STEP 3

Facilitate the multi-stakeholder PSP forum

6.1 Purpose

A multi-stakeholder forum for access and understanding of local and meteorological seasonal climate forecasts, and interpreting the forecasts to co-produce locally relevant and actionable information for use in making climate resilient decisions and plans.

6.2 Expected outcomes

- There is a record of climate-related hazards, risks, opportunities, impacts and plans for the local area.
- There as a localised seasonal forecast and advisories based on that forecast.
- Adaptive decision making and management is informed by climate information and iterative learning from season to season taking into account the dynamics of the local context – for example, evolving needs, risks, capacities, knowledge, opportunities, resources and services in the area.
- New and enhanced stakeholder links and relationships have been formed to support the delivery of user-based climate information services for decision making and action at seasonal timescales.
- Co-production of locally relevant and actionable climate information is an integral part of climate resilient and risk management planning processes in the local area.

6.3 Duration

In line with Principle 2 (see Chapter 3), a PSP workshop should be held soon after a seasonal forecast has been released by the National Meteorological Services. The workshop takes one to two days, depending on whether it is the first or subsequent workshop (see the sample workshop agenda in Table 9, Chapter 4).

6.4 Facilitating a PSP workshop

6.4.1 Key Concepts

PSP Principles 2 to 6 relate to the PSP workshop, making the multi-stakeholder forum created a critical part of the entire process. The multi-stakeholder forum takes place in the PSP workshops that bring together all the different stakeholders (see Figure 12 in Chapter 3 on who is typically involved) to share information and knowledge on the coming seasonal climate forecast and its local implications. The workshop creates space for sharing climate information from both local and scientific knowledge, discussing and appreciating the value of the two sources and finding ways to collectively interpret the information into a form that is locally relevant and useful. In that sense, PSP workshops are a forum for social learning (see Box 5) to address adaptation and resilience to climate variability and change, while taking into account interactions with all other changes going on in a local area.

Social learning is a necessary component of environmental and climate governance when dealing with difficult problems and complex systems, such as the climate and its interaction with social processes in times of rapid change. As an analytical tool, social learning can be used for exploring the adaptation process because it highlights shifts in understanding in a situation where no single person has a comprehensive picture of risks and barriers, and where there is a need for imaginative and innovative solutions. Such is the situation presented by variability in climate from one season to another, added to the dynamics in local vulnerabilities, capacities, resources and services; hence the practical application of social learning in a PSP workshop.

There are multiple benefits to social learning that happens in a PSP workshop; some of the major benefits are (adapted from (Harvey, Ensor, Carlile, Garside, Patterson, & Naess, 2012)and (Epp & Garside, 2016)) as follows:

- **Building trust between all stakeholders involved**, especially between local actors and meteorological services. This is through open sharing of information and knowledge, which enables correction of misinformation or negative early perceptions, especially on uncertain information, and also through improving understanding of climate information from different sources. The result is recognition of, respect for and building on local, scientific and technical knowledge to co-produce knowledge and define adapted and climate resilient plans and actions for a season.

- **Catalysing co-production of knowledge and solutions**, bringing together multiple stakeholders who: have different values and perspectives, technical capacities and knowledge; are engaged in different livelihoods and sectors; and are of different ages and gender, among other diversity factors. Together they can voice their concerns and share their diverse knowledge and experiences. This helps to find common ground in defining the complexity of adapting to seasonal climate variability and long-term climate change. Through integration and co-production of new knowledge, potential solutions and actions that respect a plurality of interests and needs can be identified, and plans made so that actions are mutually supportive and coordinated.
- **Creating an environment that stimulates innovation:** This allows multiple stakeholders – engaged in different livelihoods, sectors, technical capacities, knowledge forms, etc, and of different ages and gender – to voice their concerns, share their diverse knowledge and experiences, and actively contribute to developing innovative local solutions to manage broad uncertainties of the future. It encourages stakeholders to work together to implement and test solutions through iterative cycles of learning, action and reflection.
- **Managing complex and dynamic systems:** Iterative and experiential learning starts with common understanding of local realities during review of the past season and current status (see PSP Workshop Session I). It prompts stakeholders to reflect on their own learning to gain insights into relationships and interactions in complex and dynamic systems, and find a way to work within them while applying interpreted seasonal climate information to plan for the coming season.
- **Linking timelines**, by taking into account the immediacy of dealing with local priorities, needs and responses to current climate variability – through generating scenarios for the upcoming season, while at the same time building longer-term understanding and local adaptive capacity to anticipate, plan and respond to uncertainty in long-term climate change.
- **Finding new possibilities for working together and defining new networks and relationships:** Open and continuous dialogue around a seasonal forecast and potential plans and actions enables recognition of stakeholder roles and capacities, and defines new relationships. This then supports better collaboration and partnerships to deliver user-based climate information services.

Box 5
WHAT IS SOCIAL LEARNING?

The Climate Change and Social Learning working group – composed of CCAFS, the Institute for Development Studies and the International Institute for Environment and Development (IIED), among other organisations – defines social learning as approaches that "help facilitate knowledge sharing, joint learning and co-creation experiences between particular stakeholders around a shared purpose, taking learning and behaviour change beyond the individual to networks and systems. Through a facilitated iterative process of working together, in interactive dialogue, exchange, learning, action and reflection and ongoing partnership, new shared ways of knowing emerge that lead to changes in practice."

"Social learning builds on an understanding that knowledge implies learning and the ability to use information, such as seasonal climate forecasts. An individual's knowledge is constructed on the basis of (limited) experiences: one person's knowledge of a given issue, such as future climate and its potential impacts, will not necessarily be the same as another's. Our individual understanding of the world is therefore partial" Harvey et al (2012) "Social learning approaches aim to overcome this limitation by facilitating stakeholders to continuously frame and reframe the issues at stake, co-produce knowledge and develop enhanced relational capabilities to deal with common and localized challenges, which individuals often cannot resolve on their own." (Nilsson & Swartling, 2009).

6.4.2 How to plan the PSP workshop sessions

A PSP workshop has six broad sessions (see Figure 18). When planning for a PSP workshop, some of the sessions could be broken down into smaller sessions to be handled by different facilitators (see the sample agenda in Chapter 5). Like the larger PSP process, the sessions feed into each other and therefore it is essential to give each one of them sufficient time and attention. For social learning to happen in a PSP workshop, it is important that facilitation of the sessions is with a 'light-touch', allowing the overall guided process to create sufficient space for participant reflection, a sense of ownership and individual as well as shared learning.

Figure 18 below presents an overview of the sessions in a PSP workshop; details of each session are presented in the sections that follow.

Figure 18. *An overview of sessions in a PSP workshop*

SESSION I
Review of previous season and analysis of current status

Developing a seasonal baseline for the local area. Ensures discussions on the coming season are grounded in local realities.

SESSION II
Presenting and co-generating a downscaled seasonal climate forecast

Sharing and collective understanding of local and meteorological forecasts, with focus on understanding uncertainty. Discussion to co-generate a downscaled forecast.

SESSION III
Develop scenarios of hazards, risks, opportunities and impacts

Collectively interpreting the downscaled forecast to the local context. Based on seasonal forecast probabilities, develop scenarios of climate-related hazards, risks, opportunities and impcats. Scenarios are aimed at managing uncertainty in seasonal climate, risks and impacts.

SESSION IV
Planning for action

Developing possible actions to address all the scenarios of hazards, risks, opportunities and impacts. Dialogue for coordination and mutually supportive action plans by different groups of actors.

SESSION V
Develop advisories

Generating locally relevant and actionable information on options for actors' consideration in their own decisions and plans, to manage risks and uncertainty in seasonal climate, take advantage of opportunities.

SESSION VI
Develop communication plan

Ensuring advisories are packaged to include information on uncertainty and to suit user needs. Consider effective communication channels for the local context, so that advisories reach all stakeholders who need them and in good time.

6.5 Session I: Review of the previous season and analysis of current status

6.5.1 Key concepts

Session I embraces the complexity of relationships and interactions due to local dynamics in many aspects beyond climate, which is part of broader uncertainty. This is through engaging participants at the PSP workshop in sharing information and experiences, and reflecting together on the previous season and how it relates to the current status in the area of concern, with a focus on:

- weather/climate experienced in the previous season and how it compares with the previous season's forecast
- climate-related impacts in the previous season
- current status of livelihoods, food security, sectors, resources, services and capacities
- ongoing projects and programmes, plans and activities
- common appreciation of local climate information needs and demands.

Information generated from this reflection serves as a baseline for discussions during the PSP workshop. The information is critical in ensuring that plans and actions developed for the coming season are grounded in local realities and build on where stakeholders are coming from and the present conditions. For example, consider a past season in which rainfall amounts were sufficient for growth of the most common crops in an area and that, using relevant information communicated from a previous PSP workshop, actors in the area harvested enough to meet their food needs as well as surplus for sale and storage. This means that if there is a forecast for high probability of low rainfall in the coming season, discussions on food security in the area are likely to generate impacts that are not as severe as if the area was coming out of a drought.

