible coffee harvest^{131;132}.
- Communities have been able to better prepare themselves for droughts and long dry spells by planting drought-resistant crops or shifting to early-maturing crops¹³³.
- PSP M&E reports have indicated a widespread adoption of soil conservation techniques and the implementation of water harvesting methods. For example, in lower Yatta area of Machakos County, over 1000 water reservoirs were constructed during the MAM 2013 preparation for the rain season. Farmers made use of the seasonal forecasts to determine the size of the reservoir needed prior to construction¹³⁴.

Another notable shift since the provision of advisories is that agro-pastoralists are now producing their own fodder. Evidence of this practice was observed during PSP evaluations in Nandi County and Kone sub-location of Garissa County¹³⁵. Most of the agro-pastoralists evaluated had established or were in the process of establishing hay farms^{136;137}. Furthermore, agro-pastoralists and livestock herders across many counties have taken various actions after receiving advisories specifically addressing the potential effects of El Niño during OND 2015, including: i) migrating families and livestock to higher-level ground; ii) clearing drainage systems; iii) relocating farm equipment (e.g. pump sets); iv) preparing early for the rain season; v) timing planting as best as possible; vi) vaccinating animals against diseases; and vii) stocking medication and disease-prevention drugs for both families and livestock.¹³⁸

An illustration of how the provision of PSP advisories have informed communities and assisted them in building climate-resilient livelihoods is in the case study presented in Box 3.

¹²⁹ Rain onset was forecasted for 15 March; farmers consequently shifted their planting dates to the week of 4 May.

¹³⁰ Trans Nzoia County PSP Report MAM 2014.

¹³¹ OND 2013 Machakos County PSP Notes Report. 2013.

¹³² It is important to note that coffee plants take many years to reach maturity, and it was more beneficial for the farmers to focus their annual harvest on a short-term crop than rely on coffee for this specific rain season.

¹³³ Taken from the FGDs held on the 25th May 2016 with a women's group at Ndenderu sub-location, Kamarandi location, Embu County.

¹³⁴ OND 2013 Machakos County PSP Notes Report. 2013.

¹³⁵ Kimenia. 2014. Participatory Scenario Planning, Advisories, Monitoring and Evaluation Report, Garissa. MAM 2014 ASDSP.

¹³⁶ The species, *Boma rhodes*, was the most common grass used.

¹³⁷ Nandi County PSP OND 2015 report. 2015.

¹³⁸ This compilation is a summary of responses on advisories taken from FGDs held in various communities in Kenya during this impact assessment. See further: Kimenia 2014. PSP report, Garissa.

Box 3. Building climate-resilient livelihoods through informed decision-making.The case of Sabena farming community in Mado Gashi town, Garissa County

Since the introduction of PSPs in Garissa County, climate information through seasonal forecasts and PSP advisories have been made available to communities mainly through chief *barazas*. Based on the information received, the Sabena farm community has been able to plan together on various adaptation strategies.

Pastoral farmers are starting to add value to their processes including producing animal products such as hides, skins, milk and meat¹³⁹.

The main advisories for pastoralists for this particular season included: i) improve rangeland management; ii) develop and implement a community fodder conservation plan; iii) weak animals should be kept at the homestead for selling and strong animals should be sent for long-distance grazing.

When seasonal forecasts predicted prolonged dry spells or depressed rains, the community then harvested and stored their fodder. Furthermore, they sold off their most vulnerable animals and invested the profits in buying more resilient and adaptive animals¹⁴⁰.

Together the community has formed small organisations amongst themselves to better manage fodder production. Individuals also introduced protected grazing zones and rotational grazing systems during the dry season.

PSPs empower communities to take advantage of the opportunities that climate change and climate variability present

Advisories produced through the PSP process inform communities about possible mitigation measures to reduce the risk of crop and/or livestock failure. In addition, the process also encourages communities to take advantage of opportunities arising from the seasonal forecast. This advantage is a central part of effective adaptation to climate change.

The case study of the local Embu woman¹⁴¹ who became well-known as the community correspondent for climate forecasts illustrates how communities and individuals have made use of the opportunities climate change presents¹⁴². Phenima was living in an area prone to drought which meant farmers commonly used drought-resistant crop varieties. However, when Phenima received the advisories that enhanced rainfall was forecast for the OND 2015 rain season, she shifted her crop selection to a high-yielding maize hybrid. This shift resulted in a fruitful harvest, providing her with enough profit to prepare for future seasons.

¹³⁹ The meat is produced through a traditional drying process for goat flesh known as *nyirnyir*.

¹⁴⁰ For example, camels.

¹⁴¹ Refer to Box 1.

¹⁴² See Box 1 in Section 4.2. for further details.

Another example is of a farmer in Elgeyo Marakwet County during OND 2015. The farmer used the advisories and forecast for enhanced rainfall and shifted his crop from cabbages and *sukuma wiki*¹⁴³ to *managu*¹⁴⁴, which has a higher market value than his regular crop¹⁴⁵.

Farmers using irrigation have also benefited from the provision of advisories; they have learned to time their removal of irrigation pumps from areas that are likely to flood. They have also been able to take advantage of the receding flood waters to plant and receive an additional harvest.

At times PSP advisories have provided market information which has allowed farmers to further benefit from the process by making informed marketing decisions. For example, during the MAM 2014 rain season, a farmer in Kirinyaga County planted a high-yielding maize variety, and then chose to sell his harvest at the hotels in the city rather than at the local market. This enabled him to sell his crop at almost double the price he normally fetched at the market¹⁴⁶.

ii. Productivity gains and resulting effects

During the KILs and FGDs, many farmers reported that they were better-equipped to plan and make necessary preparations for the coming rainy season because of the advisories they received. A review of the PSP process¹⁴⁷ revealed that some farmers who received the advisories felt their overall farming activities had improved. Generally, the farmers confirmed that they had all experienced increased yields. Examples of improved yields for farmers were seen in Embu County during the 2015¹⁴⁸ OND rain season. In Runyenjes Sub-County, farmers doubled their maize yields and increased milk and tea production by 20%. In Iria Itune, mung bean production increased substantially, with farmers expecting to produce one bag reportedly producing as many as ten bags. In Mbeti North ward, some farmers increased their banana yield by 50% from 20 to 30 bunches¹⁴⁹.

In Garissa County, for example, farmers reported decreased losses after implementing advisories and stated that they are now following flood warnings which in the past were ignored. Indeed, all advisories are reportedly being taken seriously by communities throughout the county. Participants have learnt to manage their risks by preparing for the rain season early enough to *inter alia*: i) decide what is needed for the harvest; ii) prepare for all climate conditions; and iii) fully exploit the most productive growing seasons.¹⁵⁰

¹⁴³ *Sukuma wiki* is the Swahili word for kale. It is grown well in Kenya.

