Capacity Building Workshop for Undertaking Ecosystem Assessments

Workshop Report

3rd – 6th February 2014

Kievits Kroon Estate, Pretoria, South Africa

A Sub-Global Assessment Network workshop co-convened by UNEP-WCMC, & The Council for Scientific and Industrial Research (CSIR), with the support of the Norwegian Environment Agency and the Stockholm Resilience Centre

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Executive Summary

This report presents proceedings from a capacity building workshop convened for the Southern African Development Community (SADC) to provide, information, experiences and lessons learnt on the topic of **Undertaking Ecosystem Assessments.** The four day workshop ran from the 3rd to the 6th of February 2014 and was held in Pretoria, South Africa.

The primary objective of this workshop was to bring together participants from across the SADC region, and to assist them with their engagement with the Intergovernmental Platform on Biodiversity and ecosystem services (IPBES) through building capacity on ecosystem assessments.

Over 30 participants from around the SADC region – consisting of both science, and policy professionals from a range of government and science institutions attended the meeting. A total of ten SADC countries were represented: Angola, Botswana, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe (see Annex 1 for a full list of participants).

The workshop was organised by the United Nations Environmental Programme World Conservation Monitoring Centre (UNEP-WCMC) in collaboration with the Council for Scientific and Industrial Research (CSIR), the UNEP Regional Office for Africa, the South African National Biodiversity Institute (SANBI), and the Department of Environmental Affairs for the Republic of South Africa, with generous support from the Norwegian Environment Agency and the Stockholm Resilience Centre (SRC).

Day One focused on introductions and participants' expectations of the workshop. Opening statements from the workshop organisers were given and followed up by participants conducting a self assessment of their current knowledge and understanding of ecosystem assessments. A series of presentations were then given, setting the scene for the workshop (i.e. the need for ecosystem assessments, an introduction IPBES, and the Sub-global Assessment Network).

Day Two focused on defining an ecosystem assessment and then introduced a practical step by step guide on undertaking ecosystem assessments, the ecosystem assessment framework, the various steps of which the workshop would spend the rest of the time going through. The first stage of the framework, the Exploratory stage, was covered during the presentations, exercises and discussions on Day 2, in particular: how to get high-level buy-in, how to secure funding for an ecosystem assessment, stakeholder engagement, key questions, and key considerations during a draft assessment plan.

Day Three presentations, exercises and discussions focussed on the Design stage, which included governance structures, conceptual frameworks, work plans. The Implementation stage which covers, drivers, trade-offs, and scenarios, was also covered. Presentations providing an example of a stakeholder driven design of assessments carried out in South Africa was given by CSIR.

On **Day Four** the workshop focused on the implementation and communication and outreach stages (i.e. scenarios, tools for assessments) and communication and outreach stage (i.e. communication

strategies and products) of the framework. There were also discussions on the capacity needs in the region, conclusions and next steps. A full agenda is available in Annex 2.

Introductions and Expectations

Most participants to the workshop were science and policy professionals from government and science institutions. Self assessment of participants revealed the need for capacity development for conducting ecosystem assessments and in other areas of data/information management in most of the SADC countries. While the majority of institutions in the region indicated that their institutions are ready to carry out ecosystem assessments, substantial challenges that pertain to availability and accessibility of data and information sharing are common in the region. Most institutions would welcome more capacity (e.g. human and financial) so that they can be able to implement and contribute to an ecosystem assessment.

Participant's expectations from the workshop reflected most of the objectives of this workshop. Their expectations ranged from understanding of what an ecosystem assessment is, how to put ecosystems assessments high on government agenda, different types of ecosystems assessment that exist, key steps in undertaking ecosystems assessments, indicators to use in assessment, how to use ecosystems assessments to inform policy, to tools and methods for carrying out ecosystems assessments, data gathering/generation for assessments and the legal and institutional arrangements required to undertake credible ecosystems assessments and scoping process of the SADC Hub under the SGA Network. Other issues that participants highlighted as requiring more attention in the region include financing mechanisms for undertake ecosystems assessments, more understanding how scenarios are developed and further capacity building for undertaking ecosystems assessments, including training of others.