Baseline information will be different from one season to another and in different local contexts due to interactions, change and dynamics in:

- stakeholders' interests, aspirations, concerns and needs
- capacities, such as in using climate information
- services in different sectors and provided by government, different organisations and institutions, including the private sector
- local knowledge
- climate risks, vulnerabilities and impacts, among other factors.

The seasonal forecast and associated uncertainty will also be different from season to season. All these factors put together necessitate iterative learning from one season to the next, through collective reflection on stakeholders' experiences and using it to interpret seasonal forecasts and plan for the coming season. Iterative and collective learning, as happens in Session I, then mean that the specific information coming out of a PSP workshop will be different from season to season, making PSP a continually valuable approach for managing uncertainty and risk as influenced by the climate.

6.5.2 How to review the previous season and analyse current status

I. Selected representatives from different actor groups present the prepared key information coming out of discussions in Step 2 (see 'Preparation of representatives from different actor groups').

II. In plenary, the PSP facilitator asks:

a) participants from government sector ministries and departments, different institutions and organisations, etc (who were not reached during actor engagement) to share key information such as on their activities in the previous season and results of those activities; seasonal climate impacts in the area; current status of resources, services and capacities in different climate sensitive sectors, etc. This information should be additional to what actor group representatives presented, with a broader outlook of the geographical area and possible interactions with neighbouring areas.

b) where available, make use of information from monitoring systems by government or different organisations – for example, food security assessments from the Kenya National Drought Management Authority (NDMA) and equivalent in other countries, Famine Early Warning Network (FEWSNET) and World Food Programme (WFP) seasonal monitor, etc.

c) a selected facilitating partner to present a summary of analysis on the information collected during user engagement, highlighting actors' perspectives on the current status of livelihoods, food security, resources, vulnerabilities and capacities. This will provide a broad overview of information from different actors, especially highlighting similarities and differences and cross-actor interactions

d) participants at the workshop, who are not meteorologists, to describe the weather experienced in the previous season based on their own observations – for example, describing if the amount of rainfall was evenly or unevenly distributed across the months in the season, when the rains actually started in different areas, and when rains in the season ended, etc. Compare these experiences and the previous seasonal climate forecast, bringing in analysis from user engagement (Step 2). This serves as an assessment of the accuracy of the forecast. The extent to which what was experienced agrees with the seasonal climate forecast helps to build better understanding of, and trust and confidence in, seasonal climate forecasts, especially that from meteorological services

e) participants to share information on what different actors are currently doing in preparation for the coming season. For example, are farmers already buying certain types of seeds for planting? Are retailers stocking certain types of animal feed and drugs? Are government ministries and departments planning for, or already undertaking activities targeted at specific actors?

This is in recognition of the fact that even before PSP, actors will have some plans and are taking certain actions. These plans and actions will be examined later to discover the extent to which they were informed by climate information for the coming season and to make adjustments or change strategies as needed (see Session IV)

f) participants, reflecting on the previous season and current status (of livelihoods, food security, resources, services, vulnerabilities, capacities and ongoing activities), to identify the local climate information needs. Remind participants of additional climate information needs that came out of discussions during actor engagement (Step 2).

Facilitators compile the information shared into a baseline for the coming season that will be used as reference to inform discussions throughout the PSP workshop.

6.6 Session II: Presenting and co-generating a downscaled seasonal climate forecast

6.6.1 Key concepts

PSP workshops create space for interaction between Meteorological Services and different stakeholders, presenting stakeholders with a chance to interrogate the information presented in a seasonal forecast and for Meteorological Services to explain the information and technical terms used as well as the forecasting process and the limitations therein. As local forecasters/observers also take part in a PSP workshop, it is an opportunity to understand local indicators used and what they mean for a coming season. Presentation on local indicators forms a good basis for stakeholders, especially scientists, to appreciate the information presented by local forecasters. Interaction with both Meteorological Services and local forecasters/observers enables stakeholders to have a clear and common understanding of seasonal forecasts, especially on probability and its relation to uncertainty in future climate. Good understanding is an important first step in co-production of a localised or downscaled seasonal forecast, and is essential for correct interpretation of the information. With good understanding, stakeholders have a chance to examine both local and meteorological seasonal forecasts in terms of the information available from each, and based on local needs, highlight strengths and existing information gaps in each of the two forecasts (see an example in Annex 5). This helps both sources of information to be valued and respected. Discussion on combining the two forecasts then allows for:

- complementarity where information gaps exist and reinforcing the message being conveyed when the two forecasts agree with each other
- fostering trust between science and local knowledge
- building local capacity to interpret scientific and local climate information.

The result is a localised seasonal forecast with enhanced relevance and acceptance. This, in addition to various actors having contributed to localising the seasonal forecast, enables actors to use the information with confidence.

Case Study 6

COMMUNITY RAINFALL RECORDS INFORM SEASONAL PARTICIPATORY SCENARIO PLANNING

Better farming and livestock management decisions are enabled through recorded rainfall data combined with interpreted seasonal forecasts.

In 2011, ALP partnered with the Niger Meteorological Services to install rain gauges, which are monitored by volunteers, in 30 communities in Dakoro district. This is generating location-specific rainfall data linked to a community vulnerability monitoring and early warning system. Information from the rain gauges enriches local knowledge about the climate and informs activities within a season – such as weeding time, when to apply pesticides, and the best time for pastoralists to search for pasture (see full article in Joto Afrika Issue 12, 2013).

Since early 2013, the district of Dakoro in Niger has been conducting PSP workshops, in advance of the rainy season, to discuss both meteorological and local forecasts and generate advisories so that actors in the agro-pastoral and pastoral zones of the district can prepare for the coming season. Information from the community-managed rain gauges feeds directly into PSP workshops, providing an opportunity to reflect on what happened in the previous year's rainfall season, and discuss appropriate strategies for the rainy season ahead. "What we know about the rains determines our adaptation planning," says Arzika Mirko, the early warning volunteer in charge of the rain gauge in Maigochi village, Dakoro district.

Adapted from Integrating disaster risk reduction and adaptation to climate change, Otzelberger, 2014

Issa Sakola holding Maigochi's rain gauge. Credit: Agnes Otzelberger/ALP 2015

6.6.2 How to present and co-generate a downscaled seasonal forecast for the local area

I. PRESENT A LOCAL SEASONAL FORECAST

a) Ask local forecasters or observers from the area, who were identified during actor engagement and prepared to participate in the PSP workshop (Step 2), to present their local forecast for the coming season. Focus of the presentation is:

- What indicators have been observed and what is the behaviour of those indicators?
- What do the indicators suggest will happen in the coming season? Information here to include, if available, forecast for:
  - the start and end of rains in the season
  - distribution/amount of rainfall within the season
  - other information depending on local climate information needs
- Where have these indicators been observed, and therefore, what area/location is the local forecast covering?

b) After the presentation, have a plenary discussion for participants to understand the forecast(s) presented. Often, this will raise questions on what the forecast really means. For example, participants sought to understand what 'good rains' meant in the March to May (MAM) 2013 seasonal forecast for Garissa County, Kenya. It came out that actors in the county say rains are good when it persists for many days to support the growth of pasture and crops and fill water pans and dams. Good rainfall also meant it would not cause droughts and floods.

II. PRESENT A METEOROLOGICAL SEASONAL FORECAST

Meteorological Services present the scientific seasonal forecast, based on analysis of discussions with various actors (Step 2) that helps to decide what information and level of detail should be included to ensure it responds to local needs. Also consider what makes an effective presentation (see Box 5 in Chapter 5), noting that the way in which forecasts are prepared and presented may improve over time. Typically, the presentation should include the following key information (see an example in case study 8):

a) a review of the previous season's performance based on historical data, which can be in the form of maps and graphs with explanations. An assessment of the forecast produced in the last season compared to what was observed will help to understand and build trust in the forecast, and will also enable better understanding of the forecast for the coming season

b) the forecast for the coming season; this may be a national forecast or one already downscaled to county/district level. During this presentation, it is important that Meteorological Services:

