FINAL REPORT ON SCENARIO-PLANNING BASED ON EXPERIENCES IN THE MAJI PROJECT

Kerry Waylen

Social, Economic and Geographical Sciences Group
The James Hutton Institute
Craigiebuckler, AB31 5AH
Aberdeen
Scotland, UK
www.hutton.ac.uk

kerry.waylen@hutton.ac.uk

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EXECUTIVE SUMMARY

This report describes experiences of scenario-planning based on the work of the 'MAJI' Project, which is led by Voluntary Service Overseas (VSO). MAJI - More Action for Just Initiatives for Climate Change Adaptation in Southern Africa – has been working to reduce the vulnerability of the rural poor to climate change impacts in Malawi, by helping them to proactively and collaboratively plan for the future. To achieve this, VSO has worked closely with district officials in 3 districts (Dowa, Salima and Karonga) to support both district and village-level planning processes.

MAJI has a specific focus on using the concept or approach of 'scenario-planning' to help ensure planning processes and subsequent actions take into account the likely effects of climate change and other future changes.

Scenario-planning is a strategic method or tool that can help groups of people make flexible long-term plans. It differs from normal planning in that it considers longer-term timeframes (it typically looks at anything from 10 to 50 years ahead) and it focuses on considering how future situations may differ from now. By creating scenarios, it takes into account the effect of multiple drivers of change and so exposes important possibilities, risks and opportunities inherent in current ideas and actions. The outcomes of scenario-planning processes are useful for stimulating discussions about how to respond to future challenges. Ideally, the process can help to identify actions to prioritise now that are relatively 'future proof' or 'low regret' (i.e. actions which will be useful and feasible given possibilities of future change) and to de-prioritise activities that are likely to offer only short-term fixes.

Within MAJI, the James Hutton Institute (JHI) was responsible for proposing a scenario-planning framework that VSO and its volunteers could adapt for use in each of the districts. JHI first provided a methodological framework for MAJI in March 2015. The framework was designed to be flexible in its adaptation for use at different levels and contexts, to reflect the differing needs and planning situations of contrasting districts, and the differing challenges of working at village and district levels. It is structured around five main steps: the consideration of the past; the identification of drivers that shape the future; the use of drivers to create multiple plausible futures; the use of these scenarios to help achieve pre-established goals; and the integration of the results of the pre-existing planning processes. After providing the framework, JHI liaised with other partners to share ideas and track project progress, which form the basis of this report.

This report has four main components. Firstly, it introduces the concept and rationale of scenario-planning. Secondly, it reflects on experiences of those trying scenario-planning in MAJI. Then, these experiences together with the latest insights from the literature are used to suggest a framework of methodological steps for others considering scenario-planning. Lastly, some general hints and tips are provided, to help guide application of this framework. It is hoped that this report will therefore be useful to Country Offices within VSO, projects and organisations who are considering scenario-planning.

Scenario-planning is a wide family of methods and approaches that can help people think about the future – there will never be any single 'best' way of doing it that is perfectly suited to all situations. Furthermore, there are also many other sources of ideas and information about how to design a scenario-planning process. Therefore, the appendices to this contain selected sources of reading for those who would like to find out more.

The concept of scenario-planning has been helped various groups connected with MAJI think more about the future, so other groups should also consider if it can help them. However, as with many other techniques, implementing scenario-planning faces several challenges. Based on MAJI experiences, for it to be truly useful it must be implemented in connection with existing planning approaches, presented in a way that engages with participants' pre-existing ideas and concerns, and supported by skilled facilitators. If these issues are overcome, scenario-planning may offer significant potential to strengthen resilience in Malawi and also many other countries.

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AN INTRODUCTION TO 'SCENARIO-PLANNING'

What is scenario-planning? Scenario-planning is a strategic method or tool that can help organisations or groups of people to make flexible long-term plans. It differs from normal planning in that it considers longer-term timeframes (it typically looks at anything from 10 to 50 years ahead) and it focuses on considering how future situations may differ from now.

> "A scenario is a coherent, internally consistent, and plausible description of a possible future state (including both social and natural aspects). It is not a forecast; rather, each scenario is one alternative image of how the future can unfold."

There are many methods and techniques that can be used for scenario-planning, but all share a focus on identifying 'drivers of change' - forces which have strong and multiple influences on the system or setting that we are concerned about. Climate change is an excellent example of a driver, but there are also many other potential societal, economic or environmental drivers, for example population growth or globalisation of markets.

Scenario-planning encourages a consideration of how these drivers of change may vary, and how this will affect other issues – for example if the population growth will rise or fall and how this would affect Malawi's society, economy and environment. As a result of this process, several contrasting 'scenarios' are created. A 'scenario' is a plausible and coherent description of a possible future state, that encompasses and accounts for the effect of multiple drivers of change. For example, the basis of a scenario may be a description of how life in a village is affected by changing rainfall patterns, market prices in tobacco and migration. The full scenario would describe these and many issues and how they are interlinked.

Each individual scenario is not a specific prediction; indeed, it is unlikely that any the future will look exactly like any of the scenarios. However, considering several contrasting scenarios can help to expose important possibilities, risks and opportunities in the current plans and actions. This may give useful ideas about what actions are planned or prioritised now, and identify any actions likely to offer benefits only in the short-term.

What is the origin of scenario-planning? Scenario-planning has its origins in military planning, a sector quite different to environmental management! Ever since the Second World War (and arguably before), strategic military organisations and intelligence analysts have been constructing and using scenarios (often in the form of war games) to help them anticipate the unexpected. These exercises have helped military planners to think through the detail of their responses to different manoeuvres and military problems before they happen, and to plan resource allocation to give flexibility to respond to multiple potential challenges.

Scenario-planning became popular with large businesses from the 1960s onwards. The most famous example comes from the oil industry, where the Royal Dutch Shell organisation used scenario-planning to help reduce the impacts of the 'Oil Shock' of the 1970s. Some academics also developed work on scenario-planning. As a result, a variety of sophisticated methods developed, with different versions and techniques being advocated by different individuals. Scenario-planning developed a reputation for underpinning strategic thinking about business planning, but was also often seen as rather complicated and unwieldy.

In recent years there has been increasing interest in the use of scenario-planning for assisting in environmental management challenges. This is partially because climate change has become perceived as a critical issue that has not typically been taken into account by environmental management. It also reflects a growing recognition that tackling environmental management challenges requires a systemic approach (as opposed to a focus on single issues): since scenario-planning tries to consider how multiple drivers will affect multiple issues, it can help to support the development of systems thinking and systems approaches.

Why try scenario-planning? Various examples of scenario-planning from across the world together suggest that scenario-planning has the potential to provide several benefits. Most obviously, the outcomes of scenario-planning processes, i.e. the resulting scenarios, are useful for stimulating discussions about how the communities and other actors (e.g. NGOs, government and environmental planners) may respond to future challenges. Ideally, the process can help to identify actions to prioritise now that are relatively 'future proof' or 'low regret' (i.e. actions which will be useful and feasible given possibilities of future change) and to downplay activities that are likely to offer only short-term fixes.

The process itself – depending on the method chosen – normally involves extensive discussions and this also supports the aims of fostering participation in planning and management. The individuals thus involved in scenario-planning will share different forms of knowledge, to inform and enrich planning. This process also tends to elicit different individuals' ideas and expectations, and so can help to identify and discuss aspirations for management. Discussions about a distant future offer a relatively 'safe space' for people to discuss their goals and interests, and can even help to openly identify and negotiate conflicts in a way that would not be possible if discussions focused only on the immediate future.