Setting the Scene

This session highlighted UNEP's work on ecosystem assessments stressing the importance of ecosystem assessments as a tool for Ecosystem Management. The importance of assessing status of ecosystems, ecosystem services and exploring what drives change and how change can be managed was emphasized.

IPBES is one process that aims to strengthen interface between scientific and policy communities relating to biodiversity and ecosystem services. It also seeks to improve the interface between the scientific community and policy makers and assessments are one of the key areas. All the participating countries are engaged with the IPBES process that seeks to build capacity in ecosystem services assessments. Participants noted such capacity is especially important as they transition towards a green economy in their respective countries.

Participants from the region also recognise the importance of ecosystem assessments as a tool to help them to inform environment and development policy at national level and to help in feeding into global processes such as IPBES. SADC countries have been actively involved in early phases of IPBES, but would encourage further exploration of options for continued engagement

The participants noted that SADC countries have natural resources that straddle boundaries and that collaboration and implementation of the protection and prudent use of natural resources (e.g.

wildlife, water, and forests) that straddle national borders is of paramount importance to the region. The workshop afforded countries an opportunity to share experiences on managing these resources and to learn from each other.

This session also highlighted the work of the SGA Network - a knowledge-sharing platform for practitioners involved in ecosystem assessment work - whose intention is to promote and facilitate improved capacity for undertaking and using assessments. Participants were strongly encouraged to become members on the Network and use it to build strategic partnerships and develop regional and thematic hubs to support assessments at national and regional level.

Defining Ecosystem Assessments and Introducing the Ecosystem Assessment Framework

This session provided a definition for ecosystem assessment that was to be used throughout the workshop – "a social process through which the findings of science concerning the causes of ecosystem change, their consequences for human well-being, and management and response options are brought to bear on the needs of decision-makers". The generic characteristics of an ecosystem assessment were also presented and these included providing connection between environmental issues and people, environmental and development sectors, helping to inform decisions, communicating complex information and that ultimately they act as a means for decision support. It was also stressed that assessments have to be credible, legitimate, relevant to decision maker needs, flexible and adaptive and they do not conduct new primary research. A step by step guide or framework on understanding assessments was introduced to the participants and the exercises throughout the workshop were modelled on the steps in the framework.

Exploratory Stage

The session stressed the importance of determining the need for an assessment, defining the scope and users, considering funding opportunities and establishing key proprieties and design considerations. Participants learned the importance of including a wide range of people in the consultation process and that this will lead to effective and useable results. When selling the assessment concept, participants learned the importance of having clear arguments or justification for undertaking an assessment, the need to stick to an argument and to be able to speak the language that resonates with the target audiences (e.g. politicians are interested in money, power and votes).

The importance of stakeholder engagements was also stressed and that engagement should be broad and comprehensive, which will help to attract greater buy-in of the ecosystem assessment process. Some of the methods for carrying out stakeholder engagements that were highlighted included user surveys, town meetings, working groups, social media, seminars etc. This also provides an opportunity for a two way exchange of information (i.e. information to stakeholders about the process and receiving feedback, comments, and commitment from stakeholders).

The Design Stage

The focus of this session was on key questions a decision maker would want answers to, and which an ecosystem assessment could provide. Participants learned about the prioritisation of important issues and objectives that the assessment would address. They also learnt that planning for an

ecosystem assessment is a complex process and it is important at the design stage to establish a governance structure and a realistic work plan for the assessment so that everyone involved knows what is going to be done and when; and what is expected of them.

Developing a conceptual framework for an assessment is key as it allows for the conceptualization of the relationship between human well-being and ecosystem services. It needs to be kept simple and developed in consultation with stakeholders and users to ensure acceptance and use. Finalising the conceptual framework may require substantial negotiation.