- **explain what 'normal', 'above normal' and 'below normal' rainfall for the local area mean**, so that the information presented is easily understood. Make use of tools such as ENACTS to elaborate on normal or average rainfall for different parts of the local area. This also helps actors to know the rainfall range for the three tercile categories (see Key Concepts in Chapter 2)
- **present and explain probabilities in the seasonal forecast** and their relation to uncertainty. Clear explanation of the probabilistic seasonal forecast needs to be an integral part of the presentation, recognising the limitations in climate forecasting due to what is currently known in science. This minimises distrust when reality is different from a forecast that is presented as one likely future. It is, however, critical to communicate probabilities and uncertainty in a way that does not erode stakeholders' trust in the seasonal forecast
- **provide information on the likely onset (start) and cessation (end) of rainfall in the season.** Define what is meant by onset and cessation of the rainfall season in the area. If available, use tools such as ENACTS maproom to help actors visualise historical onset and cessation days so as to understand what the terms mean – see an example from Meteo Rwanda Climate and Agriculture maproom at http://maproom.meteorwanda.gov.rw/maproom/Agriculture/index.html
- **present information on possible distribution of rainfall in the season and occurrence of dry spells.** The analogue year – i.e. a year in the past that had similar climatic conditions to the forecasted season – is often useful in elaborating possible rainfall distribution as well as rainfall onset and cessation

- **include the forecast for surrounding areas.** This is in consideration of relationships and interactions that may affect the area of concern; for example, river flooding in the local area due to heavy rainfall in upstream areas, potential for food markets in other places that may receive low amounts of rainfall, etc.
- **give clear explanations of technical terms** and make links between the different sets of information so as to give a coherent message on the forecast for the coming season and ensure good understanding
- **let stakeholders know**, if they are interested, how Meteorological Services arrived at the forecast presented. Keep the information to clear explanations of the most important drivers of local weather and climate, without getting into the details of the forecasting process, unless stakeholders ask specific questions that require further elaboration. Often, the El Niño phenomenon tends to come up because it is one of the key drivers of seasonal climate in Africa. This requires clear explanations on what the phenomenon is and how it is linked to seasonal climate

c) based on local climate information needs, additional information such as on possible occurrence of extreme weather events during the season – e.g. strong winds, hailstorms and lightning, temperature forecast if available, etc.

d) information on availability of updates to the seasonal forecast (see Box 5 under planning for communication).

Due to the level of technical, and often new, information in the meteorological forecast, allocate sufficient time for this part of the session (see the sample agenda in Step 2). Allow enough time for participants to ask questions for clarification and explanation on the seasonal forecast, as well as seek additional information that Meteorological Services may have but was not presented. It is important that the facilitator for this session steers discussions to focus on the seasonal forecast presented and not on past grievances about information from Meteorological Services, as may sometimes occur.

Case Study 7

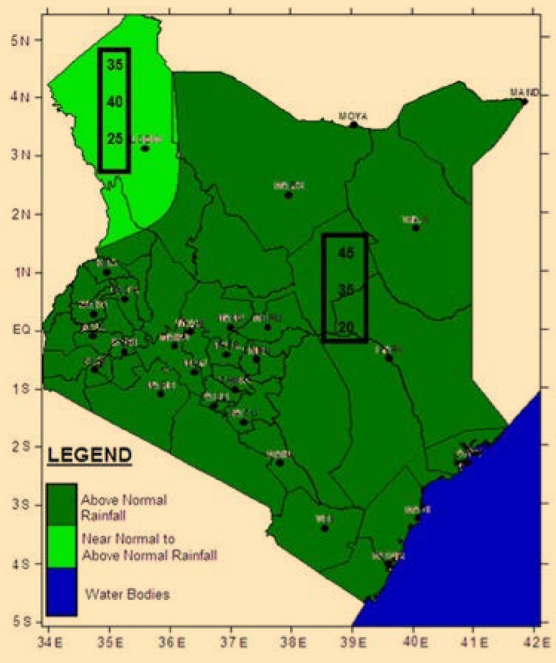
A TYPICAL SEASONAL FORECAST PRESENTATION FROM THE KENYA METEOROLOGICAL DEPARTMENT (KMD)

The Forecast presents a review of the performance of the previous season to provide the context for the coming season, and a range of probabilistic rainfall information for the coming season. The following series of maps for Kenya shows the way in which the information is presented using national maps divided into relevant and labelled zones. The same presentation is used for sub national maps showing downscaled versions.

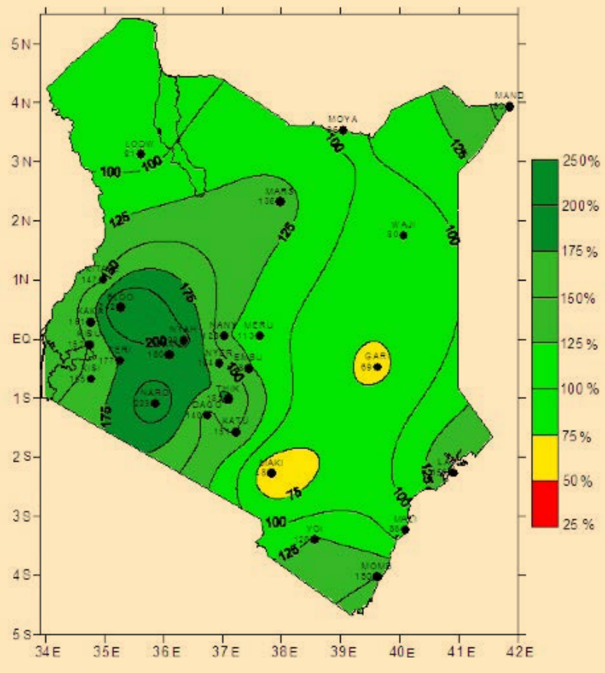
1. Review of October to December (OND) 2015 rainfall season

Figure 19. *A meteorological review of OND 2015 seasonal rainfall performance.*

19a OND 2015 forecast



19b Recorded rainfall in OND 2015

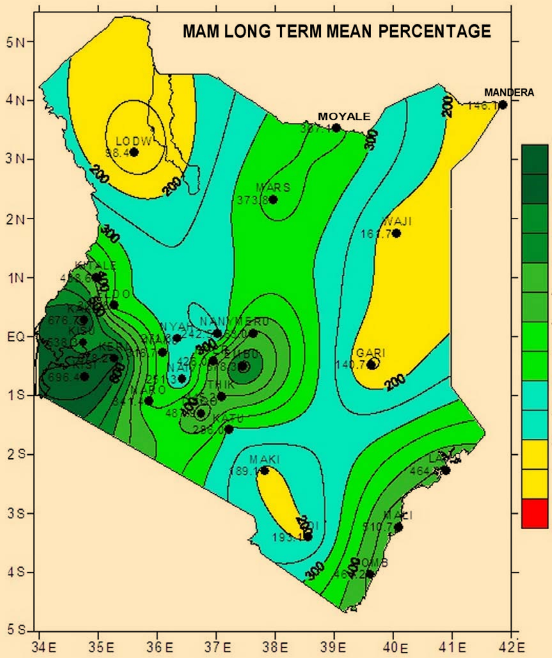


In Figure 19b, areas that received rainfall amounts of more than 125% of the long-term mean (LTM) got enhanced or 'above normal' rainfall; those that received rainfall amounts of between 75% and 125% of LTM indicate 'normal' rainfall, while those that got rainfall amounts below 75% of LTM had depressed or 'below normal' rainfall. Only two stations (areas coloured yellow) recorded below normal, while the rest of the country received normal or above normal rainfall amounts. The two stations are a good illustration of the need for presenting all forecast probabilities. This is because even though in Figure 19a the two stations were in the areas that had the highest probability (45%) of getting above normal rainfall, there was still a 20% probability of the rainfall being below normal, which is what actually occurred.

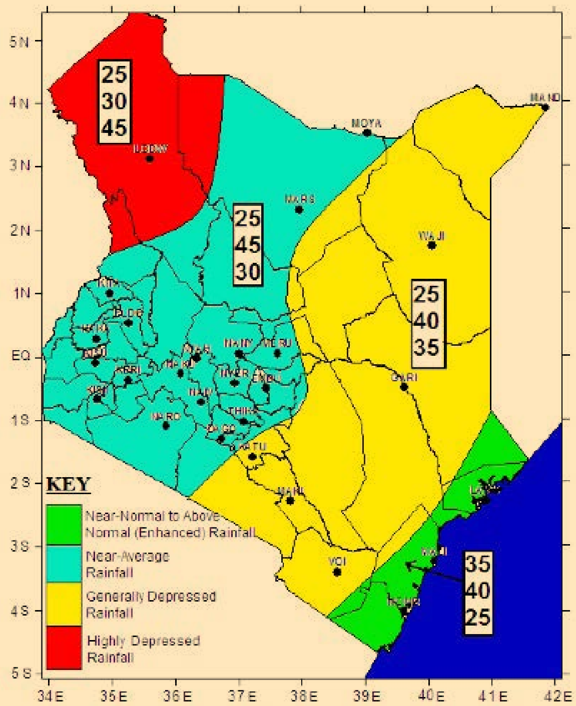
2. Rainfall outlook for March to May (MAM) 2016 season

Figure 20: *a) Average MAM seasonal rainfall in the country; b) rainfall forecast for MAM 2016 with probabilities*