Why try scenario-planning in countries like Malawi? Climate change is predicted to have profound implications for Malawi – for example, one prediction[1] is that by 2075 average temperatures will rise by 2.7^{o}C and average rainfall will decrease by 4.8%. Extreme events (e.g. droughts and flooding) will become more frequent, and changing patterns and predictability of the rainy season are already perceived and ascribed to climate change. This will have profound implications for the viability and resilience of typical livelihoods strategies in Malawi, and many other aspects of its society, economy, and environment. Recognising the seriousness of the challenge, Malawi's National Climate Change Programme (NCCP) links to many initiatives. Since 2001, the need for adaptation has been recognised by the Malawian government in a National Adaptation Programme of Action (NAPA) under the United Nations (UN) Framework Convention on Climate Change (UNFCCC). However, it is also vital to recognise that climate change will not be the only force shaping the future of Malawi. Malawi's future will also be shaped by drivers such as the rate of population growth, rate of incidence of diseases such as HIV and malaria, changes in global markets, international aid inputs, and the nature of Malawi's governance and politics. The direction of change of many of these drivers, and thus their effect on the future, is much less certain than climate change. Therefore it is important the scenario-planning help consider the effect of some of these key drivers, in addition to the effects of climate change.

The other reason that scenario-planning can be useful is because it can support civic participation and engagement. Some versions of the method can be accessible and use-able even by illiterate people. Thus, the techniques of scenario-planning should support decentralised and participatory planning systems. If scenario-planning is used to foster the participation of multiple groups in deliberation over the effects of future change, this should help to foster resilience to those changes.

Figure 1. Securing access to water is an example of a challenge that may be exacerbated by climate change.

[1] These estimates derive from the IALUO study which is described in the resources section of this document. In this report we do not provide references for individual statements, but the ideas are consistent with the sources in that section.

EXPERIENCES AND REFLECTIONS ON SCENARIO-PLANNING IN MAJI

MAJI was a project led by VSO and funded by the Scottish Government Climate Justice Fund. Its overall objective was to reduce the vulnerability of the rural poor to climate change impacts in Malawi, by helping them to proactively and collaboratively plan for the future. MAJI particularly focused on integrated water resources management (IWRM) but is relevant to all sectors for decentralised environmental management. It aim has been to empower and link local government, civil society and communities to plan for the effects of future change, to enable planning for equitable future-adapted environmental management.

Malawi has a pioneering and extensive policy framework designed to encourage decentralised environmental planning and management. However, implementation of these policies can be complex, constrained by resources, and difficult to coordinate. Development and implementation of these plans is particularly challenged by climate change, since this together with other drivers such as population growth, threatens further degradation of the environment and the well-being of the population. In a country that is already one of the poorest in sub-Saharan Africa, it is vital that Malawi's planning system be able to take into account these issues.

Three districts have collaborated in the project; Dowa, Salima, Karonga. In each of these districts VSO places a volunteer to work closely with district officials to support them in their district planning processes, and to help stimulate the involvement of local communities via their Village Natural Resources Management Committees (VNRMCs) and the elaboration of the so called Village Action Plans (VAPs). At the time of writing, VSO has already placed 2 volunteers in the districts of Salima and Karonga, whilst the recruitment of a volunteer for Dowa is pending. MAJI builds on previous work and insights generated by a project called WATERS*: Towards Equitable Resource Management Strategies*: this had identified a need to help people consider and anticipate future changes.

Figure 2 Participants from Dowa district and VSO interacting to trial a step in the scenario-planning process.

The scenario-planning framework in MAJI

Within MAJI, the James Hutton Institute had the role of providing technical support and capacity building on the subject of scenario-planning. In March 2015 they produced a report proposing a methodological framework for scenario-planning. This framework was designed to be flexible in its adaptation for use at different levels and contexts, to reflect the different needs and existing plans of different districts, and the different challenges of working at village and district levels. It was derived from a desk-based synthesis building on the expertise of the authors and the academic literature, combined with observations and refinements made during a capacity-building workshop run by the authors in March 2015, where scenario-planning was discussed with MAJI partners and district colleagues.

The main steps of the process included: looking backwards to highlight the need to consider change; the identification of drivers that shape the future; the use of drivers to create multiple plausible futures; the use of these scenarios to help achieve pre-established goals; and the integration of the results of the previous phases into planning. Significant effort was devoted to each of the steps in this process. Full details of the framework were provided in March 2015 report (available in the resources list on page 20): we do not provide more details here, because it has since been updated and revised.

The following section describes experiences of applying this in MAJI, after which the next section of this report presents a full revised framework of steps for carrying out scenario-planning (page 9).

Experiences of using scenario-planning in MAJI

In the MAJI project, scenario-planning was used with district planners, and with communities within those districts (usually VNRMC members – Village Natural Resource Management Committee). Some feedback on using the method was discussed at a MAJI meeting in March 2016 and also subsequently solicited via email. The box on the next page shows an example of a community using scenario-planning in MAJI.

Box 1 . Reflections and ideas for scenario-planning captured in the MAJI 2016 workshop

Learning points about scenario-planning

- The historical timelines exercise is really useful to introduce the process. Prepare pictures to illustrate and prompt
- Build on a systems thinking approach – it underlies thinking about the future
- When considering actions, consider diversification beyond farming, not just of farming
- Consider using climate change as 1 axis of change, to help people understand its effects
- Adjust time horizons according to participant groups e.g. shorter time horizons are easier for communities
- Scenario-planning can inform district plans. For communities it may not be appropriate to make a formal plan. We should set objectives according to process and participants. e.g. with communities, a great measure of success is a farmer not assuming that he will be able to safeguard his income and feed his family if he can just buy a lot of fertiliser for maize
- There are many other methods to support participation and discussion– if you have familiarity with other techniques, feel free to choose or combine whatever methods help people to think about the future

Specific ideas about facilitating the process with communities

- Mix activities that provide short and long-term benefits, to keep people motivated
- Make space for reflection on progress of activities
- Get community involved, including children, in teaching others about future change and resilience activities
- Use recent events (e.g. floods, droughts) as an impetus for action
- Introduce drivers in relation to local-level issues (e.g. the price of fertiliser, a corrupt chief)
- Identify long-term benefits and costs, as well as short-term effects, e.g. of cultivating crops near river banks
- Involve community in enforcing and encouraging involvement e.g. some used social sanctions by local Chiefs
- Community plans should be informed by others' expertise, otherwise well-meant actions can have unintended consequences, e.g. planting crops to stop bank erosion in one place can simply cause bank erosion elsewhere
- Scenario-planning needs time to be understood and practised e.g. a 4-day training workshop is needed to get people confident using the 2-axis method and despite this, refreshers may be needed

Overall, scenario-planning was judged to be a useful approach. It was thought that it helped people to think about future; to understand climate change; and to help get involved in planning. District planners found it helpful to complement the existing plans they have or are making, in particular the District State of the Environment Report

(DESOR) and District Development Plans (DDP). Communities were also able to get involved. A measure of success here was members saying they now wish to diversify their farming practices and potentially engage in other businesses, rather than continuing with maize mono-cropping. The next page shows an example of how scenario-planning helped discussions in one community involved in MAJI, followed by some detail about the pros and cons and adaptions for different scenario-planning activities.

Ideas proposed by the MAJI partner LEAD-SEA helped identify specific actions for building resilience. Fruit-tree planting and agroforestry were identified. These schemes may take 10 years to produce income, but will be more resilient to drought than some other land uses. Ideas for irrigation-based agriculture and growing more types of drought-resistant vegetables were also judged useful for promoting diversification and resilience to change.

However, the concept of scenario-planning often had to be adapted or radically simplified. This was especially true when working with communities. In these situations the timelines were also shortened – simply encouraging people to look a year ahead was seen as a significant and useful result. The drivers also had to be adapted to something people were more familiar with (e.g. changes in fertiliser prices as a way to introduce the idea of changes in external markets). To aid this, terminology was also adapted: for example, the 2-axis method was called a cross. Demonstration and repetition was essential to help people get familiar and comfortable with the method. Drawing aspects of the scenarios was a useful technique when encouraging people to practice scenario-planning for themselves.

Box 2. An example of scenario planning helping people involved in MAJI to plan for the future. Information supplied by VSO volunteer Esther Bakiza, based on her experiences working with Magumbwa VNRMC.