¹⁴⁴ *Managu* is the Swahili word for African Nightshade. *Managu* fetches a higher market price than cabbage and kale in Kenyan markets. This is because they require more rain to produce and are therefore not as widespread as cabbage and kale.

¹⁴⁵ Draft Report Participatory Scenario Planning OND 2015. 2016. Elgeyo Marakwet County, ASDSP.

¹⁴⁶ Participatory Scenario Planning Report Long Rains 2014. Kirinyaga County, ASDSP Environmental/Climate Change Committee.

¹⁴⁷ Community Reviews Workshop Report OND 2015. Embu County.

¹⁴⁸ Community Reviews Workshop Report OND 2015. Embu County.

¹⁴⁹ The reported benefits are recorded from farmers in response to how beneficial PSP advisories received were for the rain season. The responses highlight that farmers are linking their productivity gains with the use of PSP, although they do not provide or quantify the extent of the role of PSPs in those productivity gains. Therefore, this is the limitation of the assessment approach, relying on the past memories of farmers to explain impacts.

¹⁵⁰ This information emerged from discussions held on the 18 May 2016 with the ASDSP Environmental Resilience and Social Inclusion Officer for Garissa County.

Farmers have been able to minimise losses by harvesting early and protecting assets¹⁵¹ while taking advantage of receding floodwaters to plant additional crops. In addition, the Garissa County Commissioner – who is also the chairman of the Garissa El Niño Response Team – reported that climate information was disseminated timeously and utilised appropriately. He went on to state that the reason Garissa did not suffer any fatalities during the 2015 El Niño was due to the PSP process and provision of advisories, which allowed the community to prepare adequately¹⁵².

The implementation of PSP advisories in Garissa has contributed to improving livelihood opportunities, food security and population health. According to women in Balich sub-location, Garissa County¹⁵³, prior to the introduction of PSPs in their area¹⁵⁴, livestock diseases were widespread, resulting in few opportunities to sell livestock at the market. Because of limited income earning opportunities, community members were leading more nomadic lifestyles. With combined access to support services and food relief from NGOs, as well as the use of PSP advisories, communities have become more sedentary. The provision of advisories encouraged farmers to incorporate fodder farming and various other income-generating opportunities – such as basket weaving – into their livelihood strategies. As a result, there has been a reduction in livestock losses and an increase in income, enabling parents to send their children to school. For example, in Embu County, it was reported that no children dropped out of the local school. Improved school attendance was attributed to the provision of adequate food and additional income to pay for school fees.

4.3.2. Impacts of Participatory Scenario Planning on intermediaries

The PSP process has – beyond its application within CARE – become a widely-accepted tool for CIS among development practitioners¹⁵⁵. The active involvement of NGOs, CBOs and private agro-dealers has promoted PSP uptake, aiding the dissemination of seasonal forecasts and enabling access to climate advisories among communities. Climate change and variability have been one of the stronger concerns in development initiatives in that the impacts affect various sectors including *inter alia* livelihoods, food security, health and environment. In addition, climate change has a disproportionate effect on gender disparity and impacts on the overall development of a community. NGOs are currently working towards an integrated approach where attention is given to climate resilience and DRR preparedness regardless of the initial/core agenda of the NGO. There is a broad range of these NGOs working in different fields adopting PSPs across counties in Kenya. PSPs are being used as a forward-looking decision-making tool to provide an opportunity for organisations to integrate climate resilience into the working agenda of the above intermediaries. For example, Katoloni, a CBO in Machakos County, is promoting environmental conservation that integrates climate resilience into its activities. Katoloni is now involved in disseminating climate information throughout communities¹⁵⁶. Similarly, the NGO Arid Lands Development Focus (ALDEF), which has over

¹⁵¹ Such as livestock and irrigation equipment.

¹⁵² Odhiambo S. 2016. Performance Assessment and Monitoring Report. 24th January 2016 to 30th January 2016. Garissa County Meteorological Services.

¹⁵³ Taken from an FGD with a women's group in Balich village held on the 20 May 2016.

¹⁵⁴ PSPs were introduced in Garissa County in 2010.

¹⁵⁵ See Section 4.1.3.3. on multi-stakeholder interactions during PSPs workshops.

¹⁵⁶ MAM 2013 PSP Report Machakos County. 2013.

20 years of experience implementing emergency operations in Wajir County, is working with the KMD to integrate CIS in their project activities to enhance climate adaptation and awareness within the county¹⁵⁷ because of their participation at PSP workshops.

NGOs and other development partners commonly promote their environmental and development activities in *barazas* and at workshops. These community platforms for environmental awareness have integrated the PSP process into their procedures. For example, during *barazas* in Kiriya County, stakeholders with special environmental interests are encouraged to present their activities including beekeeping and planting of multi-purpose trees.

The PSP process has also assisted private agro-dealers in tailoring services for their clients since farmers now receive information through the advisories on various seed varieties appropriate for the coming rain season. For example, in Taita Taveta County, a farm-input shop in Taveta sub-county reported using the OND 2015 advisories to stock up with the recommended seed varieties for the coming rain season, resulting in increased sales.

4.3.3. Impacts of Participatory Scenario Planning on different climate information producers

A review of previous PSP workshops, reports, KIIs and FGDs found that PSPs have positively impacted the producers, namely the KMDs and government technical departments in three main ways, namely: i) increasing interaction and coordination among different departments; ii) facilitating and improving their extension work; and iii) mainstreaming climate change information and its adaptation into planning processes and decision-making.

i. Increased interaction and coordination

The PSP process has contributed to improved relationships and increased interactions between the KMD and other relevant technical institutions for four main reasons. Firstly, it facilitated engagement between the upper-level stakeholders responsible for producing the climate forecasts, such as the county-level KMDs and the ASDSP, through its multi-stakeholder platform. Secondly, it led to the formation of sector-wide partnerships between institutions to produce and communicate climate information – derived from KMD data – to users¹⁵⁸. An example of coordination is in the Bungoma County sub-committee on environment, climate change and development within the county steering committee, which mandates PSPs and other climate- and environment-related matters. Thirdly, it increased the visibility of the KMD by adapting their communication systems to make the information considerably more relevant to farming communities. Forecasts were produced by the KMD, disseminated via different media channels and also sent to a high-level official. There was no cooperation or interaction with the users of the forecasts and information. KMD have therefore moved from a strict ‘dissemination’ concept, which is one-way communication (up/down), to a ‘communication’ concept, which integrates two-way communication (horizontal). And fourthly, it assisted the KMD in packaging their information to be more relevant to technical departments

¹⁵⁷ MAM 2014 PSP Report, Wajir County. 2014.