Other key design considerations include identifying ecosystems and services (these are important for both the conceptual framework and the analytical approach), key capacities/resources required (this is important for building the assessment team and governance structure), temporal scales (this is important for designing the analytical approach and data requirements), spatial scales of interest and boundaries (this is important for setting the conceptual framework), and data requirements and possible sources (this is important for planning, budgeting and deciding who to engage).

The discussion on the design stage highlighted the importance of identifying drivers of ecosystem change – both direct and indirect. Drivers are the factors which cause ecosystem change. It was stressed that it can be difficult to decide whether a factor is direct or indirect driver of change (could be either in depending on the situation). It is therefore important to understand the linkages between direct and indirect changes, and how they impact on ecosystems and human well being.

A presentation from the SANBI of South Africa's National Biodiversity Assessment (NBA) process highlighted a number of similarities to elements of an ecosystem assessment (e.g. being an inclusive and flexible process, the importance of communication, feeding information into different national and global initiatives and informing policy).

A case study of a stakeholder driven design of assessments under National Freshwater Ecosystem Priority Areas Project (NFEPA) in South Africa helped to put some of the ecosystem assessment issues discussed into perspective. It also outlined six principles of stakeholder-driven design that included providing a dedicated role for stakeholder coordination and communication in the governance structure, involving a broad range of stakeholders but in a focused way, providing stakeholder workshops that cater for different needs, co-designing project with stakeholders, designing user-relevant products and planning for post-project sustainability.

Key lessons from the case study were that stakeholder driven design of assessments can take ore time; can cost more; that integration requires "compromises"; and that it is important to plan for an iterative learning for future assessments. However, stakeholder driven design of assessments are worth the effort as they can lead to much greater uptake of results, and outputs being incorporated into many different policy processes.

Implementation Stage

This session focused on the 'doing' stage of an assessment and it includes analysis of status and trends of ecosystems, building scenarios of change, and response options available. All these components are connected through to the conceptual framework for an assessment. The status and

trends analysis component of the ecosystem assessment should focus on different components of the conceptual framework such as priority ecosystem services, associated drivers of change and the impacts on human well-being. This session also focussed on existing ecosystem assessment tools that better enable the understanding of ecosystem services contributions to human well-being, by measuring, quantifying and exploring changes in environmental conditions. Examples of mapping/spatial analysis tools presented include ARIES, CEV, InVEST, MIME, PRESS-PEER, and methodological 'tools' (e.g. scenarios assessment, valuation, conceptual frameworks and indicators and metrics). Most participants expressed the need for more training on developing scenarios as part of ecosystem assessments, as well as other tools.

Communication and Outreach

This session emphasised the importance of a communications strategy for the process and the outputs of the assessment. It also stressed that the communication strategy must include internal as well as external communication. The strategy should also define one or more clear communication goals related to the purpose of the assessment. This will help to identify the specific target audiences and will also help to determine appropriate means of dissemination. Examples of assessment products for a regional assessment include a synthesis report, technical report, sectoral syntheses. Products for a local community assessment include a single report as users are likely to be same people producing the report

This session also included a presentation from South Africa's Making the Case project which stressed the importance of positive messaging in unlocking the potential of biodiversity and ecosystem services for development by creating and demonstrating their value of biodiversity to key policy priorities. The presentation stressed that managing, maintaining and restoring ecological infrastructure creates jobs and produce and deliver services that augment, enhance and protect built infrastructure, contribute to water security and food security and reduce the risk of disasters. The messaging had traction with several government departments including municipalities and that has seen a marked increase in funds for biodiversity conservation.

Capacity Needs and the Regional Hub

This discussion focussed on the potential of setting a regional Hub for the SADC region. All the participating countries welcomed the idea of establishing a regional hub and the possibility of undertaking a regional ecosystem assessment. The countries were advised that support to help with carrying out assessments in the region was available through the SGA Network. Countries interested in conducting assessments were also invited to consult with the SGA network in order to benefit from the organisation's training opportunities, linkages to the scientific community and global Network of ecosystem assessment practitioners. The SGA Network Secretariat also indicated that there could be potential funds available to support a workshop involving members of the proposed regional hub that could be established.