Magumbwa Village is highly prone to flooding and in the past the people of this village live in fear during the rainy seasons, because the Lifidzi river frequently caused floods after heavy rains. The water always found its way to the villages which killed people, livestock and damaged properties. Their dream is to have a flood-free zone in future.

The VNMRC and the Village as a whole are planning to plant trees, banana shoots, and vertiver grass along the riverbank to help reduce the incidence of floods. They are also planning to have an advocacy campaign on the important of river bank rehabilitation as well as the importance of not cultivating along the riverbank.

People from the VNRMC testified that they used scenario-planning approaches to help plan this protection of the river bank and village. It is hoped that this project will help to reduce the impact of heavy floods on the river bank. They plan to continue with river bank rehabilitation in future even when the funding from the VSO stops, to ensure future generations do not suffer so much from flooding.

A FRAMEWORK FOR SCENARIO-PLANNING

Based on MAJI and its experiences, this section provides a framework of scenario-planning steps intended to be applicable to other situations.

Figure 3 shows an overview of this framework. It involves five key stages: an introduction to the process, including consideration of the past; the identification of drivers that shape the future; the use of drivers to create multiple plausible futures; the use of these scenarios to help achieve pre-established goals; and the integration of the results of the previous phases into planning. Significant effort was devoted to each of the steps in this process.

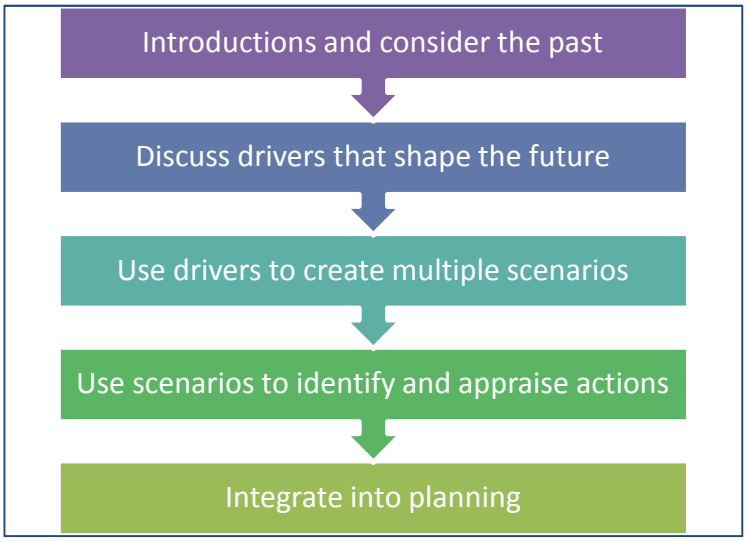

Figure 3 Overview of the MAJI scenario-planning framework

1. Introductions and consider the past

Any process should begin with introductions that allow people to meet each other and understand the rationale for the process. To help understand the rationale for thinking about future change, it can be useful to consider past changes effects. Many people focus on day-to-day life and the immediate future, and even if they do consider the future, most have a tendency to assume that it will be quite similar to the present. Luckily, it is usually quite easy to show the importance of future change, by discussing changes that have occurred within living memory. A good example are the changes to daily life that have been caused by mobile phones. After providing one or two examples, the facilitators can ask the group for suggestions of other things that have changed.

A possible extension of this discussion is to draw an historical timeline for a region, with the aim of sensitising participants to identifying trends, patterns, deep change and stability. It is useful to prompt the participants to discuss both events and also trends. Another possible extension is to discuss significant events relevant to the topic of a particular team or project e.g. in the case of MAJI - discuss environment and water sector changes (as in Box 3). This exercise also helps highlight the wide range of forces (or 'drivers') that have driven changes. This is useful as it shows that climate is not the only driver of change that will affect the future.

Outputs: This introductory session will produce a historical timelines, probably also notes on ideas and expectations.

Box 3 . An example of a timeline of events shaping Malawi since 1955

Participants of the MAJI's scenario planning workshop carried out in March 2015 were asked to create a historical timeline of the main events having taken place in Malawi in the last 60 years, i.e. since 1955. Participants were first asked to consider economic, political, technological changes. Some examples of these changes included the Federation in 1956, the proclamation of the independence of the Republic in 1964, the first HIV outbreak in 1980 and the introduction of the first Malawian TV station in the 80s. Secondly, participants were asked to think about environmentally and water related changes. These included massive flooding in 1991 and 2015 and massive deforestation processes in 2012.

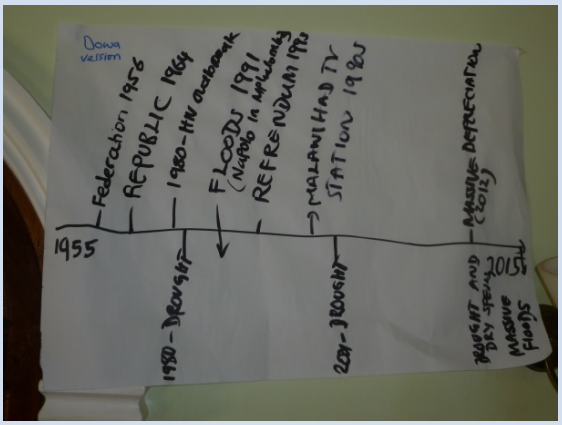

Figure 4. Historical timeline produced in MAJI's March 2015 scenario-planning workshop.

2. Identify drivers that shape the future

The discussions of the previous step – about the changes that have shaped Malawi in the past and its current challenges – should have helped to identify the main drivers of change in Malawi. A 'driver' is key external force which acts with a significant influence on systems and management outcomes. Examples include climate change, population growth or global financial markets. Each driver is expected to have important influences on systems, but exactly how the driver will change (i.e. what state they will take) is unknown. For example, human population could decline and/or it could stay the same and/or it could increase.

It is useful not to focus narrowly only on certain changes (e.g. only climate change, or only on political changes). To assist in ensuring this, it may help use the following categorization as a prompt to identify drivers of change that called 'STEEP'. STEEP is an acronym for Social, Technological, Economics, Environmental and Political drivers.

Table 1. Examples of changes according to the 5 STEEP categories

STEEP categories	Examples
Social changes	Appearance of HIV/AIDS
Technological changes	Internet
Economic changes	Adoption of the Kwacha
Environmental changes	Massive deforestation
Political changes	Introduction of democracy

At this stage it is usually useful to share with participants what other studies have said about expected changes. This will help ensure people's ideas of the future will build on available knowledge and studies. Annex I shows an example of information about drivers that were collated to feed into discussions in Malawi. After presenting information about previous studies, it is important to give space for discussion with participants to review these. The participants may have additional drivers or ideas that they wish to add to this list.

Next, after having identified some potentially significant drivers, it is useful to discuss uncertainty of these drivers. (Some people find it useful to represent this visually, i.e. to rank drivers according to certainty or agreement about their direction of change and effects.) Some drivers are more certain than others: for those that can be reasonably predicted one can, with a certain level of ease, point out how they might play out in the future. Climate change is perhaps the best example of a driver in which there is some confidence in how it will change – e.g. it is fairly certain that average temperatures will rise and extreme events will become more frequent. By contrast the direction and extent of changes in drivers such as governance or global markets is rather more uncertain.

Outputs: By the end of this stage, the participants should have identified a list of drivers that they think may shape the future of Malawi, and discussed which drivers are most uncertain.

3. Use drivers to create multiple contrasting scenarios

Multiple drivers will affect the future but it is very difficult to consider all these simultaneously! Therefore, to begin the process of creating scenarios, it is advisable to begin by focusing on a couple of those drivers (other drivers will be considered later, they are not forgotten).

Therefore, the group must select two drivers which both seem likely to have a significant effect on Malawi's future, but whose effects or direction of change is uncertain. This can probably be agreed quickly, based on the discussions in the previous step. It is suggested that climate change is *not* one of these drivers: it is a fairly certain that this will occur, so should feature within all scenarios of change.