¹⁵⁸ See Section 4.1.3.3.

such as agricultural extension services as a result of better understanding of user needs. The following are quotes taken from KILs to illustrate these improvements:

“There is improvement in interaction levels. Now we understand users (farmers) needs which are: i) onset of rains; ii) cessation of rains; iii) weekly update[s]; and iv) estimated amount of rainfall.”¹⁵⁹

“...as a result of PSP, Met [KMD] is open to the communities in the way we are doing seasonal forecast[s]. We now provide weekly forecasts to community radios at no charge.”¹⁶⁰

Numerous county governments have recognised the importance of climate change and weather and climate information in building resilient livelihoods through collaboration and the sharing of success stories among users¹⁶¹. An array of successes has been recognised at the county government level in response to PSP implementation. For example, Bungoma County Government has acquired and installed four automatic weather stations to improve the accuracy of PSP forecasts. Another example is in Trans Nzoia County, where the county government has increased the number of rainfall stations from 8 to over 24 spread across the communities¹⁶².

ii. Facilitated and improved extension work

Since the introduction of PSPs, various county government departments now have better access to more localised and seasonal climate and weather information. This has resulted in the reliable delivery of forecasts and information to communities, and has provided relevant extension services, including the supply of climate-appropriate seeds and necessary guidelines for implementing new seed varieties. Improvements in extension services through the PSP process are illustrated in the following statement by the Garissa Sub-County Livestock Production Officer:

“The most important thing about PSPs is the value it has added to my work. Before this I used to do needs-based trainings with no consideration of how the climate would look like. Thanks to PSP, I am now able to use climate information to plan for community trainings and field assessments that are relevant to the probable impact scenarios. I allow for flexibility in my planning since I know that each season is different.”¹⁶³

Previously, in order to combat failed rain and crop seasons, government services were limited to emergency measures and the provision of in-county relief programmes. However, through PSP participation, discussions on the implementation of multi-sector coordination to prepare for the effects of climate change have been initiated in Kirinyaga County¹⁶⁴. Another example is in Nandi County where, upon receipt of the PSP advisories for OND 2015, the county government cleared all drainage systems in preparation for the predicted increase in rainfall¹⁶⁵.

¹⁵⁹ Quote taken from KIL discussions held with the County Director for KMD, Bungoma County.

¹⁶⁰ Quote taken from KIL discussions held with the County Director for KMD, Embu County.

¹⁶¹ See Section 4.3.1. on impacts of PSPs on different users.

¹⁶² Trans Nzoia County OND 2015 Participatory Scenario Planning Report. 2015.

¹⁶³ Joto Afrika Issue 12.

¹⁶⁴ MAM 2014 PSP Report, Kirinyaga County. 2014.

¹⁶⁵ OND 2015 PSP Report, Nandi County. 2015.

iii. *Mainstreaming climate information and adaptation into planning processes and decision-making*

Participation in PSP workshops by various government departments has led to discussions promoting multi-sectoral planning and decision-making on climate change and adaptation at the county level. A result of these discussions is the formation of county-level, multi-sectoral committees in various counties. The committees focus on climate change risks and adaptation challenges specific to their counties. Several of these committees are outlined below.

- The Garissa Climate Change Working Group (GCCWG) coordinates local government and CSO collaboration for contribution to county development and risk reduction plans.
- The Migori County Climate Change Working Group was established during the PSP workshop for the MAM 2014 rainy season. This committee is in charge of county-wide advisory dissemination following the PSP workshops.
- The Vihiga County Climate Change Advisory Committee coordinates natural resource and climate change related activities. In addition, this committee encourages proactive responses from community members through participatory planning and recognising the value of shared learning between stakeholders.

The above working groups are typically established informally through PSP coordination. They have yet to be recognised and mainstreamed at the county government level. The Garissa GCCWG for example, is recognised at the county level, however it forms a 'climate change advisory' role to the County Steering Group. Structural barriers that limit the mainstreaming of climate information and adaptation into planning processes and decision-making include *inter alia*: i) insufficient funding; ii) lack of coordinated planning between ministries; and iii) the absence of dedicated political climate change champions. The formation of these working groups is a direct result of the PSP process. The working groups can be used as a catalyst for action and can support the mainstreaming of climate information into adaptation at the local level.

4.3.4. Barriers to Participatory Scenario Planning benefits

The benefits of PSP advisories to user livelihoods are described in Section 4.3.1. Although many of these users have used the advisories to their benefit, not all who received the advisories have undertaken steps to implement them¹⁶⁶. M&E reports of previous PSPs indicate that, of the users who received the advisories, only 6%^{167;168} to 20%^{169;170} of them chose not to implement the recommendations. In some counties, up to 35%^{171;172} of users confirmed receipt of advisories, but admitted to not implementing them. Understanding the reasons why the users choose not to act on advisories is an important challenge for the PSP

¹⁶⁶ The various factors that hinder the effective implementation of the PSPs advisories are discussed in Section 4.3.5.

¹⁶⁷ e.g. Elgeyo Marakwet and Makueni Counties.

¹⁶⁸ Draft Report PSP OND 2015 Elgeyo Marakwet County. 2016. ASDSP, 2016 and Monitoring and Evaluation Report on Participatory Scenario Planning Activity, Makueni County.

¹⁶⁹ Participatory Scenario Planning Report OND Season. 2015. ASDSP Wajir and KMD Wajir.

¹⁷⁰ e.g. Homa Bay and Wajir Counties.

¹⁷¹ Participatory Scenario Planning Report OND Season. 2015. Kirinyaga County, ASDSP Environmental/Climate Change Committee.

¹⁷² e.g. Kirinyaga County.

process to overcome, and will include understanding how decision-making on the application of agricultural innovations is influenced by numerous variables and their interactions¹⁷³.

During KIs and FGDs, users described several factors that hindered the success of PSPs. These factors are outlined below.

- **Timely dissemination of the advisories.** Users in Samburu County for OND 2013 who chose not to implement advisories indicated that the recommendations were not received with enough time to begin their preparations for the rainy season. Users recommended that advisories be disseminated at least two to three weeks prior to the forecasted start of the rains in order to efficiently plan their activities¹⁷⁴.
- **Clarity of the advisories.** Even though the advisories and seasonal forecasts were broadcasted in both English and Swahili, interviewees in West Pokot County revealed that the radio messages were too general and broad. As a result, users were unable to effectively interpret the advisories for implementation¹⁷⁵. In Machakos County for MAM 2014, 35% of the interviewees stated that they received the advisories, but were unable to understand or implement any of the recommendations for the ensuing rainy season¹⁷⁶.
- **Trust concerns.** The KIs and FGDs revealed that some farmers were reluctant to use the advisories because of their unwillingness to trust: i) the source of the message (i.e. radio, SMS and WhatsApp); and ii) relevancy of the message; and iii) confidence in the messenger (e.g. how does their neighbour, who received the advisories and is now relaying the message at an informal gathering, know for certain what the forecast is and what communities should be planting?). Specific reasons for the distrust are varied, including communities' reliance on traditional forecasting and their hesitance to change their approach from something that they are familiar with to a new approach. Building trust takes time, especially among stakeholders. For example, during the first introduction of PSPs in the Embu County, a number of interviewed women revealed that they did not apply the advisories¹⁷⁷. Furthermore, some of the farmers who received the appropriate and recommended seed varieties from CARE, chose not to plant them as they were not perceived as tried and tested in the area¹⁷⁸. The example in Box 4 illustrates how time and conceptual evidence are required to build trust for the PSP advisories. In addition, the example of the community in Kangema Sub-County in Murang'a County illustrates how a lack of trust in the information source (messenger service) can hinder the adoption of the advisories¹⁷⁹.