20a Average MAM rainfall



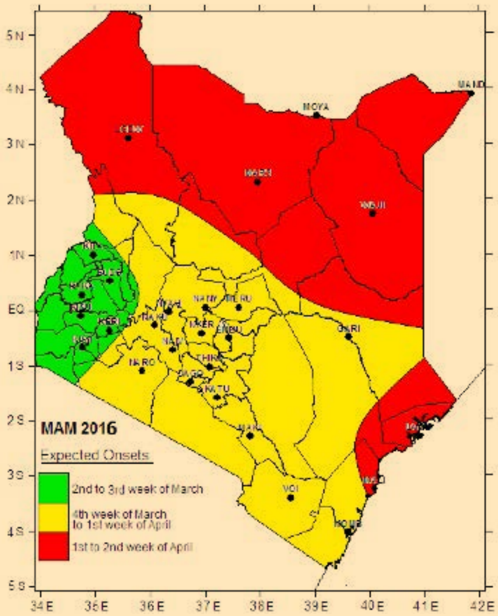
20b MAM 2016 rainfall forecast



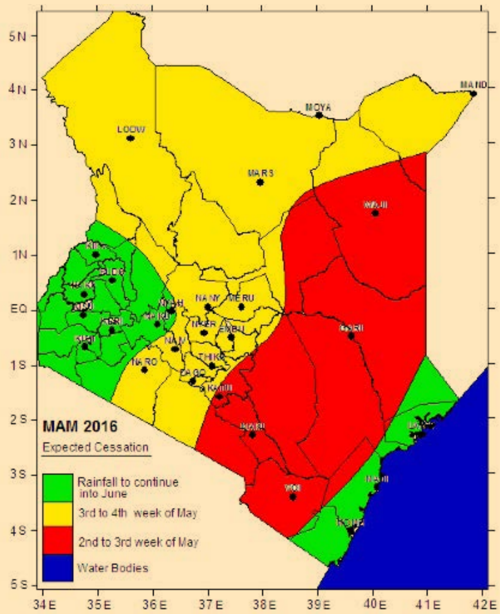
Average rainfall for the MAM season is important to know the actual millimetres of rainfall for each part of the country in a normal rainfall scenario. As can be seen, there is a wide range of normal rainfall in Kenya, dependent on many factors climate and otherwise, eg. altitude, landscape types, latitudes and more which reflect the agro-climatic-ecological zone. The forecast map shows probabilities for normal, above normal and below normal, which are relative to the particular location's average rainfall amount.

Figure 21: *Expected MAM 2016 seasonal rainfall onset and cessation dates.*

21a Forecast rainfall onset dates



21b Forecast rainfall cessation dates

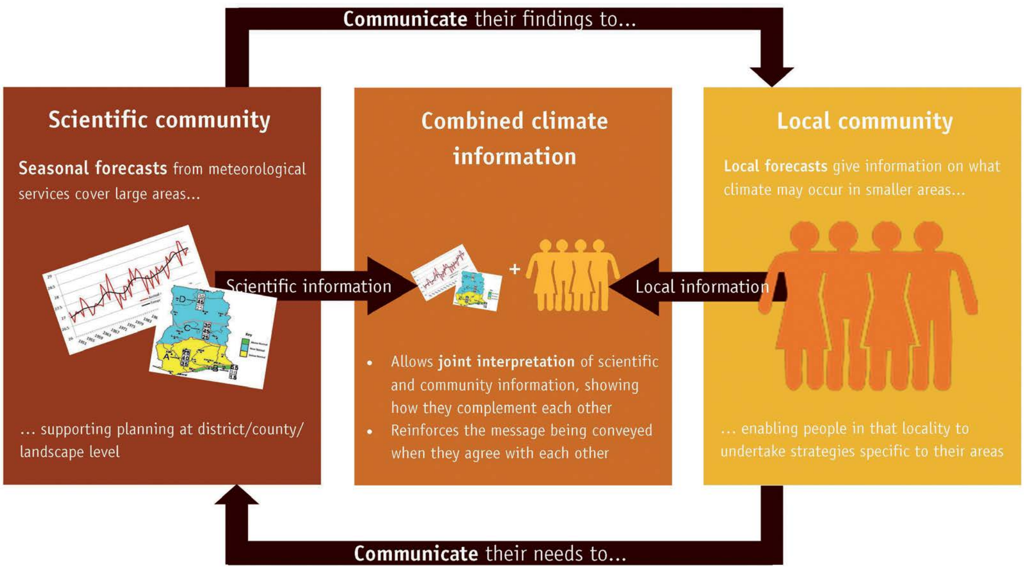


Onset and cessation dates are vital information for seasonal decision making – eg. crop types and varieties require certain amounts of rainfall distributed over a specific number of days and months. In Ghana, forecasts of possible dry spells and their timing are also included to enable better informed decisions on eg when and what to plant, whether irrigation may be required mid-season etc

III. Co-produce a consensus seasonal climate forecast for the local area

Facilitate a plenary discussion so that participants reach common agreement, understanding and integration of the two seasonal climate forecasts presented (see Figure 22 on the benefits of this). Focus discussions on integrating the two forecasts, looking at where there is agreement or disagreement between the two forecasts and where information from one forecast compliments what is missing in the other. The result of integration is a localised seasonal climate forecast for the area. See an example of discussions to integrate the two forecasts in Annex 7 and a localised forecast in case study 7. Write the downscaled forecast on a flipchart, cards, etc depending on what works best for participants and display it throughout the workshop for reference in discussions that follow.

Figure 22. *Benefits of combining local and meteorological seasonal climate forecasts*



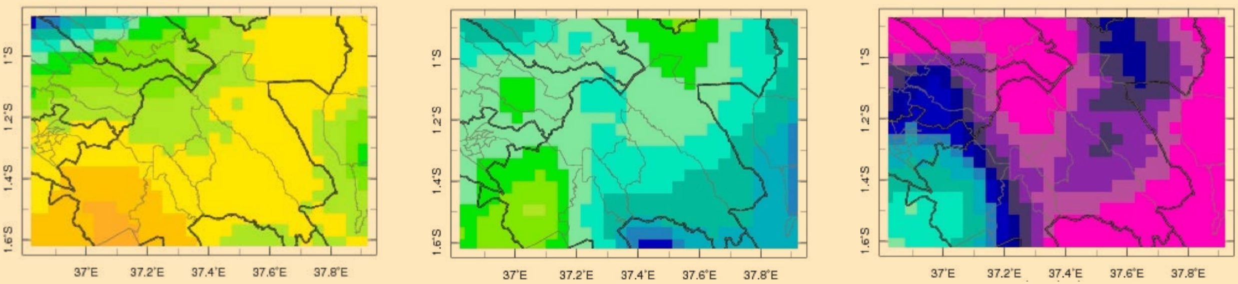
Case Study 8

CO-PRODUCING A LOCALISED SEASONAL FORECAST FOR MACHAKOS COUNTY

Machakos County experiences a short rainy season from October to December. On average, rainfall during this season ranges from 50mm in October to 200mm in November, with differences in rainfall amount in various parts of the county (see Figure 23). The average monthly temperature is between 18°C and 25°C, with October being the hottest month in the season.

Figure 23: *Average rainfall (1983 to 2014) in Machakos County for a) October, b) November, and c) December. Source: KMD maproom http://kmddl.meteo.go.ke:8081/maproom/*

a) b) c)



At the Machakos County PSP workshop that was organised ahead of the OND 2013 seasonal rains, participants wanted to know what the season would look like so that they could plan their livelihood and sectoral activities accordingly. In order to get as much information as possible on climate for the coming season, and for the information to be well understood at county to lower levels, both local and Kenya Meteorological Department (KMD) forecasts were presented.

Local forecast

Participants from communities in Machakos County monitor local indicators so as to forecast climate for the coming season. Before the OND 2013 season, indicators observed were: the Nandi Flame tree had flowered, frogs were heard croaking, the hills and nearby Ol Donyo Sabuk mountain had been covered by frost, and loud noises were heard from the Ivutavutilya bird. Based on these indicators, community members expected rains for the season to start from 15 October, but with a delay into the beginning of November due to the persistent coldness. The rains would end in late December. The season was also expected to be short with low but reliable rainfall amounts.

Meteorological forecast

The meteorological forecast was presented by the Machakos County Director of Meteorological Services (CDMS). With a 45% probability, the OND 2013 'short rains' season was most likely to have normal (or average) rainfall amounts ranging between 300 and 500mm. There was also a 30% chance of below normal rainfall and 25% chance of above normal rainfall. The rainfall distribution at different times in the season and over different areas was expected to be generally poor, similar to the OND 2001 season. Rains in the season were expected to start between the 3rd and 4th week of October and were likely to end during the 2nd to 3rd week of December.