Once the 2 drivers have been selected, it is necessary to identify what states they may take at a future point in time. Each driver can adopt many states (e.g. population be negative, static, or grow every year). To simplify discussions, a couple of distinct and contrasting states should be agreed. As an example, if the driver is "the nature of politics"; the focus could be on a state in which the politicians are committed to the greater good versus a state in which they are working selfishly for themselves. Table 2 shows examples of possible contrasting states for some of the drivers shaping a country's future.

If scenario-planning is to be useful, it should involve people thinking further ahead than they would normally consider (otherwise scenario-planning does not really encourage people to think about significant changes, and/or it duplicates existing short-term planning processes). It is therefore suggested that people are encouraged to think at least 1 generation ahead (e.g. 30 years). Based on the experiences of MAJI, it was easier and more appropriate to consider long-time horizons with professional planners than with community members.

Table 2. Examples of possible contrasting states of drivers by 2045

Driver	State A	State B
International aid	Increases by 10%	Decreases by 50%
HIV/AIDS	Is practically eradicated	Current infection rates increase by 20%
Extent of electrification	Remains the same as current	Covers 70% of the country

The two drivers (and their two states) together with climate change, are then used to create scenarios, using a technique called "the 2-axis method". This method involves drawing 1 vertical and 1 horizontal axis, and then labelling each axis with one driver. The 2 contrasting states of each driver form labels for the 2 halves of each axis. Once this is drawn, the quadrants between the 2 axes provide the space to create a narrative.

These four quadrants are designed to serve as a spur for discussion about 4 possible scenarios. Begin by asking participants to focus on one quadrant and discussing how the state of the drivers shown in that quadrat will likely affect the situation in their region. As issues are agreed by the group they can be captured on post-its (either by written descriptions, or if participants are illiterate, pictures) and stuck within the quadrants.

Box 4 . An example of the 2-axis method to create four visions of Malawi in 2045

One of the small groups of MAJI's March 2015 scenario-planning workshop worked with two the drivers Population Growth and Agricultural Productivity and Diversification. The two contrasting states were: a stabilization of current population growth and an increase of the rate of population growth; an increase of agricultural productivity and diversification of crops and stagnation at a low agricultural productivity and a production system based predominantly on maize. On the top left corner of the figure it can be observed how climate change is taken as a given in this exercise (represented by the two letters CC). Post-it notes include the effects that emerged from the discussion on the combination of population growth or stabilization and increased in agricultural productivity and diversification or stagnation.

Workshop participants envisioned that an increase in population growth combined with low agricultural productivity (right bottom quadrant on the figure) would result in corruption, the poor getting poorer and food rationing. Lower population growth combined with high productivity in agriculture could lead to an increase in school dropouts and an over-exploitation of natural resources.

Figure 5. Illustration of the 2-axis method. Participants used drivers 'Population Growth' and 'Agricultural Productivity' to create four scenarios.

Combining the notes in each quadrant will result in the ability to create several contrasting narratives (scenarios) that each describes a plausible coherent future, and how this came about. The advantage of the 2-axis method is that it is simple and can be easily understood by participants of the scenario planning. However a potential risk is forgetting about the other drivers, and a full consideration of the effects of the drivers of the future situation. Therefore careful facilitation is essential, to ensure participants consider the full range of relevant issues identified in previous phases of the process.

It is essential that the details of each scenario are captured into coherent narratives. It is important that the narratives of each of the scenarios provide a full description of the future drivers, their effects and the consequences for the focal region. To achieve this, any combination of written text can be used, or a drawing, a collage of photos or an oral form

of story-telling. Next each of the scenarios should have a name or title that people can easily identify. Once the narratives have been created and validated, the participants collectively give a name to each of the scenarios. There are no rules to naming the scenarios, as long as it helps invoke the essence of the story behind it. Annex II (page 22) shows an example from prior project in Malawi, of summarized scenario narratives and their labels, created using the 2-axis method. Probably one or more of these scenarios will be fairly pleasant, whilst others will be quite challenging and uncomfortable. It is important that both the amenable and more uncomfortable scenarios are kept in mind during the next step. Take care not to discuss only scenarios representing 'everything is good' (heaven) or 'everything is bad' (hell) futures.

Outputs: By the end of this stage, four scenarios should have been described by the participants. This may have involved creating quadrants and drawings, but should also produce written descriptions so that the process captures the details (and in particular the interconnections between issues). If it is not possible for the participants themselves to write these narratives, the facilitators should take notes on the scenario and create this at later date (these can range from 2 paragraphs to many pages– whatever is needed to describe all aspects of the situation).

'Backcasting' as an alternative option to steps 2-3

The method above – using drivers of change to create alternative plausible scenarios – is called an 'exploratory' approach to scenario-planning. An alternative way of thinking about the future is to focus on what is desired (a so-called 'normative' approach to scenario-planning). This method starts with a desired future vision and then works backwards (i.e. 'backcasting') to consider how this might be achieved. The resources on page 20 include more information about back-casting. It is suitable when there is strong consensus about what participants desire, but less clarity about how to reach it. It may be less suitable when participants are already working with plan(s) and actions.

Instead of creating scenarios based on drivers, the group would create a desired future vision. Early discussions about this vision may help to identify and clarify the priorities and goals of participants. Once aspirations are clear, further discussion is needed to ensure that this vision is feasible. For example, if everyone has access to free healthcare, how will the healthcare system be paid for? In addition, we know that climate change is happening, so the future vision that is created must include this. As when creating scenarios in step 3, pictures and maps may help people to share and capture their ideas.

Next, participants should discuss potential options for achieving this desired future. The feasibility of each of the ideas, and how they will unfold should be discussed thoroughly. The detail of the different pathways entailed should be captured, working backwards (i.e. 'backcasting') from the future to the present day. To illustrate and guide this discussion, it may be helpful to draw a future timeline (a mirror of the historical timeline in step 1) and work backwards from the vision towards the present day.

Lastly, the group should select their preferred pathway and agree an action plan for how to achieve this. This plan can then be compared to ongoing and planned actions, which may involve some similar discussion to steps 4 and 5.

4. Use scenarios to identify and appraise possible actions

First identify or revisit what the current goals and aspirations are. For example, in Malawi, pre-existing reports provided many national, district and village level goals. If there is only one vague over-arching aspiration (e.g. "to achieve a happy healthy Malawi") this will need to be broken down into specific goals.

Secondly, carry out a brainstorming exercise to identify actions that might be relevant to achieving each goal. This exercise should encourage 'blue sky' or 'out of the box' thinking to identify new and innovative actions. It is important that participants do not think only about one certain type of actions or interventions, e.g. do not focus only on technological solutions. Facilitators may find it useful to prepare examples of different diverse actions and/or to bear in mind each of the '7Ps': Policies (e.g. rules and regulations); Programmes (e.g. to build infrastructure); Plans (e.g. resource management plans); Procedures (e.g. instructions for best practice in resource harvesting or use) and Processes (e.g. monitoring systems); Products (e.g. information, or technology); People (e.g. training to build skills, capacities, or to influence attitudes and motivation).

Thirdly, discuss whether these actions would be feasible *and* useful for each scenario. In the jargon of scenario-planning, these types of actions are called 'robust' to future change. To do this, some people found it helpful to make a table with four columns, one for each scenario; within each column write or visually represent every action agreed to be relevant and useful (Figure 6). Actions that were useful and feasible in more than one scenario were copied across every relevant column. If few actions are seen to be useful and relevant, go back to brainstorming actions. This will avoid 'short-term only solutions' and will identify 'low-regret' or 'no-regret' strategies.