¹⁷³ Three categories of variables and their interactions have been reported to fully explain the adoption process, namely, extrinsic variables, intrinsic variables and the influence of the intervening variables. Extrinsic variables refer to: i) characteristics of the farmers (e.g. personal, socio-economic, social networks, status and familiarity with the technology); ii) characteristics of the external environment (e.g. geographical setting, societal culture and political conditions); and iii) characteristics of agricultural innovations (benefits and costs). Intrinsic variables refer to: i) knowledge; ii) perceptions; and iii) attitudes. Intervening variables refer to: i) communication; and ii) extension. For further details on the linkages and interactions among those variables in triggering adoption of advisories, refer to: Meijer SS, Catacutan D, Ajayi OC, Sileshi GW & Nieuwenhuis M. 2015. The role of knowledge, attitudes and perceptions in the uptake of agricultural and agroforestry innovations among smallholder farmers in sub-Saharan Africa. *International Journal of Agricultural Sustainability* 13:40–54.

¹⁷⁴ OND 2013 PSP Report. 2013. Samburu County.

¹⁷⁵ OND 2015 PSP Report. 2015. West Pokot County.

¹⁷⁶ MAM 2014 PSP Report. 2014. Machakos County.

¹⁷⁷ Taken from FGDs held on the 24 May 2016 with a women's group in Kiambere ward, Mbeewe South, Mutuabare location, Embu County.

¹⁷⁸ Taken from the FGDs held on the 24 May 2016 with a men's group in Kiambere ward, Mbeewe South, Mutuabare location, Embu County.

¹⁷⁹ Refer to Table 7 in Section 4.1.3.

- **Availability of resources.** During discussions and M&E reviews of various PSPs, some farmers reported that they were unable to implement advisories because they lacked the necessary resources to implement them. This included limited financial and technical knowledge, such as the inability to put water harvesting structures in place. Farmers therefore require support from the county government and other agencies to implement such advisories¹⁸⁰.

During FGDs conducted in Embu County, farmers revealed communication challenges which hindered the success of PSPs. These factors are outlined below.

- **Lack of trust in advisories as a result of inaccurate seasonal forecasts in previous years, prior to PSP introduction.** Farmers expressed the lack of trust by stating:

“We do not trust the advisories because we have not had rains for a very long time and also, in previous years when we are [sic] told there will be good rains it usually does not happen as told. As the [sic] result when it starts raining we don’t trust it to support our crops and [we] limit our planting reach.”

- **Unavailability of resources (e.g. labour and inputs).** According to farmers, when enhanced rainfall was predicted during preparations for OND 2015, they failed to take advantage of the advisories. Their region had been experiencing a long dry period for many years, so farmers used this as an indication not to believe the advisories. As a result, they no longer had the required stock of seeds to plant during the OND 2015 rainy season. Furthermore, because of the prolonged dry period, many young community members migrated to cities, resulting in a reduced labour force to prepare lands. Communities also lacked the necessary tools needed to implement the advisories on their farms, such as wheel barrows.

Box 4. Developing trust in the PSP process through ‘proof of concept’.

The case of Gabriel Muturi in Mbeere South, Embu County

Gabriel Muturi is a 33-year old, married farmer with two children. He keeps a selection of livestock including cows, sheep and poultry.

Five years ago, climate information was only available through radio broadcasting. The forecasts consisted of general information for the whole region, not specifically for Embu County. This made it difficult to apply the information for his own agricultural benefit.

Following the introduction of PSPs in Embu County in 2014, Gabriel received the forecasts and advisories through chief *barazas*. During the first year, Gabriel and his fellow community members were skeptical about the advisories and their accuracy. At the end of the season, Gabriel, like others, saw that those who applied the advisories reaped a good harvest.

Based on this evidence, Gabriel began to apply the advisories that he was receiving through four different channels: i) Twitter from a Moreni journalist; ii) radio broadcasting; iii) *barazas* from agricultural officers in attendance; and iv) direct, informal communication with PSP participants¹⁸¹. The following year, Gabriel planted early-maturing crops and set-up water harvesting infrastructure (five 100 L tanks) in response to the advisories he received.

From the success Gabriel saw and experienced, he recommended to agricultural officers that the PSP process and the provided advisories be adopted quickly.

¹⁸⁰ MAM 2014 PSP Report. 2014. Machakos County.

¹⁸¹ E.g. at the market.

4.3.5. Socially undesirable effects of the Participatory Scenario Planning process

Community representatives that attend the PSP workshops are essential stakeholders for the success of the PSP process. The elected representatives are the voice of their communities at the workshop, and play a role in sharing community views and traditional knowledge. In addition, they are important vehicles for the dissemination of seasonal forecasts and advisories to their communities.

The method of selecting community representatives is an important element to consider when assessing the success of the PSP process in a particular area. If representatives are selected through a community consensus or consultative process, they are more likely to be listened to and able to facilitate behavioural change in their communities. Selection through community consensus involves a communal decision-making process in which community members develop and agree to support a decision for the interest of the entire community. This selection method requires minimal facilitation from a development partner. Communities generally select representatives based on the most popular vote. A consultative process is a process of decision-making that requires an active role from development partners in consultation with key community leaders – e.g. chiefs. Both approaches ultimately lead to building community trust in the process. However, there is a need for a regular monitoring system to ensure the community representatives are indeed working for the benefit of the community. During the FGDs, most communities reported that representatives at PSP workshops had been selected through the consultative process and were trusted by their community members to provide advisories. However, in areas such as Balich and Nanighi sub-locations in Garissa County, where the PSP process has been running for more than five years, communities stated that they had lost confidence in their representatives. In many areas, including Garissa, those community representatives that attend PSP workshops receive a subsistence allowance for their participation to cover incidental costs such as transport. In the more rural areas, this incentive – although minimal – is often seen as a monetary gain. Therefore, if the same people are chosen as community representatives for every workshop, it causes socially undesirable effects (e.g. jealousy and distrust) which hinder the social cohesion that the PSP process aims to achieve. Community members in Balich sub-location, particularly the youth and men, have become suspicious that their representatives are attending PSP workshops for personal benefit rather than the good of the communities. As a result, many community members are reluctant to attend the *barazas* to receive forecasts and advisories. When a community representative no longer has the support of the community, it has the potential to impact negatively on advisory communication and the long-term sustainability of the process. It is therefore important to set up a regular consultative process to re-evaluate if communities still have trust in their representatives or to set up a rotational system for community members to represent at the PSP workshop.