An agreed localised forecast for the county

There was agreement between the two forecasts in terms of when rains in the season would start with highest probability of 'normal' rains occurring. Though the community forecaster could not easily determine when the season would end – due to religious and cultural beliefs – its consideration alongside the meteorological forecast created a collective agreement that the season would end between the second week of December and the end of December.

6.7 Session III: Developing scenarios of hazards, risks, opportunities and impacts

6.7.1 Key concepts

Effective adaptation requires the knowledge and capacity to anticipate future climate and potential resultant impacts. But considering inherent uncertainty in the climate and its interaction with broader context uncertainties related to future socio-economic development, culture, goals, aspirations, vulnerabilities, risks and capacities, among other factors, anticipation means taking into account several possible futures. Development of scenarios addresses knowledge gaps around the interaction of development choices with the climate, in order to design better adaptation options that are more robust to a range of possible futures (UNEP, 2014). Options generated from scenarios enable the requisite flexibility to react to variability and change as they occur and to continuously review implementation of plans in light of dynamics in the context (see case study 9).

Keeping in mind the uncertainty expressed in seasonal forecasts as probabilities in the three terciles, scenarios developed during a PSP forum are a way of interpreting the forecast and uncertainty (see Box 6) to relate to the decision-making context. Scenarios then enable anticipation of multiple future climate hazards and risks, as well as potential impacts and opportunities. Additionally, these scenarios offer practical applications for building adaptive capacity and resilience to seasonal climate variability and extremes (see box 7) thus facilitating:

- adaptation to an uncertain future through identification of no-regrets adaptation options and informing adaptive management actions (UNEP, 2014) as the climate and the broader context evolve within the season
- development and strengthening of multi-hazard early warning systems (UNISDR, 2015)
- better integration of climate risk management in livelihood, sectoral and development planning.

Note that some hazards, risks, opportunities and impacts may recur after three or more PSP workshops. To avoid repetition in subsequent workshops, it is useful to take good notes, right from the first PSP workshop and compile them into some form of reference records (e.g. a directory). Well-documented and detailed records create important historical information for the area, which will be useful for:

- continuous monitoring and analysis of changing climate risks and impacts in the area
- recalling analogue years and using them as a powerful tool for understanding and interpreting seasonal forecasts
- analysis of plans and advisories generated over time to define standard operating procedures and build confidence in determining what action is 'worth' taking based on a seasonal forecast (Stephens, Coughlan de Perez, Kruczkiewicz, Boyd, & Suarez, 2016).

The records can then be reviewed and updated in the following PSP workshops, based on current status and the local seasonal forecast. This ensures that advisories generated before each season are in response to the forecast and enable forecast-based action. Use of the records can also reduce the time needed for discussion in PSP workshops.

Box 6
INTERPRETING ABOVE NORMAL, NORMAL AND BELOW NORMAL RAINFALL AS PRESENTED IN A SEASONAL FORECAST

What does 'normal' rainfall mean?

Several times, actors have questioned whether it is necessary to build a scenario for probability of normal rainfall. This is due to an assumption that normal probability means everything is 'normal' – that is, there are no hazards, negative impacts or opportunities to think about. This places more emphasis on seeking explanation and understanding from Meteorological Services on what 'normal' rainfall in the area means.

'Normal' rainfall in a seasonal forecast is used to refer to a range of values around the long-term average rainfall in a particular area and in a given season (see definition of tercile in Chapter 2). For example, normal rainfall in Garissa County, Kenya ranges from 102 to 183mm during the OND rainfall season. The rainfall range is determined by looking at historical data over a 30-year period so as to factor in the natural variability in climate from year to year. For example, here the range for normal rainfall for Garissa County was determined using data from 1961 to 1990, which is globally set by the World Meteorological Organisation (WMO) as the historical base period. However, owing to changes in the climate, using this historical base period to define normal rainfall does not capture significant shifts in rainfall amount. For operational purposes such as for seasonal forecasting, this base period is now updated every ten years. For example, in 2017 the base period for defining normal rainfall is 1981 to 2010 (WMO, 2015). Normal rainfall in any given area is therefore different over time, influenced by both variability and change in the climate.

The interplay between rainfall amount in the normal range, hazards, risks and vulnerabilities (based on current capacities, activities and physical location) as well as ability to capitalise on opportunities can result in normal rainfall having both negative and positive impacts. For example, consider an area where farming is done along a river and terrain in the area is mostly flat. Even when rainfall is normal the river may overflow, causing floods in farm lands. In the end, there is general agreement that when the highest probability is for normal rainfall and impacts are not likely to be negative or adverse, there is an opportunity to undertake resilience building towards increasing the capacity to manage climate extremes – for example, capacity building on and implementation of improved agricultural practices such as environmental management through reseeding degraded lands, developing contingency plans, improving links between farmers and agricultural research institutions, etc.

Does 'above normal' rainfall always result in flooding?

When developing scenarios for above normal rainfall, the interpretation almost always ends up focusing on floods as the major climate hazard. This may not always be true.

First, it is important to start with the understanding that above normal rainfall in any area is a range of rainfall amounts – for example, between 217 and 529mm for the OND season in Garissa County. Second, a flood is defined as either the overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods (IPCC Glossary). Considering the two definitions, several factors have to be considered before arriving at flooding as a hazard due to above normal rainfall:

- Above normal rainfall amount such as 217mm is the total received in a season. If this amount all happens within, for example, three days, then there would be heavy rainfall events that could possibly result in flooding, such as flash floods. But if the amount is almost evenly spread out over, say, a three-week period, then the rainfall events would be light with potentially no occurrence of a flood. It is therefore important to consider information on how above normal rainfall could be spread out or distributed within the season. Meteorological Services may provide information on rainfall distribution, for example expecting distribution to be poor.
- The ecosystem, terrain and location matters. For example, in areas downstream of a river, water may overflow and cause flooding due to heavy rainfall in upstream areas. Or flooding may occur in an area even when there are light rains because of the type of soil that allows water to accumulate. In an area that has soil which absorbs water or allows for good flow and is far from a river, flooding may not necessarily occur when there is above normal rainfall.
- Socio-economic development is a factor in the occurrence of climate hazards. Such is the case of land use due to agriculture or urbanisation that changes the ecosystem and terrain. For example, cutting down trees to increase land for irrigated agriculture along a river may weaken the river banks so that even slightly above normal rainfall could cause flooding. An increase in tarmacked areas due to urbanisation means that rainwater is not absorbed into the ground and if combined with poor drainage systems, small rainfall amounts can quickly result in accumulation of water.

Consideration of these factors demonstrates that proper interpretation of above normal rainfall in relation to the potential for flooding requires a combination of technical knowledge as well as knowledge of the local context. This makes the multi-stakeholder interaction and knowledge exchange at PSP workshops very valuable in arriving at the correct interpretation of a seasonal forecast.

Does 'below normal' rainfall always result in a drought?

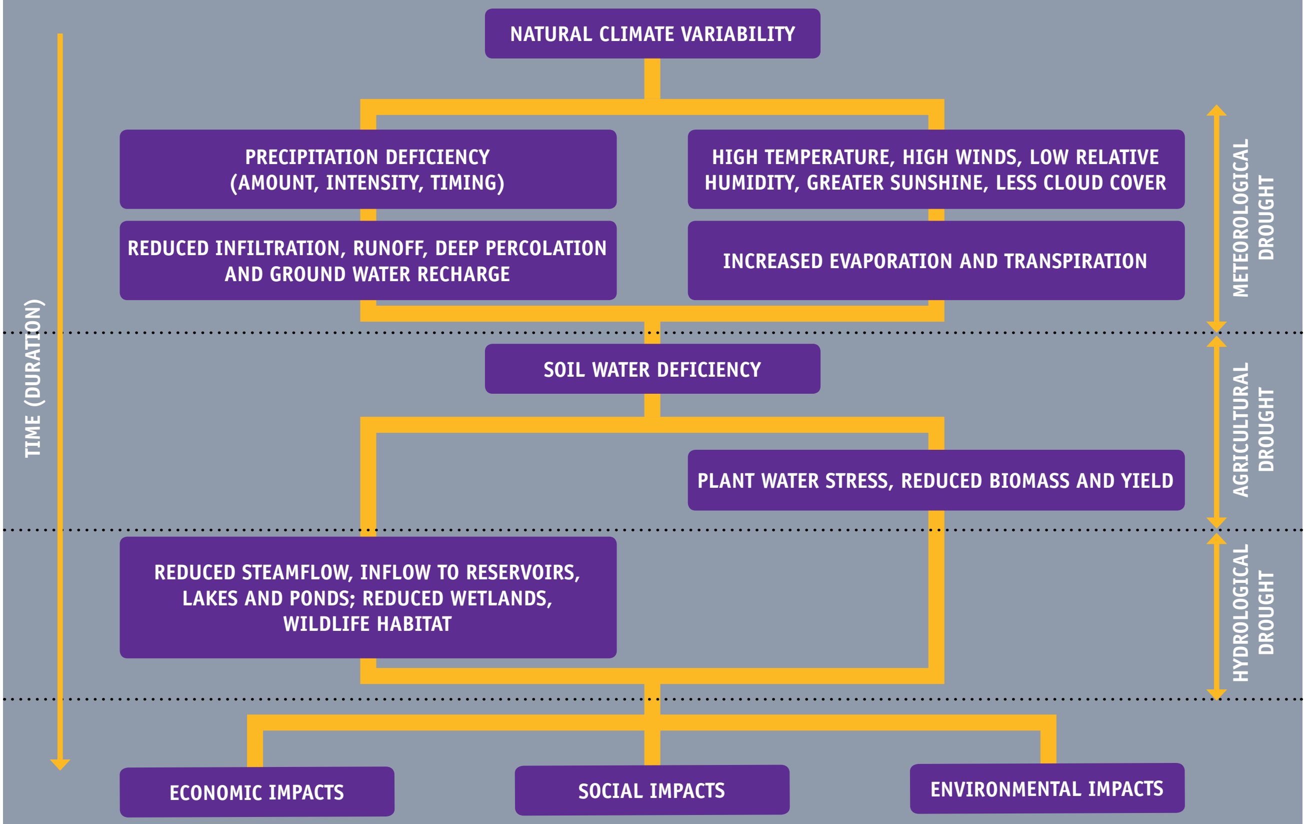
Similarly, below normal rainfall in a seasonal forecast is often interpreted to mean a drought is coming. Again, let us go back to definitions.