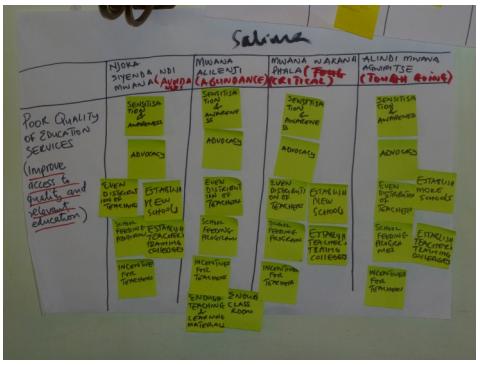

Figure 6. Example of the brainstorming of possible actions per scenario for achieving the goal of improving access to and quality of education. Example generated by the Salima District participants during MAJI'S March 2015 scenario-planning workshop.

Outputs: This work will produce lists of actions currently in use or in plans. In addition the group must record which actions are agreed to be both useful and feasible, given each scenario. It is useful to discuss the details of the actions. For example, instead of adding an action to 'plant new crops', the group needs to agree exactly which crops. This is particularly useful if there is disagreement about whether or not an action will be feasible and useful. It will be useful to keep notes on this level of detail, which is not always captured on summary post-it notes or presentations.

5. Integrate into ongoing planning

Most countries, regions and even villages have existing plans and planning processes. Scenario-planning is meant to support and complement these. For example, in Malawi the statutory District Development Plans each Objective is accompanied by Immediate Objectives, Strategies, Programmes and Projects (e.g. afforestation, river bank rehabilitation, and construction of dykes).

If the participants are strongly focused on existing plans, then you may wish to go directly from step 3 (making scenarios) to this step. This step focuses on checking the robustness of projects and actions that are already planned. If necessary, use an example such as that in Box 5 to remind people of the need to review actions to ensure they are climate-proof.

Box 5 Illustration of why we need to consider the future when identifying and selecting actions now

If a goal is to secure and improve farmers' livelihoods, it is important to think about future climate and other changes to identify the best ways to help farmers now. By considering what actions will be feasible and useful in the future, actions or strategies that may be viable only in the short-term can be identified. For example, for some farmers in Malawi, focusing on maize-based farming may not be a viable and secure livelihood given future climate change, so current strategies that focus on refining and reinforcing maize cultivation are not sensible (and indeed may waste resources). Reinforcing maize-focused cultivation could be an example of a "short-term only solution" whilst encouraging farmers to diversify into other crops such as cassava would be a "low-regret" strategy that is more likely to foster their future resilience to change.

Firstly, collect and collate these existing actions (i.e. those already ongoing, and/or committed to in current plans), then confirm these in discussion. The facilitator and/or participants can prepare lists of actions e.g. projects, programmes) before they meet.

Secondly, list scenarios across the top of the matrix, and the planned actions for one goal down the side. Then, simple scoring can be used to indicate if an action is thought to be useful in each scenario. In the illustration ☺ represents a judgement that a project or a programme will be feasible and useful – some may prefer to populate the matrix using scores (e.g. usefulness could be measured from 0 to 5). Robust projects and actions can be identified by looking across each row to see which contain a smiley face in all of columns. (In the example below, project 3 would be 'robust'). If there are no or few actions that are 'robust' (i.e. useful and feasible in all scenarios), combinations of actions could be considered. In the example of Table 3, implementing projects 4 and 5 together could make a robust combination. Participants may also now be willing to brainstorm new actions (go back to step 4).

Table 3. Example illustrating how to identify robustness of existing actions

Scenario name → Projects ↓	WOKANKHA (struggling)	MKAKA NDI UCHI (milk and honey)	WOTSALIRA (un-progressive)	MBOMBO (greedy)
Action/Project 1 e.g. Build a Dam	☺☺	?		☺
Action/Project 2 **e.g. e**ducate about safe harvest levels		☺☺	☺	
Action/Project 3 e.g. Improve school	☺	☺	☺	☺
Action/Project 4 e.g. Invest in alternative livelihoods		☺		☺
Action/Project 5….	☺		☺☺	

Scenario-planning can also support current development planning by enlarging the list of pre-existing and established ideas for useful actions. Discussions around specific projects may also reveal some details that will affect the feasibility and utility of each option, given climate change. Quite often it is the discussions about detail that reveal new ideas about how to adapt, re-prioritise or add to existing actions. As a consequence, scenario planning can help making projects and programmes more concrete or establish specifications that can make them more resilient to change.

To ensure all detail is considered it can be useful to ask questions about how an action will be carried out, and by whom, and ask if all in the group agree that this will be useful and feasible. For those groups that already use action-planning techniques, this is a good time to use these. If not, some relevant questions to ask are suggested below. These types of questions will help ensure that all the detail of potential actions is fully considered.

- What more precisely needs to be done to implement this project?
- How will this to be done: What needs to happen? What needs to change for this project to be implemented?
- Who (individuals, organizations) has to do what?
- What are the social implications: Who will else this affect? Will this action promote equity? Which groups will gain and lose as a result of this (in particular, women and young people)?

Outputs: This step should produce a commitment about how to use scenario-planning to support pre-existing planning processes, so it may practically support and inform actions. Exactly when this is carried out and captured will strongly depend on the details of a specific planning process – for example, if a yearly implementation plan is made, this may be the time to check whether the actions are 'robust' to future change. Participants should identify for themselves how they think it is best to connect scenario-planning with their pre-existing ways of planning and implementing actions.

This step will produce a matrix indicating robustness of projects and actions that are already planned (as per the format of Table 3). It is also essential to capture discussions is essential, e.g. about how to select and adjust the measures.

TIPS AND ADVICE ON SCENARIO-PLANNING

The following points are based on the observations made by MAJI staff, feedback from MAJI participants, informed by reports from other examples of scenario-planning around the world. Whatever method you choose, it should be helpful to consider these points.

Discuss the objectives for scenario-planning

- The initiation of every process should focus on discussing the rationale and objectives for using scenario-planning. This will help to identify appropriate methods and assist in monitoring the process.
- Scenario-planning is usually carried out for similar general reasons – i.e. to promote learning and consideration of future change. However, every project will have different specific goals. For example, when working with statutory planners, one goal may be to appraise and adjust existing plans in light of long-term climate change impacts (and other future changes). For villagers, a useful goal may be just to help them think ahead to next year, i.e. about the consequences of different planting decisions if the rainy season comes late.

Identify who to work with

- Scenario-planning can be relevant for many different groups: from villagers to organisations such as Civil Society Organisations (CSOs), or national-level policy teams. However, it is not usually possible to work with all these different groups at the same time (at least not initially). Choosing who to work with in any particular situation will depend on the rationale and/or the scale of the intervention.
- The more groups that are involved in scenario-planning, the more that will have buy-in to the process and its outcomes, but the more complex and resource-demanding the project will become. It may be appropriate to involve some CSOs fully in planning, whilst other CSOs are involved only to the extent of awareness-raising about MAJI and the benefits of scenario-planning.
- Adjust the expected outcomes and planned methods according to the group. For example, when working with statutory planning teams, a formally documented process informed by existing scientific could help to ensure statutory environment and development plans will be resilient to expected future climate changes. By comparison for villagers, it may be more appropriate to spend more time discussing and drawing their visions of the future.
- Clarify the precise role of facilitators, participants and any other groups involved in the project. For example, perhaps there are university academics able to give advice on specific issues. The facilitators must be clear that their role is to guide the process, not to input their own views and visions.

Engage with participants early and ethically

- When discussing scenario-planning with potential participants, focus on how it can relate to their existing priorities. Emphasising how it may support work to achieve existing targets and goals is more motivating than simply trying to 'sell' another tool and project that they should be aware of.
- As with any participatory process, some groups of people may feel unable to get involved, due to practical or social constraints. Try to target invitations and design the practical details of the process so you have wide representation from all groups needed, not just the 'usual suspects'.
- The best way to understand participants' needs and priorities, is to proactively involve them in planning how best to use and adapt scenario-planning for their situations. This may mean that the application of the methodology needs to be updated.
- Remember to follow ethical principles during all stakeholder interactions. For example, it is important to describe not only the process, but also how the inputs of participants will be captured and used. Some people may be concerned if their individual contributions will be identifiable – therefore the facilitators need to discuss and decide whether or not to anonymise 'who said what' in some or all outputs. Whatever the decision, make sure that participants are aware at the start of the process, so they may give informed consent.