4.4. Sustainability of the process, communication, use and impacts

ALP implemented the PSP process in Garissa County in 2011 and since then the process has formed a leading role in upscaling to all 47 counties. This has been promoted by the partnering with central government agencies, including the KMD and Ministry of Agriculture through the ASDSP. Currently, CARE is facilitating PSP workshops in some counties by creating linkages between the stakeholders and providing financial support. In addition, the ASDSP national coordination office allocates funding towards PSPs in every county. This amount has gradually been reduced over the years of implementation, from ~KSh900,000 annually when ASDSP took over the PSP process in 2013, to ~KSh300,000 for 2016.

The ASDSP project is set to terminate at the end of 2017 and therefore an exit strategy to ensure sustainability of the process is required. Through the various KIs, the main enabling factors revealed have been outlined below.

- **Pre-existing coordination unit among different sectors.** As PSPs are a multi-stakeholder process, where coordination units are already established in different sectors, introducing and implementing PSPs is achieved more efficiently. Examples of this set-up include, the district steering committee under the leadership of the NDMA in Garissa County and the Natural Resource Management Working Group in Murang'a County.
- **Pre-existing climate change agenda.** This provides a basis or justification to integrate PSPs into existing government programmes and projects that are county-specific. For example, ASDSP adopted PSPs into their activities as it fitted under their output to increase access to weather and climate information for decision making across agricultural value chains.
- **Buy-in of local government.** This is essential for success of the PSP process in the long-term to provide the necessary basis for sustainability.
- **A climate-vulnerable area.** This provides the need for climate information for communities as well as government resulting in the PSP process becoming a demand-driven necessity.
- **Accuracy of seasonal forecasts.** When provided, if seasonal forecasts are accurate, it builds community and other user trust in the process, encouraging ownership and sustainability.

The analysis of the relative success and failure factors, barriers and challenges¹⁸² and the above enabling factors revealed that **community ownership** and **local government engagement** are the two main achievements needed to ensure the shift from a short-term project (ASDSP/CARE project) to a more long-term and sustainable initiative. When implemented well, certain PSP principles are most-likely to achieve community ownership, including *inter alia*: i) a review process; ii) the inclusivity of communities; iii) ensuring multi-stakeholder interaction; and iv) integration of both traditional and scientific forecasts.

In addition, local government planning processes should recognise the importance of PSPs and provide the financial and technical support needed for the production of accurate and relevant advisories. Examples of this include, in Kisumu County where the Green Energy and Climate Change Department is working with ASDSP and has a specific budget allocated to PSPs, and in Trans Nzoia County, where 50% of the budget is provided through the local government showing evidence of sustainability. In these examples, the majority of the PSP

¹⁸² See Section 4.1.2. on success factors and barriers for the PSP process in different counties.

local organising committees ensured county government was involved at a higher level and that relevant county executives participated. This is an indication that ownership at the county level is taking place which in turn promotes sustainability of the process. Furthermore, the building of stakeholder partnerships and involvement of development partners in various counties is evidence of building long-term sustainability of the PSP process¹⁸³.

Without a national entity taking over the implementation and facilitation of the PSP process, sustainability will vary depending on the local government structures and local stakeholders in each county.



Balich Community meeting, Garissa, Eric Aduma, 2014

¹⁸³ See Section 4.1.3.3. on multi-stakeholder interactions.

5. Conclusions, lessons learned and recommendations

Communicating climate information in ways that users can understand and apply is critical for supporting effective adaptation to climate change. The PSP process is a CIS approach initiated in Kenya by CARE International under ALP and championed by various stakeholders at county and national level. Faced with increasingly erratic weather and climate – which threatens agriculture output, livelihoods and wellbeing – communities are in need of climate information products that are timely, assist in managing climate risks and also describe any opportunities that climate change may present. PSPs are a platform that enables the collective sharing and interpretation of seasonal forecasts in a multi-stakeholder setting to produce advisories for informed decision-making. This platform was first piloted in Garissa County in 2011, before being rolled out in 2014 across all 47 counties through a partnership between CARE, the KMD and the ASDSP of the Ministry of Agriculture Livestock and Fisheries, attracting financing from a range of parties, including county governments and NGOs.

This impact assessment presents evidence that over the five years of PSP implementation in Kenya, local agricultural output, disaster risk management and community well-being have all been enhanced. The results show that PSPs have transformed the nature of climate and weather information services in Kenya to be more responsive to user needs. In addition, PSPs have improved communication systems of the meteorological department, which has moved from a ‘dissemination’ approach of one-way messages (top down) to a ‘communication’ approach of two-way messages (horizontal). The success of PSP implementation and its upscaling can be attributed to a broad stakeholder inclusion and the participatory nature of the process. The main findings from this impact assessment are summarised below under the three main lines of investigation, namely: i) the implementation process; ii) communication; and iii) use and impact.

5.1. *On the implementation process*

Identification of good practices. Differences in PSP processes across Kenyan counties were used to identify good practices, failures, challenges and barriers. Success of PSPs was invariably found to rely on three main factors: i) effective overall planning and facilitation; ii) full participation and engagement of traditional forecasters, communities and a variety of local-level stakeholders; and iii) timely dissemination of advisories, coupled with adequate resources and support services for the users. Originally designed around two-day workshops, PSPs have undergone a major shift – mainly as a result of budget restrictions – which has led to one-day workshops in more than 25% of counties implementing the PSP process. The findings of this impact assessment show that discussions are invariably too brief during these shortened workshops to achieve all the PSP objectives. In particular, discussions on uncertainty and probability, and advisory development are limited, which greatly compromised the sharing and learning within the multi-stakeholder process. Developing effective facilitation skills and techniques to maximise the effectiveness of meetings and time management through planning is therefore of fundamental importance for the PSP process. Counties are currently in a position to build a platform of knowledge from previous PSP workshops (e.g. agreed outcomes) which would reduce the need for extended discussions during every workshop. This would enable one-day workshops to be extremely productive, even rivalling the outputs

from the earlier two-day workshops that took place without such a platform of knowledge. One example of how time could be saved is the preparation of county profiles (e.g. livelihood categories, risks, hazards) before the workshop.