A drought is generally defined as a period of abnormally dry weather long enough to cause a serious water imbalance (IPCC Glossary). It is, however, a relative term depending on technical expertise, livelihood activities or sector interests, among other considerations. In that regard, there are three common definitions of drought (IPCC Glossary):

- Meteorological Drought – This is usually defined based on the degree of dryness (in comparison to normal rainfall) and the duration of the dry period. For example, considering that the range of below normal rainfall for the OND season in Garissa County is between 22 and 93mm, a meteorological drought would be when total rainfall for the season is in the lower end of the range – e.g. between 22mm and 45mm.
- Hydrological drought – This usually occurs following periods of extended rainfall deficits that impact water supply (i.e. streamflow, reservoir and lake levels, groundwater), potentially resulting in significant societal impacts. Because regions are interconnected by hydrologic systems, the impact of hydrological drought may extend well beyond the borders of the rainfall-deficient area.
- Agricultural drought – This links various characteristics of meteorological and hydrological drought to agricultural impacts, focusing on rainfall shortages, soil water deficits, reduced groundwater or reservoir levels needed for irrigation, and so forth.

Drought is therefore a relative term and any discussion in terms of rainfall deficit must refer to the particular rainfall-related activity that is under discussion (IPCC Glossary). Discussion on drought also shows the interconnectedness of impacts due to rainfall deficits (see Figure 24), requiring collaborative efforts.

Figure 24. *Flowchart illustrating the progression of drought, and the relationship between meteorological, agricultural, and hydrological droughts. Economic, social and environmental impacts are shown at the bottom of the chart, independent of the timescale, indicating that such impacts can occur at any stage during a drought. (Source: National Drought Mitigation Center, University of Nebraska-Lincoln, http://drought.unl.edu/DroughtBasics/TypesofDrought.aspx)*



Conclusions

While the definitions make interpretation of a seasonal forecast appear as a technical exercise, they actually point to the importance of a co-production of relevant information through:

- **Understanding the forecast from discussions with Meteorological Services, before getting into interpretation**
- **Understanding the local context and its dynamics, such as is enabled by PSP workshop Session I**
- **Combining different sets of information and knowledge to make sense of the forecast.**

6.7.2 How are scenarios of hazards, risks, opportunities and impacts developed?

Box 7
SCENARIOS FOR BUILDING ADAPTIVE CAPACITY AND RESILIENCE

Generation of scenarios from seasonal forecasts and the ensuing planning has several practical applications for building adaptive capacity and resilience to seasonal climate variability and extremes (see Figure 25; adapted from (Lindgren & Bandhold, 2003):

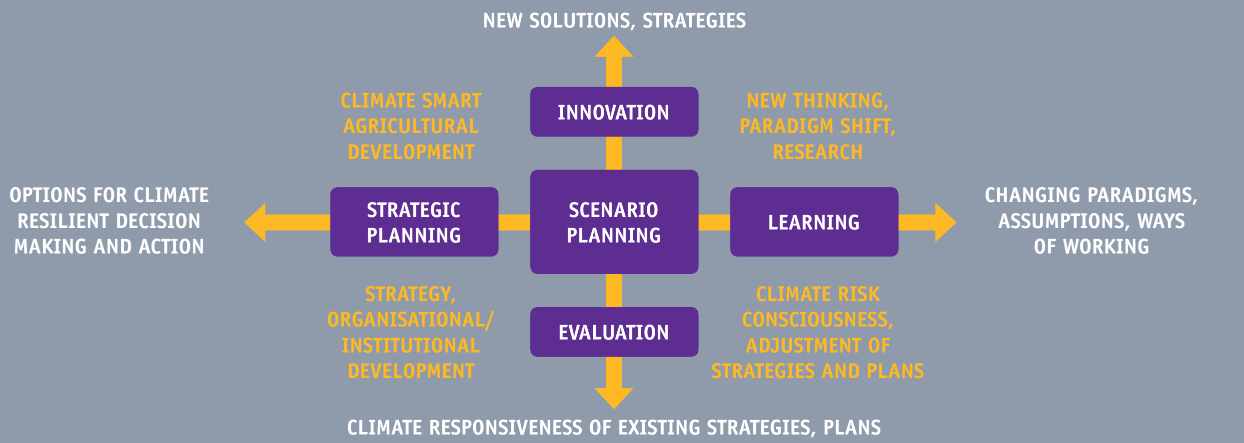
a) Scenarios are used for strategic planning. They help actors to think about the best or most appropriate combination of actions to take in the coming season as well as possible actions by others, and how these actions are interconnected and influence each other. This is essentially about managing uncertainties in the seasonal climate as well as in human interactions. Strategic planning using scenarios generated in a PSP workshop especially benefits from combining the knowledge and experience of the various stakeholders involved. This has an explicit aim of developing practical advice on forward-looking decisions that different actors can make to manage uncertainties in climate risks, opportunities and impacts in a season.

b) Scenarios may function both as inspiration for generating new solutions or strategies to deal with the seasonal climate challenge and also as filters through which new ideas and projects can be passed. In both cases, scenarios function within an innovation process targeted at building climate resilience.

c) Scenarios can be used for evaluation purposes, for instance in reviewing the effectiveness of existing strategies in different climate sensitive sectors, contingency and preparedness plans in response to potential seasonal climate risks, opportunities and impacts in a local area. This kind of evaluation can be used to identify the adaptation deficit, that is, the gap between the current state of capacities, strategies, plans, services, ongoing projects/programmes and a state that minimises adverse impacts of climate in a season (IPCC WGII Glossary, 2014). The evaluation may be necessary as different actors are likely to be taking certain action or to have developed plans in preparation for the coming season, as will have come out of PSP workshop Session I.

d) Scenarios may also be used for learning or to drive change, for example, demanding the equitable provision of climate information services. They can be a powerful method for challenging existing paradigms, assumptions and ways of working (for example, on the value of local knowledge and combining knowledge sources to co-generate information) and for creating shared perspectives on the future, especially for those who are involved in discussions on scenario generation and planning.

Figure 25. *Practical applications of scenario planning using seasonal climate forecasts*



I. INTRODUCTION TO SCENARIO DEVELOPMENT

This is a plenary exercise to introduce discussions to interpret the localised seasonal forecast and get a common understanding of key concepts:

a) Revisit explanation of above normal, normal and below normal rainfall to confirm there is a clear and common understanding and correct interpretation of the seasonal forecast (see Box 6).

b) Define and discuss key concepts that will be used: climate hazards, risks, opportunities and impacts (see key concepts in Chapter 2).

c) Give an example to demonstrate scenario development (see Figure 26).

Figure 26. *The process for developing scenarios from a seasonal forecast*

II. FORMING GROUPS

Scenario development is best done by dividing participants at the workshop into groups. The groups can be based on:

- **Technical expertise** – e.g. separate groups for actors working in different sectors such as water and irrigation, agriculture, livestock, financial and insurance services, etc.
- **Livelihood types** – e.g. a group each for crop farmers, pastoralists, trade or business industry, crafts, etc.
- **Geographical area** – e.g. riverine communities, actors from the same administrative area such as a ward, etc.
- **Agro-climatic zones** – e.g. separate groups for actors from very rainy (humid) areas, sub-humid areas, dry or semi-arid areas, etc.
- **Common interests** – e.g. actors growing the same type of main crop, such as tea, those engaged in the same agricultural value chain, etc.
- **Shared issues of concern** – e.g. projects, programmes and activities on DRR, agricultural development, planning and budgeting, research, etc.