Use multiple approaches to build familiarity with the concept and methods

- Use a mix of methods and materials for discussing the topic. For example, MAJI has found it useful to mix videos, reports, and role-play. Workshops are essential as they allow people to ask questions and discuss the topic. Visual methods are useful whether or not the participants are literate.
- Refresher courses can be useful. Don't assume that after attending one event, people will remember everything. Repeated discussion of a concept can help to consolidate an idea, and eventually produce influence practices.
- Illustrate the concepts with examples taken a familiar context. For example, in MAJI it was useful to share the scenarios produced in Malawi by a project called 'EPIC' in 2013 (see Annex II). The application of the concept is easier to understand if examples have similar target groups, places, or problems.

Value the role of facilitators

- The usefulness of scenario-planning depends on how well it is facilitated (as with many other tools and techniques). This depends strongly on the skills and aptitude of staff or partners who are able to facilitate group discussions: if possible give training and opportunities to enhance their skills. If existing staff do not have skills, consider hiring dedicated facilitators.
- Even the best facilitators need resources – principally time – to allow the process to evolve. It is strongly recommended that scenario-planning process or events are planned over several separate workshops /days for different stages of the process. The individual or team facilitating the process will need additional time to prepare, collate and report the process.
- It is usually convenient to develop scenario-planning in a series of workshops that involve all the relevant stakeholders. The number, duration and format of workshops are to be chosen by the facilitator. However, it is worth remembering that where the workshops involve sessions of small-group work, it is important that the participants come together in plenary in such a way that the entire group shares understanding and ownership of the eventual scenarios.

Connect with pre-existing activities and planning processes

- The concepts of scenario-planning must be connected to the practical realities of activities and planning processes that are already occurring. Otherwise, there is a risk of doing little more than creating nice stories that do not fully realise the potential of the process. For example, if a group already has a recent and up-to-date plan, it would be inappropriate and confusing to ignore this, but it may be useful to focus on using scenario-planning as a check for the priorities and actions already within these plans.
- It is important to scope if any previous projects or interventions have already promoted some effort to take into account the effects of climate change. The connection with the new process must be proactively spelt out to avoid confusion or apathy. For example, perhaps there was a previous project that provided information about likely local-impacts of climate change, but did not consider other potential changes, and did not enable discussion about how to respond.
- If related projects and initiatives are identified early, this may offer valuable opportunities to identify and build on, such as already-receptive groups and related events.
- Check terminology used by any previous or parallel activities. For example, early in the MAJI project, in March 2015, an initiative called 'participatory scenario-planning' was ongoing in some districts in Malawi. This initiative provided long-range weather forecasting to help inform farmers' planting plans: this is different to the way scenario-planning is usually understood (and as it is used by MAJI). However, if MAJI were to attempt to use the same terminology, it would be confusing for people who already know about the weather project. So, use whatever labels make sense to your participants and audiences.
- Consider getting high-level support (e.g. national-level government) to help encourage and enable other groups to consider and adopt scenario-planning.

Design the process carefully

- When starting to design a scenario-planning process, take the methodology described above in this report (consult also the 2015 report for other information) and decide whether this framework suits your needs. Look at some of the resources at the back of this report for other ideas and approaches. What is important is

not following a strict recipe, but finding an approach that helps people consider the future and influence current practices. Once you have a framework that you think will be suitable, design a specific plan to implement it for your situation, taking into account the points in this section.

- Decide on the scale required. This may relate to the scope of other initiatives, and the type of participants involved – for example, national-level policy makers tend to work at a national scale, villagers will likely prefer to consider the land in and around their village.
- Consultancies and academics have carried out many studies of the likely impacts of climate change across developing and developed countries. Most of these studies can be found online. When preparing scenario-planning, search for this information. It will be useful for the facilitators to be aware of and build on this information, to inform the drivers of change that participants use, adapt and select from.
- It is important to remember that within any one group (e.g. a VNRMC) the individuals within that group will vary in their interests, expertise and capabilities. For example, individuals may differ in how well they understand the concept of climate change, or in how willing they are to contemplate different livelihood choices – the method should support all individuals to get involved.

Check that the methodology includes these key features

- Your process will probably need to make time to discuss current problems and current connections between the environment, people and places. This will help future scenarios to be realistic, and to appraise the full implications of actions.
- Ensure that plenty of time is available to develop, discuss and record the detail of all scenarios. To be useful, the final scenarios should not just have a plausible explanation (or 'storyline') of how the future state arose, but should also have a fairly coherent description of that future state, that incorporates several issues. Participants may need plenty time and a mix of activities to create these, and to reflect on their implications.
- Ensure that the process allows plenty of time to discuss how to use the scenarios – i.e. how to use them to help planning for resilience.
- The methodology should include instructions for how to capture information and outputs at every stage.

Allow flexibility

- When starting the process, it is essential to make a carefully thought-through plan, to tailor scenario-planning to the specific project or situation. However, it is also essential to be prepared to adapt it.
- If the work has been designed in a series of stages, it is useful to reflect after each stage whether the next steps needs to be updated. For example, is the process going as anticipated? Is it likely to produce the outcomes required? If not, can anything be changed? Asking these types of questions can help to identify if and when the scenario-planning methodology needs to be updated.

Common pitfalls to avoid

- Do not consider only one type of future change. Many projects focus only on climate change: however, climate change is only one type of change that we can expect. Other changes (e.g. economic, political) may be just as profound. The caveat is that it may be necessary for facilitators to remind participants not to overlook the existence and effects of climate change when creating the scenarios.
- It is useful to collect and input scientific or expert information about expected future changes. However, it is also important that people participating in the process be able to take the lead and input their views. Do not allow any one source of knowledge to dominate the process.
- Do not invest all the effort in creating scenarios. This should be just the first step. As much attention should be given to considering how to use these scenarios, e.g. to help identify and select 'no regrets' activities.
- When creating multiple scenarios, there is sometimes a tendency for participants to create one extremely positive ('heaven') and one extremely negative scenario ('hell'). This is a particular risk if participants do not really consider the details of a scenario. Such drastic extremes are rather unrealistic and unhelpful. (The 'heaven' scenario may invoke complacency and feel unworldly, whilst the 'hell' scenario may invoke feelings of fatalism and a feeling that nothing is worth trying). If this occurs, realism can be re-introduced by asking participants to provide more details about the scenario. Alternatively, consider backcasting (see previous section for information about this) – this starts with creating a positive (albeit realistic) vision of the future.

Capture information and carry out monitoring

- Monitoring the work and effects of scenario-planning is really useful. This can enable learning and help update and tailor the process as it unfolds.
- Sharing information about what works well and when, can also help to inform colleagues and other projects about when it might be useful to consider scenario-planning, and how to tailor it to different situations.
- It is essential to record the discussion and outputs of the process, and make copies of these available to participants, as a record and reminder of this process. However, it is important to recognise that the benefits of scenario-planning probably arise from the process as much as the outputs. Scenario-planning should help bring people together to think about their goals, understand different points of view, and to refine ideas that will aid future adaptive management. The new ways of thinking held by participants, as well as written outputs, are both of value in building resilience to future change.
- If possible, consider collecting information from the participants engaged in the process before it starts, during the process, and then afterwards. This will give the best opportunity to track how individuals' ideas and plans may change during the process, as well as collect their direct feedback about the scenario-planning process.
- A variety of techniques could be used to collect information on the process, ranging from simple questions in a discussion through to a structured questionnaire filled in by individuals. The choice should be dictated by circumstances, and whatever method will achieve the most honest and open feedback. In any case, it is important to record and document the information collected. See the list below, trialled during MAJI – this may help when designing a process.
  - Before attending the training/activity, had you ever encountered the idea of 'scenario-planning'?
  - What do you remember about the scenario-planning training event?
  - How do you now understand or define scenario-planning?
  - What benefits, if any, do you think scenario-planning may offer? Why?
  - When or for whom do you think scenario-planning may be useful (e.g. any groups, sectors or situations).
  - Has the idea of scenario-planning influenced your work or plans in any way? (i.e. has it influenced you to do anything differently)
  - Do you have any doubts or questions about scenario-planning?
- It will take a long time to fully understand the effects of scenario-planning initiative. You may not be able to commit resources to long-term monitoring, but this should not deter you from collecting information in the short-term – this information is still useful.