Good practices between counties. Several innovative ‘good practices’ were found during the surveys in different counties. For example, during OND 2015 in Kirinyaga County, three distinct agricultural regions within the county produced specialised advisories which catered for a wide range of users and farmers. Another innovation was the embedding of different mechanisms for feedback into the review processes of the ASDSP, community leaders, the PSP workshop itself, and media and ICT tools, which allowed stakeholders to learn rapidly and to refine methods for providing CIS to communities. As mentioned above, through feedback, the KMD have learnt for example that farmers required the definition of rain to be framed in a different way to how it is technically delivered by the KMD office. In technical terms, the KMD defines a drop of rain as meaning rain has fallen, whereas for farmers, rainfall means observing run-off from their fields. In addition, the use of terms such as ‘scattered rains’ were found to be poorly understood by communities. The PSP process has consequently introduced the translation of technical terms and advisory messages into local languages to greatly improve the understanding of CIS by communities. It is thus considered a good practice that future iterations of the PSP process ensure flexibility – specifically when dealing with terminology – so that information is communicated to farmers in a less technical way compared to how it is delivered by the KMD office.

Decentralisation of the PSP process. Another promising trend occurring across Kenya is that PSP workshops are moving from a county level to a sub-county and even community level. Using this more decentralised model has proven effective in delivering CIS. This is because the information (i.e. the developed advisories) produced at a local level is more relevant to the users and therefore more likely to be implemented in preparations for the rain season. The disadvantage, however, is that decentralisation is reducing cross-community planning, complementarity or discussions about transboundary challenges. Such cross-community engagement is important for managing use of natural resources, in both pastoralist and productive cropland areas.

Co-production of information. The process of co-producing climate information products is challenging and dependent on a wide range of factors. This PSP co-production invariably requires partnerships because, if operating alone, the public sector, private sector and civil society do not have sufficient resources to enable successful development of products. A review of the PSP process across the counties in Kenya shows that there have been cross-sectoral partnerships amongst a wide range of institutions – led by the KMD and ASDSP, and championed by CARE – to produce and communicate climate information to users. Such partnerships varied from informal arrangements to more formally-structured agreements and involved a number of government technical departments, such as agriculture extension, livestock, water and disaster risk management. Partnerships also involved various other organisations including *inter alia*: i) NGOs, e.g. Women Kind, ADESO and Plan International; and ii) faith-based organisations, e.g. CARITAS and ADS.

Multi-sectoral and multi-disciplinary approach. The main focus of all workshops was on the agricultural value chain – this being the main agenda of the lead institution, ASDSP. However, all counties surveyed across Kenya were found to have made efforts for PSP workshops to be multi-disciplinary as well as multi-sectoral. Participatory planning in the PSP workshops was undertaken by diverse interest groups. This diversity was achieved by providing an innovative platform for engagement that ensured equal participation of women, men, youth and people with disabilities. There were, however, some differences in representation between the users and intermediaries. Some counties, for example, indicated a preference for more technical department representatives at PSP workshops, while others indicated a preference for community representatives. As mentioned previously, a successful workshop would have a balance between these two types of participants, which would result in high-quality, scientifically-based advisory production, with a strong influence from local knowledge through community members, and an extensive reach of advisory dissemination. A review of past advisories produced during PSP workshops shows that three main factors determined the content of the advisories: i) the expertise and knowledge of PSP workshop participants; ii) the strategy used to divide up the discussion groups for scenario and advisory development during the workshop; and iii) crafting of the advisories. These factors highlight the importance of the multi-stakeholder nature of the PSP process for the quality of the advisories. It is thus considered a good practice that future iterations of the PSP process ensure a good balance between local and scientific knowledge at the workshops so that high quality, technically sound advisories are produced that are still relevant to the local context.

Quality of advisories. Further analyses showed that a large number of the summarised advisory brochures provided a broad statement that was not specific to any region, community, season or sector. There also remained a challenge in producing sector-specific advisories. Often, the advisories only included broad recommendations with general good practices, mostly involving risk reduction strategies that were not dependent on the three different scenarios or the current season specifically. This was generally caused by the lack of technical expertise on climate-smart agriculture at the PSP workshop. Also, we found evidence that when routine set in, after organisation of two/three PSPs in county, the content of advisories did not always change. This is a fundamental problem facing the PSP process given that a main objective of the ALP is to alter behaviour of users based on the available climate information.

Dissemination of only the most-likely scenario. Despite translating advisories into local languages, communicating the elements of uncertainty and probability has remained a challenge during the PSP process. As a result, most counties have concentrated on disseminating the most-likely scenario to communities and other users, and do not communicate the probability of the scenario. Unfortunately, this approach is setting up the PSP process for failure in the long-term because the most-likely scenario will not occur every year, and consequently the credibility of the advisories will be greatly undermined. When a low probability event occurs, users will perceive the received forecast to be wrong and their confidence in the scientific methods of prediction will decrease. It is thus considered a good practice that future iterations of the PSP process ensure that dissemination and communication to users should always include all potential scenarios, rather than only the most-likely scenario for any given year.

Innovative methods for communicating uncertainty. Fortunately, there is some evidence emerging in the PSP process of innovative ways to represent scenarios and uncertainty to users. In Garissa County, for example, reference to an analogue year or visual representation – known as ‘ground mapping’ – has been used when presenting the seasonal forecast. By correlating the experience from the analogue year to a specific predicted scenario, participants – including community members and users – were able to understand the potential effect of the coming rain season on their welfare and livelihoods, and were able to respond accordingly. This method of translating technical concepts to simple and practical examples is innovative to PSPs and integral in the sustainability of the process. These practical examples helped bridge the gap between the technical officials and the users. Using the analogue year approach to describe scenarios explained these concepts more effectively to participants compared with simple definitions of terms. The real-life examples extracted from the analogue year illustrated practical and possible impacts, using on-the-ground experience from the analogue year, to improve the understanding of the scenarios. The concept of uncertainty was innovatively explained using a different analogy during the MAM 2016 PSP workshop in Nairobi County, where PSP facilitators used an example of the price variability of a maize bag. The real-life experience of uncertainty regarding the price of a single bag of maize at a certain time in the near future assisted participants to better grasp the concept of uncertainty. It is thus considered a good practice that future iterations of the PSP process use real-life examples – such as a reference or analogue year – when describing potential scenarios to assist users in using scenarios and advisories for effective planning for ensuing rain seasons.

Limited and timely resource availability. The most common challenge across all counties was the limited and timely availability of resources to support the overall PSP process. While adequate timing of the production and communication of advisories and seasonal forecasts was a critical factor for PSP success, it remained a challenge to achieve in many places. The ASDSP has, for example, been consistently late in disbursing funds, which have also been reduced over the years. As a result, in a number of counties, PSP workshops were organised only after the start of the rain season. Furthermore, budgeting constraints reduced the number of stakeholders involved in the workshop and limited the effectiveness of the dissemination process (as the information reaches a limited number of intended users), particularly at the sub-county level. Participants from this impact assessment reported that the timing of PSP workshops should be tailored to the needs of the users. The PSP process – including workshops, communication and the dissemination of advisories – should ideally take place a week to two weeks before the estimated planting date and onset of the rain season. This would provide a large enough window for users – in particular, farmers – to prepare for their farming activities and to implement advisory recommendations. The participants further advised that the MAM PSP workshop be organised towards the beginning of February and the OND PSP workshop the beginning of September. At the county level, recommendations are to search for other sources of funding particularly from county governments and local private sector actors to support the PSP. Although the majority of funding is currently from the ASDSP, there is evidence in a number of counties of PSPs being supported by other stakeholders. The shift of the PSP funding from other sources besides ASDSP is critical for sustainability of the process as ASDSP will exit the initiative in June 2017.