The groups reflect the way in which the PSP process was contextualised and therefore who was invited to attend the PSP workshop. When forming the groups and facilitating discussions, it is important to check that there is balance in contribution and voice of communities as well as technical departments. This is critical to co-production of high-quality, technically sound and locally relevant scenarios and advisories, with a strong influence from local knowledge and expertise (Gbetibouo, Obuya, Mills, Snyman, Huyser, & Hill, 2017).

III. GROUP DISCUSSIONS

a) Give participants reference materials:

- baseline information (from Step 3: Session I) for consideration of actors' current plans, activities, resources, vulnerabilities and capacities
- records of hazards, risks, opportunities and impacts in the area generated from past PSP workshops (where there were regular PSP workshops)
- the seasonal forecast with all the relevant information, including probabilities of the three terciles occurring in the coming season.

b) Ask participants in all the groups to consider the question: If the coming season experienced above normal, normal or below normal rainfall, what would be the (see Figure 26):

- major climate hazards in the local area?
- Apply local and technical knowledge and experience to bring out the types of climate hazards that may be experienced in the coming season. Assess the possible geographical extent, timing and severity of hazards in the local area. Because of the seasonal timescale, scenario development during PSP forums often focus on short-lived and recurrent climate hazards (See Chapter 6).
- potential risks due to the identified hazards? Remind participants to refer to the information generated in session 1 on current status.
- potential opportunities due to the climate? Come up with the possible impacts of the risks and opportunities on different stakeholder groups in the local area. Local knowledge is especially useful in bringing out local impacts, with differences based on capacities, livelihood types and activities, gender, access to technical and financial services, among other factors. Ask participants to also take into account the forecast for and possible impacts in neighbouring areas that may affect their area of concern.

The order in which the three scenarios are developed is determined by the probability weighting. For example, considering the MAM 2016 seasonal forecast for Kenya (Figure 21), scenario development for an area in the yellow zone starts with local implications of normal rainfall, since it has the highest probability (40%) of occurrence (or is the most likely scenario). Scenarios for below normal (35%) and above normal (25%) rainfall then follow, not simply what is most likely.

Factor in other information that was shared on the coming season. For example, the start and end of the rains have implications on the length of the season, and therefore the types of risks, opportunities and impacts that can potentially occur in each scenario.

This group work often generates a lot of discussion with the application of local and technical knowledge, experience and the records provided. The session, therefore, requires sufficient time (see the sample agenda in Chapter 5), especially for the initial PSP workshops.

IV. PRESENTATION OF GROUP DISCUSSIONS

a) Each hazard, risk, opportunity and impact is written on an idea card (i.e. one card per item) and the cards stuck on a wall to generate a scenario matrix (see Figure 26 above).
b) It is best that reporting back from the groups is done after the discussions in Session IV.

Case Study 9

DEVELOPING SCENARIOS FOR 'NORMAL' SEASONAL RAINFALL

Trans-Nzoia County in Kenya is one of the main breadbaskets of Kenya. It experiences an annual average temperature of 18°C and an annual average rainfall of 1,264mm. The county gets two, sometimes three, rainfall seasons in a year. With the county experiencing shifts in seasonal weather patterns and a rise in temperatures, there was a need for flexible planning and forward-looking decision making for resilient agricultural production and development in the county. This was to be achieved through PSP, facilitated by Agricultural Sector Development Support Programme (ASDSP) in partnership with the Trans-Nzoia CDMS and other key actors.

At the county's PSP workshop, the agreed seasonal forecast indicated that probability for the MAM 2014 rainfall was 45% normal (i.e. 320–529mm), 35% above normal (i.e. more than 529mm) and 20% below normal (i.e. less than 320mm). The rains were expected to start between the second and third week of March and continue into June. Similar to the MAM 2012 rainfall season, a dry-spell of three to four weeks was to be expected after the start of rains, with the highest amount of rainfall occurring in April.

Participants at the workshop then discussed what the seasonal forecast meant for their county, by developing scenarios based on rainfall probabilities for that season. Three groups were formed to discuss forecast implications for each of the three sub-counties. Different agricultural value chains and technical experts from different government departments/parastatals/programmes were represented in each group.

Hazards, risks, opportunities and impacts of normal rainfall

Considering the 45% probability of normal rainfall in the MAM 2014 season, participants at the PSP workshop identified flash floods, thunder and lighting, strong winds, hailstorms and human-wildlife conflict as some of the possible hazards faced by the county. Risks associated with flash floods were soil erosion, crops loss, outbreak of livestock diseases and reduced water quality. Thunderstorm, lightning and strong winds would result in the loss of livestock, property and human lives. The participants identified reduced crop/livestock productivity, increased cost of transport, reduced food security and loss of livelihood as potential impacts of the identified hazards and risks. Amidst the hazards and risks, the participants realised that they could take advantage of opportunities such as water harvesting and storage, underground water recharge and an increase in prices for certain food commodities.

It was clear from the discussions that normal seasonal rainfall had both positive and negative implications for Trans-Nzoia County. Though normal rainfall had the highest probability of occurrence, developing scenarios of hazards, risks, opportunities and impacts for the other rainfall probabilities (i.e. for above and below normal rainfall) enabled participants at the workshop to see the need for having a main course of action, based on the scenario with highest probability, but also the importance of making contingency plans.

6.8 Session IV: Planning for action

6.8.1 Key concepts

In this session of the PSP workshop, planning involves coming up with possible actions to address hazards, risks, opportunities and impacts in the three scenarios of above normal, normal and below normal rainfall. The most likely scenario (based on highest probability of occurrence) generates the main action plan or the first response to deal with the climate for the season. While the other two scenarios (second highest and lowest probabilities) generate contingency plans. It should be noted that adequate attention should be given to the contingency plans so as to deal with the uncertainty of not knowing exactly what will happen in the season. They encourage flexibility to switch from one action to another depending on how the season evolves. Contingency plans also enable consideration of low probability hazards and risks that could have high and adverse impacts if they do occur.

It is likely that many of the plans relate to long-term development needs, for example improvement of physical infrastructure such as roads. However, because the purpose of PSP is to inform decision making and planning at a seasonal timescale, there is a need to ensure that plans developed focus on actions that can, and will be done by the different stakeholders within a season. Long-term actions may still arise in discussions, but these should be noted and addressed in appropriate forums and processes on long-term planning.

An initial list of climate-informed plans for action is developed in the first PSP workshop. In subsequent PSP workshops, there may be repetition in the proposed actions which can be put together into a 'directory' that focuses on possible short-term/seasonal actions for the local area. The directory can then be a reference document from which actions for the current season – based on the forecast and scenarios – can be drawn and adjusted to suit the present time. It can be a decision-making tool, for example, presented as a flowchart of routes to take depending on the current forecast, emerging opportunities and development, and changes in capacities, resources, strategies, needs and demands.

6.8.2 How are plans developed?

I. FORMING GROUPS

Maintain the same groups that were formed during scenario development as this will build on discussions from that session.

II. GROUP DISCUSSIONS

Ask participants in the groups to:

a) refer to current status of livelihoods, capacities and development, ongoing plans and actions in preparation for the coming season that were shared in Step 2: Session I, focusing on those most relevant to their specific location

b) consider impacts and opportunities identified in the three scenarios to develop new plans or adjust ongoing plans and actions. Examples of adjusting plans and actions may include:

- scaling up or down planned actions– e.g. veterinary services moving from setting up a few animal vaccination stations to having a county-wide vaccination campaign to deal with the increased risk of disease outbreak due to probability of high amounts of rainfall in the season
- bringing in additional actions, e.g. supplementing rain-fed crop growing with irrigation to manage drought as a hazard due to probability of below normal rainfall
- strengthening actions by farmers and livestock keepers, e.g. taking advantage of normal rainfall availing more time (as they are not occupied with responding to extreme events) to engage in capacity building and stronger links to markets
- changing the timing of actions, e.g. input suppliers to stock certain pesticides early in the season rather than later
- switching to new strategies, e.g. with highest probability of below normal rainfall in the coming season, a change from growing maize in an arid or semi-arid area to growing cowpeas and millet
- combining and diversifying strategies to spread the risk of total loss, e.g. growing different types of crops or crop varieties in one season or keeping a combination of different livestock types and breeds that can survive more than one scenario
- taking advantage of opportunities that had not been thought about before, e.g. farmers growing irrigated fodder to sell to neighbouring pastoralists/livestock keepers who may face shortages in animal feed owing to below normal rainfall
- integrating disaster risk management into livelihood activities, e.g. putting in place systems for monitoring flood

occurrence and developing triggers and actions to take when a flood occurs, such as informing key stakeholders of impending floods who then alert other actors to move irrigation equipment to higher ground.