CONCLUSIONS

Based on experiences in the MAJI project, the process of scenario-planning can be helpful. Scenario-planning can help encourage the sharing of ideas, consideration of future change, and identification of resilient actions now. It can also be adapted for use by anyone from local villagers through to organisations, project teams or national-level policy makers.

This report suggests methodological steps that can help others to design a scenario-planning process. However, this framework requires interpretation, and methodological choices will still need to be made to tailor the process for specific situations. The resources at the back of this report provide more examples and advice that can help to make these decisions. Regardless of methodology, good facilitation and allowing plenty of time for discussion is always essential.

Finding the best ways to interpret and apply scenario-planning will thus require flexibility and discussion between project leaders. It is also important to find ways to allow scenario-planning to support pre-existing planning activities, to help connect ideas with actions. If this can be achieved scenario-planning can help proactive consideration of the future, and collaborative planning to take actions that improve our resilience to future change.

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GLOSSARY OF SCENARIO-PLANNING TERMS

Backcasting	This is a planning method that starts with defining a desirable future and then works backwards to identify policies and programs that will connect the future to the present.
Drivers of change	A key force acting with a significant influence on a local system (e.g. a village and its surrounding land and water). It is often helpful to think of drivers as external uncontrollable forces, such as climate change, or changes in market prices.
Narratives	A written description of a scenario, highlighting the main scenario characteristics and dynamics, including the effects of key drivers on the system.
Robustness	A robust action is one that performs well over a very wide range of alternative futures. In addition, if different actions are useful in different scenarios, these could be combined to form a 'robust strategy'.
Scenarios	A coherent, internally consistent, and plausible description of a possible future state (including both social and natural aspects). A scenario is not a forecast; rather, each scenario is one alternative image of how the future can unfold.
Shocks	Very low probability, but very high impact events that, were they occur would severely impact the human condition.
State (of driver)	We do not know what state each driver of change will take in future. For example, we may think changes in human population size will have important effects, but we do not know if the population will decline or will grow. Therefore two or more states must be pre-defined for each driver that is used in scenario-planning.
Storyline	A storyline is very similar to a narrative: it focuses on explaining how a scenario came to be.

REFERENCES AND KEY READING

Please note that the resources provided below are not exhaustive, but are selected to help build familiarity and expertise with scenario-planning methods.

Some information about the background, principles and benefits of scenario-planning

- Waylen, K.A. & Martin-Ortega, J. 2015. Report on Scenario-Planning for use by the MAJI project. http://www.hutton.ac.uk/sites/default/files/files/projects/2015%2003%2030%20JHI%20Report%20on%20Scenario%20Planning%20.pdf
  This report gives the framework for scenario-planning provided for MAJI members, together with many examples, hints and tips about facilitating its use. It also provides more information about the MAJI project.
- James Hutton Institute Youtube video on scenario-planning. Available from http://www.youtube.com/watch?v=lxHfA4P0kl0
  This is a simple video developed by the authors, which tries to describe the potential and principles of scenario---planning in 2.5 minutes. The authors can make available to like to the VSO volunteers so it can be downloaded and played in locations without internet access.
- O'Brien, F. A. 2004. Scenario planning—lessons for practice from teaching and learning. European Journal of Operational Research 152: 709-722. Available from http://www.hawaii.edu/serials/files/obrien.pdf
  This document is useful for offering ideas about how to facilitate scenario-planning processes. It is particularly useful for highlighting some of the potential pitfalls that may arise, and how to handle them.
- Climate change and agriculture scenarios for Malawi. Socio-Economic Scenarios: Report of the EPIC Workshop, Salima, Malawi, 27-30 October 2013Available from www.fao.org/3/a-i3566e.pdf
  This project gives really useful ideas about feasible scenario-planning methods. More information about the project is available from http://www.fao.org/fsnforum/forum/discussions/epic-malawi
- Online Foresight Guide: Backcasting. Online resources provided by JRC FOR-LEARN project. http://forlearn.jrc.ec.europa.eu/guide/4_methodology/meth_backcasting.htm
  This webpage provides a useful guide as to the rationale and methodological steps entailed by carrying out back-casting, i.e. to connect desirable long term future scenarios to the present situation.
- Rowland, E.L., Cross, M.S., Hartmann, H., 2014. Considering Multiple Futures: Scenario Planning To Address Uncertainty in Natural Resource Conservation. Report for U.S. Fish and Wildlife Service. Available from http://www.flca.net/images/ScenarioPlanning.pdf
  This document is quite long but it provides a lot of detail and ideas about scenario-planning and introduces some concepts that are more detailed than our framework. The back of the document shows some real-life examples of using scenario-planning to inform natural resource management.

Ideas about facilitation (not specific to scenario-planning)

- Facilitation Tools for Meetings and Workshops, Seeds For Change. Available from http://seedsforchange.org.uk/tools.pdf
  This is a great guide to specific activities and techniques for encouraging people to participate and share their ideas in meetings.
- Tips for facilitating groups – webpage by KSL Limited. Available from http://www.ksl-training.co.uk/free-resources/facilitation-techniques/tips-for-facilitating-groups/
  This webpage provides some useful basic principles when preparing for a meeting or workshop. It has links to other pages which provide more specific activities.
- Facilitation tools & techniques – webpage by LearningForSustainability.Net. Available from http://learningforsustainability.net/tools/facilitation.php
  If you are looking for more ideas, this webpage provides links to lots more resources on facilitating, with a particular focus on participation for sustainability.

ANNEX I EXAMPLE OF INFORMATION SUMMARISING EXPECTED CHANGES IN MALAWI

This information was collated in 2015 to inform early discussions about potential 'drivers of change' that may affect Malawi's future. Although the aim is to encourage participants' ownership and ideas, it is desirable to discuss and incorporate outside information where relevant.

Table 4. Examples of potential drivers of change that are relevant to Malawi's future

Driver	Description
Climate change	Raising levels of greenhouses are changing the climate globally. In Malawi this means that there will be: more and more frequent extreme events such as floods and droughts; greater variability in rainfall and uncertainty of seasons (4.8% less precipitation and rainy season will be more unpredictable); greater variability and uncertainty in temperature (2.7C hotter expected); and changes in tidal waves and water levels in Lake Malawi
Population growth	Current population growth rates are 2.7% per year. Probably this high growth rate will decline in the future, but it is unlikely to drop below 1% per year in the next 30 years. Most predictions place future population growth between 1.5% and 2.5%
International aid and investments	Many factors affect incoming international aid and investments. The global economic climate will affect the capacity of foreign countries and international organizations and business to provide aid or invest in Malawi. International government aid has been suspended in the past (last time in 2013 from the UK, Norway and the European Union) for various reasons. International private investments in Malawi have fluctuated a lot in the past, but are presently increasing (e.g. from China). Aid and investment can increase or decrease in the future
HIV/AIDS	In 2012, approximately 1,100,000 people in Malawi (11% of the population) were HIV-positive. Since 2003, the access to therapy has increased a lot and has Malawi has achieved more than 70% coverage of HIV treatment. In the last decade there has been more than a 70% incidence decline. HIV infection and retroviral treatment rates could rise, keep steady or increase in the next 30 years.
Global prices of exported agricultural products	Global supply and demand of agricultural products will affect prices for crops Malawi produces. For example, it has been projected that in the coming decade, global prices could rise 20% for cereals, and 30% for meat. Price for Malawi's exports (like tobacco) could rise or fall
Extent of electrification	Malawi presently derives most of its energy from fuelwood (>85%). Electricity supplies only ~2.3% of the energy needs of Malawi, and demand already exceeds supply. In 30 years reliability and accessibility of electricity supply could improve or plateau.
International oil prices	Oil and gas are used as fuel and for energy, and must be imported to Malawi. Global costs of oil and gas have risen on average by 11.5% per year since 2000, though have recently dropped. Global oil prices could rise, fall or stay static over the next 30 years.
Agricultural productivity and diversification	Improved knowledge and updated practices may allow increase productivity. For example, technological advances could enable average annual crop productivity to increase by 2.6%
The nature of politics	Politics has changed a lot in Malawian history. The nature of politics has great impact on all aspects of society. The nature of politics can remain as currently, go back to previous regimes or change to completely new ways (good or bad).