5.2. On the communication process

Accessibility of communication channels. In terms of gender access, data gathered from previous PSP M&E reports showed that all channels of communication were accessible to both men and women. However, the proportion of men receiving advisories through all channels of communication was larger than for women. Youth also received forecasts and advisories via many different channels, however the number of channels was substantially less than for adult women and men. The impact assessment showed that men generally preferred public *barazas* or radio. By contrast, women preferred group meetings, specifically women groups or VSLAs. This is because such women-only groups provided freedom for women to talk more freely without fear of breaching social norms/behaviours. Women-only groups also led to a greater number of women ultimately receiving information because there were more women who understood the concepts well-enough to pass them on effectively to those not able to attend the meetings.

Reception and preference for different communication channels. Choosing an appropriate communication channel for different groups is critical for ensuring that the communication is well-received as well as accurate. Certain people are more receptive to communications via particular channels and certain types of messages also work most effectively through particular channels. PSPs have innovatively combined communication systems that are readily accessible to communities including *inter alia* through community monitors, local and religious leaders, public community gatherings, media and ICT tools. Counties generally used a combination of three to six different channels of communication. The most commonly used include chief *barazas*, brochures and radio broadcasts. It is thus considered a good practice that future iterations of the PSP process ensure that appropriate communication channels are used for different targeted groups so that communication is reliable, accurate and subsequently well-received.

Success of communication channels and reception of advisories. The assessment found that in general the PSP communication systems were successful. Participants of the assessment revealed a general satisfaction about the appropriateness of channels of communication as well as the relevance and usefulness of the received advisories. As a result, communities and users were well-prepared for El Niño effects, with no major impacts reported across the country. Women in Kangema Sub-County of Murang'a County, for example, indicated that El Niño advisories were received in a timely manner which allowed them to adequately prepare and harvest their crops on time.

Making advisory dissemination an interactive process. A finding from the assessment was that advisory dissemination should not be limited to mass media broadcasting. Effective communication invariably requires interaction such as the level provided by PSP workshops, public *barazas* and group meetings. This level of interaction enables better understanding amongst stakeholders and builds trust between participants, intermediaries and users. Currently, there is a preference shift within the PSP process being observed in many counties from *barazas* to radio, particularly by the local county organising committees. This shift is predominantly because of budgetary limitations combined with the PSP objective of reaching as many users as possible. Radio broadcasts have the advantage of reaching the largest

audience in the most cost-effective way. However, determining the effectiveness of radio dissemination with regard to the resulting actions by users still remains a challenge. The sub-county of Kangema in Bungoma County illustrates this challenge. Participants from Kangema constituency reported receiving seasonal forecasts through radio broadcasts, however they admitted their reluctance to apply the advisories in the preparations for the ensuing rain season. The reluctance was revealed to be because of their inability to trust in the source of the information, particularly because advisories tended to be followed by adverts from agro-input dealers. It is thus considered a good practice that future iterations of the PSP process use interactive processes of information dissemination rather than mass media broadcasting to build trust in the process among stakeholders and other users.

Flexibility of the PSP process. To overcome social barriers that inevitably arise, the PSP process has been proactively and continuously re-designed. PSPs, for example, often build communication channels around chiefs, community leaders and group representatives. Chiefs tend to be seen as credible and trusted points of information and are encouraged to participate in PSP preparation and workshops so that they are seen as a link between the informed (those present at the PSPs) and those community members who could not attend the workshops. Building this trust promoted the desired behavioural change amongst communities and users. The impact assessment revealed that community leaders serve as relevant examples to the community, which assisted with facilitating the desired behavioural change. Furthermore, it was found that PSPs provided a leverage mechanism for existing government structures to reinforce the provision of seasonal forecasts and the development of advisories.

The re-design of the PSP process to adapt to local situations has allowed the communication of seasonal forecasts and advisories to reach relatively remote communities, a wider variety of social groups as well as more sectors. Community members participating in the PSP process reported that they did not experience specific barriers or constraints in accessing seasonal forecasts and advisories. Instead, they revealed that PSPs removed many of the previous communication barriers experienced when accessing climate information. Before PSPs, communities would rely solely on traditional forecasters or their own predictions based on traditional weather and climate indicators. This was the case particularly for the women of Balich sub-location in Garissa County. The Balich women indicated that prior to the PSP process being implemented in Garissa, their only access to climate information was through their husbands who would receive it directly from traditional forecasters. However, after the introduction of PSPs, the women were readily able to retrieve weather and climate forecasts and advisories from various sources including women VSLA meetings, radio, *barazas* and local rain gauge monitors. It is thus considered a good practice that future iterations of the PSP process ensure continuous re-design and flexibility of the process to allow it to be adapted to local contexts.

Remaining challenges. There are a few challenges remaining to effectively communicate forecasts and advisories, including *inter alia*: i) the translation of advisories and seasonal forecasts from English to local languages; ii) limited technical staff (extension officers), funding and logistics (e.g. vehicles); and iii) insufficient resources (i.e. human, financial and logistical).

These challenges limited the number of field visits for extension officers which in turn made counties rely heavily on radio broadcasts to disseminate seasonal forecasts and advisories.

5.3. On the use, impact and sustainability of the Participatory Scenario Planning process

Benefits for value chain actors. The implementation of PSPs across Kenya and the resultant implementation and use of advisories has provided evidence of a number of positive impacts on all actors of the CIS value chain. These actors include specifically: i) producers (e.g. the KMD); ii) intermediaries (e.g. government technical departments, NGOs and agro-dealers); and iii) users (e.g. communities namely pastoralists, agro-pastoralists and farmers).

Integration of knowledge sources. PSPs have empowered communities to make more informed decisions by providing information on seasonal forecasts, climate change and variability, flexible planning and risk management. Through PSP workshops, communities now appreciate the considerable importance of acquiring seasonal forecasts before the start of the rain season. This provision of new information has encouraged local communities to integrate their existing knowledge and information with the advisories and share it with their fellow community members. This collaboration highlights how trust has been built among communities with regards to the seasonal forecasts provided through the PSP process. It is thus considered a good practice that future iterations of the PSP process ensure that seasonal forecasts are provided in a timely manner and that communities are encouraged to share and integrate their local knowledge into developing advisories.