III. PRESENTATIONS FROM GROUP DISCUSSIONS

After each group has agreed on a set of plans for managing climate in the coming season, have a plenary discussion to share the three scenarios from Session III and associated plans from Session IV. During the discussion, allow for further input and clarifications, and find synergy and differences between plans from different groups. Group plans can then be modified and integrated to be mutually supportive and more responsive to the needs at hand (See case study 10). For example, in the case of an opportunity arising due to above normal rainfall:

- the government may have plans to set up water conservation structures – plans that can be aligned to support farmers' plans and needs for access to water
- both the Department of Water and Department of Livestock may have plans to set up water pans in an arid area. Involving actors from different sectors in discussions in the PSP workshops enables coordinated cross-sectoral planning, which avoids duplication of efforts or conflicting responses to the same problem by different sectors.

Case Study 10

INTEGRATED PLANS FOR ACTION IN TRANS-NZOIA COUNTY

Following scenario development, there was agreement among participants at the Trans-Nzoia County PSP workshop that to enable effective risk management and take advantage of opportunities identified, collaborative plans of action between different stakeholders was needed. Examples of integrated plans are presented in Table 11.

Table 11. Integrated plans of action to manage risks and opportunities due to flash floods in Trans-Nzoia County

HAZARD	POSSIBLE ACTIONS	GOVERNMENT PLANS	COMMUNITY PLANS	INTEGRATED PLANS
Flash floods (due to normal rainfall)	• Intensify soil and water conservation activities • Early warning • Intensify healthcare surveillance • Treat water • Vaccination campaigns • Diversify farming enterprises • Proper road maintenance	• Lay out soil conservation structures • Set up agro-met. stations • Treat water bodies, conduct vaccination campaigns • Plan and design roads, paths; procure and supervise road construction/ maintenance • Promote diversification of farming enterprises	• Construct soil and water conservation structures • Take out insurance policies • Organise to participate in vaccination campaigns • Support road/path maintenance and construction • Diversify farming enterprises	• Soil and water conservation • Informed risk management • Sanitation and immunisation programme • Collaborative road design and maintenance • Embrace diversification of farming enterprises

6.9 Session V: Developing advisories

6.9.1 Key concepts

Advisories are locally relevant and actionable information bulletins on options that different actors can take up to manage risks and uncertainty posed by seasonal climate. Rather than 'instructions' to be followed, advisories present options for actors to consider and make their own decisions and plans for the coming season.

Seasonal forecasts presented by National Meteorological Services often include advisories, targeting broad sectors in the country – for example, agriculture, livestock development and food security sectors, environment, water and natural resources sectors, and disaster management sectors, among others. The information may also be relevant to national-level actors. However, advisories are often too broad and focus only on expected impacts for what is most probable in the coming season. For example, an advisory such as 'Problems related to waterborne diseases are likely to occur due the expected heavy rains. Consequently, close monitoring of the situation and contingency measures are necessary in order to adequately cope with the situation.' This can be made actionable when it defines the possible contingency measures and actions to be taken by the different actors concerned.

Advisories generated in a PSP workshop localise information on possible actions based on a probabilistic seasonal forecast. Further, they integrate actions from the three scenarios to develop clear messages on options that different actors can consider in response to a forecast.

6.9.2 How are advisories developed?

I. FORMING GROUPS

The groups for advisory development can be formed by:

- retaining the groups formed during scenario development and planning
- participants from specific sectors sitting together with participants from different livelihood groups joining the appropriate sector – e.g. sub-county livestock officers and livestock feed suppliers forming a group with pastoralists/livestock keepers
- participants with technical expertise in a specific sector forming their own group, while farmers, livestock keepers and other livelihood groups form their own groups
- participants working in a specific value chain
- other ideas participants may have.

II. GROUP DISCUSSIONS

a) Because advisories target different actors, ask participants to think about who needs the information, drawing from what came out of Session I of the workshop as well as user needs identified in Step 2 of the PSP process. Focusing on the target actors will help to phrase the information in actionable form.

b) Prioritise the set of plans for action in each scenario, considering vulnerabilities and capacities in the local area (from workshop Session I and Step 2).

c) Put together the prioritised plans of actions from all scenarios. This forms the advisories which present options for decision making in advance of the coming season.

d) Organise the advisories based on the major hazards, risks or opportunities they address, or the target actor and sector meant to take action (see examples in case study 11). Ensure that the actors who need to take specific actions are included in the advisories.

Case Study 11

ORGANISING ADVISORIES DEVELOPED IN A PSP WORKSHOP

Organising advisories by risk and opportunities to be addressed

A sample of advisories for Elgeyo Marakwet County, Kenya, in response to the forecast for OND season in 2015 (see Box 6).

Diseases:

- Residents are advised to empty all their septic tanks and pit latrines early to avoid mix up of septic/latrine contents with drinking borehole water.
- The health sector (Clinical, Public & Veterinary Health) is advised to take advantage of these advisories to stock the right drugs for waterborne diseases that tend to be prevalent during seasons of heavy rainfall.
- Residents living in escarpment and lowland areas are advised to sleep under nets to avoid malaria infection. At the same time, public health should arrange to provide enough mosquito nets to the public before rains start.
- It is an opportune time for concerned government departments to carry out immunisation and vaccinations against diseases that may strike during this season – e.g. Rift Valley Fever in livestock.

Environmental opportunities:

Since most parts of the county will receive good rainfall, residents, organisations, institutions and government can engage in tree planting in order to boost the county's forest cover.
Farmers can plant early maturing food crops and/or pastures.

Organising advisories based on target actor

A sample of advisories for Nyamira, Kenya, in response to MAM 2014 seasonal forecast.

- Seasonal forecast for MAM 2014, considering probability of normal to above normal rainfall
- Onset expected – 3rd week of March
- Cessation – continue into June
- Distribution – fairly good in space and time meaning relatively less rain in March and May with the heaviest rainfall in April
- Banana value chain

HAZARDS/OPPORTUNITIES	ACTOR	POSSIBLE ACTIONS
Disease outbreaks like Rift Valley Fever, Black Quarter East Coast Fever, tick-borne disease, pneumonia in calves are expected Prolonged rains may lead to increased quantity and improved quality of pasture	**Farmers**	Farmers advised to: • Vaccinate their livestock and have enough acaricides for spraying • Make silage and hay to conserve excess fodder and pasture
	Agro-dealer	Ensure adequate and timely stocks of: • Drugs and vaccines to enable farmers to deal with potential disease outbreaks • High rainfall pastures and legumes for planting

Organising advisories based on target sector

A sample of advisories for Tana River County, Kenya, in response to MAM 2014 seasonal forecast.

- **Weather forecast (MAM 2014) Below normal**
- **Onset expected – 3rd week of April**
- **Cessation – continue into May**
- **Distribution – Poor in space and time meaning relatively more rain in April and less in May**

SECTORS	POSSIBLE ACTIONS
Livestock	• Communities are advised to coordinate movement of livestock from the delta to wet season grazing areas in the hinterland to enhance pasture and browse regeneration in the delta and conserve it for use during the dry season • Value-chain actors are encouraged to take advantage of business opportunities – e.g. sale of animal feeds, animal drugs and destocking of livestock. The Ministry of Agriculture, Livestock and Fisheries is advised to enable equal opportunity by regulating engagement of middlemen through giving direct support to officially recognised groups and cooperatives
Crop	• Farmers are advised to ensure proper post-harvest management and storage of bumper harvests • Farmers can consider growing rice under flood recession, and seek support from the Ministry of Agriculture, Livestock and Fisheries • Farmers are advised to prepare land and plant crops early at the onset of rains. Agro-dealers should consider early stocking of the inputs required

III. PRESENTATION OF GROUP DISCUSSIONS

In plenary, ask the groups to present the advisories to the wider group of participants at the workshop. Give the plenary discussion enough time for clarifications and additions to ensure the information is well presented and useful.

6.10 Closing the workshop

At the end of planning and when all the proceedings have been documented, the workshop should be concluded by reviewing the action points in plenary and ensuring each actor knows their next steps and timelines in communicating the advisories and making them actionable. These would include the chiefs setting dates for the barazas, the media planning on communicating the advisories through the radio, television and Climate Information Centres (CICs) (see case study 12). In addition, there should be an agreement on any supplementary actions needed to enable proper utilization of the advisories and who should take what action. For first time PSP workshops, there should be a document with a list of potential hazards and risks for the area produced which will be built upon to guide subsequent PSP workshops. M&E actions should also be concluded and activated with the agreed dates of the next meeting for the PSP core working group.

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