ANNEX II EXAMPLE OF SCENARIOS FOR MALAWI PRODUCED BY THE 2013 'EPIC' PROJECT

The text below is copied from the scenarios created by a previous scenario-planning process in Malawi, for the 'EPIC project', as provided within the document available from http://www.fao.org/3/a-i3566e.pdf. This 2013 report was produced as a result of FAO-EC project "Climate -Smart Agriculture: capturing the synergies between mitigation, adaptation and food security". The EPIC project was launched in January 2012 in Malawi, Viet Nam and Zambia. It aims to support partner counties in their transition towards Climate-Smart Agriculture. We recommend reading these scenarios as they provide useful guidance as to the content and minimum level of detail that is required to describe a scenario. For more information about how the scenarios were created, please refer to the EPIC report. The scenarios are shown below in the form of a presidential speech, addressed to Malawi in 2040.

The Mkaka Ndi Uchi scenario (Land of Milk and Honey)

Address to the United Nations by the Malawian Ambassador about the success story of Malawi for the past 20 years

All protocol observed, Good morning! Malawi's economic growth has continued to be resilient and one of the fastest in Africa. The per capita income has increased ten-fold in the past 20 years. Total fertility has decreased from 6 children to 3.1. The key factors to this success story are:

- Malawi planned for and invested in massive infrastructure and services projects particularly in the energy, transport and irrigation. As a result the country was able to attract foreign direct investments. Our strategic partnerships with multilateral and bilateral organizations played a very catalytic role.
- Governance is now heavily decentralised. The education system has been reformed. It is now able to produce the required skills for development.
- Public finance management has made the systems more transparent and efficient. The economy has largely been opened up, is market oriented and the state is just a regulatory institution.
- With regards to social support systems, safety nets have replaced the non-productive consumption subsidy that had historically eroded the good fiscal space.
- Efforts have been made towards enhancing inclusiveness. Democratic tendencies are now a norm. People are free to voice their grievances.
- Women have become key sources of growth as their participation in the labour market has increased. The youth are more meaningfully engaged in development initiatives

The journey has not been devoid of challenges. The population growth momentum still exerts pressure on land and land based resources leading to degradation of the environment. The urbanization is high creating urban poverty. Despite all these challenges, there is still hope that the country with its people will work together to find solution to its challenges. Thank you!

The Mbombo scenario (Greedy)

The Malawian President's address to the nation

Citizens of this nation!

Today marks a new beginning for the nation of Malawi. I would like to start by thanking you for electing me and for the good work you are doing towards building the nation. The nation is faced with numerous challenges and these calls for a change in the running of the affairs of this country. It will no longer be business as usual. After deliberations and wide consultation, the leadership and I have come developed a plan for the prosperity of the nation hence this address today. My government will have a lean executive.

There shall be guided democracy unlike what is practiced in the west. The nation shall be a one party state. As of today, all other political parties have been dissolved. The economy will be centralized. The country shall adopt guided capitalism. My cabinet shall be in charge of all policy making. Any official communication shall be done through the government's spokesman. All media houses are advised to work with his office. The media is hereby encouraged to practice responsible journalism. Any information contrary to official communication shall be treated as an act of treason. In efforts to tame our population growth, all families have been restricted to having two children. Any disobedience will not be tolerated. The government shall put in place robust social welfare and economic systems to address unemployment challenges and its effects.

Measures have been put in place to improve agriculture and improve the country's efforts towards food security. The government shall invest heavily in agricultural subsidies and intervene in the markets using a twin track approach combining aspects of the state interventions and the free market. The government shall establish strong regulatory framework (top down approach) to guide the sector.

We believe that all these efforts will lead to diversified agriculture, an increase in the yields that will allows us to competitively compete in the export market. Increased income from these efforts will help move our people out of poverty.
The government is keen on the involvement of the youth in and they are the key to moving agriculture from small holder farming to medium- large scale agriculture. The government will focus on strengthening the vocational training institutions especially those focusing on agriculture and sustainable land management. My government shall also increase its investment in climate change adaptation, smart agriculture and in agriculture technology with more focus on irrigation and interventions on tree planting and renewable energy.
There shall be challenges and limitations. The government expects a few dissenting voices. Any uprisings or violence shall be met with the full force of the government. Externally driven social media propaganda and abuse of civil society organization shall not be tolerated.
My government welcomes partnerships from the international community. However, any interference and destructive criticism from them shall not be tolerated.

The Wotsalira scenario (Un-progressive)
By 2040, communities are struggling with poverty and have poor access to quality water and health services, Most of the youth who make up the largest proportion of the population will be used by politicians during campaigns and to further their political agenda throughout their terms. Land holding size and quality will have gone down and the farmers in the communities will produce low yield that only lasts them for a month. This is due to land degradation and huge focus and dependence on maize farming. The country will have acute levels of food insecurity.
The high population growth will put a strain on public service delivery. Corruption has resulted in scandals whose results are shortage in products and services like of drugs in hospitals and lack of farming inputs. NGO's/ government support to various community programmes will not equal the demand from the booming population.
There will be loss of biodiversity as a result of climate change and human encroachment. High unemployment levels, poverty and lack of income has led to destruction or overexploitation of natural resources through activities like selling charcoal/ fuel wood. People will be walking long distances to fetch water and collect firewood. Traditional medicines will be scarce. Culture practices and traditions will be a thing of the past. The actors in this scenario will be politicians, communities, government and NGOs

The Wokankha scenario (Struggling)
The Malawian President's speech to development partners, investors, trade unions, farmer representatives and technical experts
My Government has put in place land reform policies to address land fragmentation and invested in infrastructure (good roads, silos, etc.). Climate change policies have also been put in place and implemented in the context of the National Agricultural Strategy. However, the government lacks sufficient resources to invest in irrigation facilities. The donors had promised us grants but have not honoured their word to date.
Our strategic grain reserves have been mismanaged leading to waste of grain and this has contributed to the high levels of food insecurity. Measures have been put in place to overcome such short falls. However, climate change policies without the necessary investment in irrigation infrastructure are ineffective. It has become increasingly difficult to predict exactly how climate change would manifest itself. Climate change has worsened as evidenced by extended droughts and increase in floods.
To the private sector I ask: where is the investment you had promised if my government put in place land reform policy, and the necessary infrastructure?
To Development Partners I ask: what should we do now that climate change is worse than we thought? I had told you years ago about Malawi's need for irrigation infrastructure, but your priorities at the time were all about basic education. Now we have high numbers of educated youth in an undeveloped economy. The high unemployment levels have made them miserable and the country is experiencing high levels of brain drain.
To technical experts I ask: where are the technologies you promised for high yielding varieties not only in maize but also other crops?
To overcome these challenges we must move forward together with a new agenda which includes:

- A review of cooperation priorities, including honouring pledges;
- Improve governance to overcome barriers to doing business, accompanied by assurances by the private sector interest in diversifying economic activities;
- Incentives to retain skilled labour;
- Increase public research in agriculture diversification.

We hope that we can now move forward together with renewed vision to achieve sustainable development for Malawi. I thank you for your attention.