Enabling discussions with communities. With regard to dissemination of technical information, various community groupings expressed satisfaction – in interviews during this assessment – with the platform provided by PSPs to efficiently communicate with technical departments and personnel. This PSP process evidently enabled discussions between users, intermediaries and previously unreachable technical personnel to take place, allowing communities to clarify their understanding on various terms and concepts. This level of interaction also promoted informed decision-making that was found to be of specific relevance to user livelihoods. As a result, communities were found to have more confidence in the advisories and in their personal decision-making compared with before the PSP process. Communities also expressed a sense of ownership of the process, with a noticeable shift in attitude amongst community members having taken place during the implementation of the PSP. For example, there has been an increased number of demand-driven requests for agricultural inputs such as: i) climate information, including seasonal forecasts and weather updates; ii) climate-resilient seeds; and iii) training on adaptation and mitigation measures.

Shifts in community behaviour. With regard to behaviour of communities, the provision of seasonal forecasts and advisories to farmers, pastoralists and communities, has allowed users to integrate various climate-smart agricultural practices and DRR strategies into existing farming practices. Many farmers reported using climate information and advisories, as evident in the: i) shifting of planting dates; ii) changing of seed varieties and/or crops; iii) adopting soil conservation techniques; and iv) implementing water harvesting methods. A notable shift since the provision of advisories was that agro-pastoralists were now producing their own fodder.

Evidence of this practice was observed during PSP evaluations in Nandi County and Kone sub-location of Garissa County, where most of the agro-pastoralists had established or were in the process of establishing hay farms. Furthermore, agro-pastoralists and livestock herders across many counties have taken various actions after receiving advisories to specifically address the potential effects of El Niño during OND 2015. These actions included: i) migrating families and livestock to higher ground; ii) clearing drainage systems; iii) relocating farm equipment (e.g. pump sets); iv) preparing early for the rain season; v) timing planting as best as possible; vi) vaccinating animals against diseases; and vii) stocking medication and disease prevention drugs for both families and livestock.

Case studies researched during the assessment showed that PSP advisories have resulted in more climate-resilient livelihoods being built in local communities. The implementation of PSP advisories has, for example, contributed to improving food security, health and household livelihoods among target communities. Many farmers also reported increased yields from their farming activities. Along similar lines, agro-pastoralists have minimised losses during extreme events such as floods by using PSP advisories.

NGO adoption of PSPs. A wide range of NGOs working in different sectors have adopted PSPs across the counties of Kenya. Indeed, PSPs are being used as a forward-looking decision-making tool to provide an opportunity for organisations to integrate climate resilience into their working agenda. The PSP process has also assisted private agro-dealers in tailoring services for their clients in that farmers receive information through the advisories on various seed varieties appropriate for the coming rain season.

Improved stakeholder relationships. PSPs have contributed to improved relationships and increased interactions between the KMD and other relevant technical institutions. Firstly, it facilitated engagement between the high-level stakeholders responsible for producing the climate forecasts – such as the county-level KMDs and the ASDSP – through its multi-stakeholder platform. Secondly, it led to the formation of sector-wide partnerships between institutions to produce and communicate climate information (derived from KMD data) to users. And thirdly, it assisted the KMD in packaging their information to be more relevant to technical departments such as agricultural extension services as a result of better understanding of user needs. It is thus considered a good practice that future iterations of the PSP process contribute to improved interactions between climate information producers and relevant technical institutions to build sector-wide partnerships for the production and communication of relevant climate information.

Benefits for county governments. An array of successes has been recognised at the county government level through PSP implementation. PSPs have, for example, led county governments to invest in increasing the coverage of weather data collection networks. A case in point is Bungoma County Government which acquired and installed four automatic weather stations to improve the accuracy of PSP forecasts. Another example is in Trans Nzoia County, where the county government increased the number of rainfall stations from 8 to over 24, spread across a wide range of communities. Another major success for the PSP process is that PSPs have facilitated and improved coordination of extension work among stakeholders. Prior to the PSP process, government services were limited to emergency measures and the

provision of in-county relief programmes to combat poor rains and failed crops. Now detailed planning for climate change effects is taking place. For example, discussions on the implementation of multi-sector coordination to prepare for the effects of climate change have been initiated in Kirinyaga County. And in Nandi County where, upon receipt of the PSP advisories for OND 2015, the county government cleared all drainage systems in preparation for the predicted increase in rainfall.

Developing good practices for the process going forward. Good practices and the development thereof will assist in making the PSP process – including implementation, communication and use – more sustainable. Many of the points discussed above relating directly to the use and impact of climate information on users through PSPs can be tailored into good practices. Collaborating and sharing these good practices will contribute to the making the PSP process more sustainable in Kenya, as it will assist with continuous evolution of the process, specifically when needing to adapt to new local contexts.

Sustainability of the PSP process. Building partnerships and increasing the involvement of development practitioners is evidence of the sustainability of the PSP process. The involvement of the ASDSP in the PSP process is, however, set to terminate between June and the end of 2017 and therefore an exit strategy to ensure sustainability of the process is required. Without a national entity taking over the implementation and facilitation of the PSP process, sustainability in each county will vary depending on the local government structures and local stakeholders.

Shortcomings and further research questions emerging from the impact assessment. Although this impact assessment has evaluated the overall PSP process in Kenya and has provided evidence that counties and communities have experienced various positive impacts, there assessment had a number of limitations. Firstly, the small sample size of focal counties – where the majority of the field research was undertaken – limited the coverage of data collection. Secondly, the use of FGDs to capture community-level impacts limited the undertaking of numerous micro-analyses. Thirdly, this assessment relied heavily on M&E reports of previous season PSPs. Furthermore, because neither the review process nor the reporting system was uniform for all counties, it was not possible to always consolidate and produce cross-county analyses on all critical, relevant questions.

There is consequently a need for further micro-analyses to be conducted on various aspects investigated in this country impact assessment. These micro-level analyses would enable more detailed insights to emerge on how to provide effective communication of CIS through PSPs in Kenya. In particular, further analyses are required on communication channels and their respective impacts on different genders and livelihoods. The analysis would need to identify the reach of communication to different users and sectors. Along similar lines, analyses are needed on the differences between ‘dissemination’ and ‘communication’ and the effect thereof on community perception, use and implementation of advisories.

List of Annexes

Annex 1. List of KII participants

Annex 2. List of FGD participants

Annex 3. Summary of observations and key highlights of PSP processes within counties with differences between PSP processes within counties

Annex 4. Example of a broad advisory disseminated through brochures

Annex 5. Collaborated answers from KIIs

Annex 6. Collaborated answers from FGDs

Annexes are available on request at alp@careclimatechange.org



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.

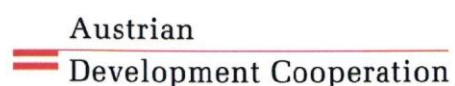
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