Wrap Up and Next Steps

During this session, it was impressed upon participants that ecosystem assessments are a social process and that no one size fits all as different countries have different social, economic and environmental contexts and that there are different purposes for an undertaking assessment. The importance of making the assessment policy relevant was reemphasised; and so is the need to make

the scope of the assessment achievable within resource constraints. The session also stressed the importance of making the ecosystem assessment as transparent, flexible and adaptable as possible. Wide engagement of stakeholders at an early stage and throughout the process, plus development of a communication strategy, both internal and external, is crucial to the success of an assessment.

In terms of setting up a southern African regional hub and next steps, all the participating countries welcomed the idea of establishing a regional hub and the possibility of undertaking a regional ecosystem assessment. Participants pointed out that they would welcome an opportunity to meet up again and discuss next steps on the Hub and further training courses on the issues that were covered during the workshop including more attention on scenarios, working through detailed case studies or even providing data for participants to use in an exercise – to give a flavour of what implementation of an ecosystem assessment actually involves. The SGA Network Secretariat indicated that there could be potential funds available to support a workshop involving members of the proposed regional hub.

1. Background and Rationale for Workshop

People everywhere depend on ecosystems for their well-being. The services provided by ecosystems range from those easily recognised, such as provision of food and timber, to those less recognised, such as flood protection, carbon sequestration and spiritual benefits. These services collectively support human well-being (HWB) and allow for the achievement of long-term development goals, such as the Sustainable Development Goals (SDGs). The findings of the Millennium Ecosystem Assessment (MA) confirmed the increasingly important contributions of ecosystem services to HWB. The MA further emphasised that those most vulnerable to the degradation of ecosystem services are the world's poor who are often directly dependant on ecosystem services.

Following the release of the MA many countries have been undertaking ecosystem assessments at the sub-global level (SGAs). Additionally, The Economics of Ecosystems and Biodiversity (TEEB) initiative has also been undertaken. TEEB made a valuable contribution to forwarding the knowledge base and, in particular, the valuation of ecosystem services. Following TEEB, many countries have also initiated country level studies. In essence there are many similarities between an ecosystem assessment and a TEEB-like study.

Developing capacity is essential for many regions to be able to carry out their own ecosystem assessments and TEEB-like studies. Under the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES), capacity building has been highlighted as an important component of the first work plan which was agreed along with a budget in December 2013.

Assessments are considered important for achieving the goals of IPBES with a meeting jointly convened by the Governments of Brazil and Norway in 2011 which discussed capacity building and IPBES identified a number of key findings. Specifically, in relation to assessments, it was recognised that: i) there was potential to build on work already developing in the follow-up to the MA and TEEB; ii) SGAs have the potential to deliver meaningful results at the appropriate scale to decision-makers; and iii) there is already an SGA network in place that can help support countries and improve access to existing experience and tools.

In December 2013 IPBES's first work plan was agreed upon along with a budget. Of the deliverables agreed, deliverable 1a) *Prioritization of capacity needs and matching with resources*, and 1b) *Development of capacities to participate in IPBES*, speak particularly strongly to the objectives of this workshop.

Regional assessments have a key role to play in meeting these capacity building goals. It has been recognised that the assessment process itself is just as important as the product, as it offers an opportunity to develop in-country capacity, as well as provide valuable information to allow a region to better interact with IPBES.

The South African Development Community (SADC) is a group of South Africa nations committed to the common goals of achieving development, peace, security, and economic growth, to alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through regional integration, built on democratic principles and equitable and sustainable development.

This workshop therefore offers a timely opportunity to support capacity building efforts within the SADC region, to assist the community in interacting with IPBES as well as permitting it to meet its own goals.

2. Workshop Objectives and Structure

In collaboration with the South African Council for Scientific and Industrial Research (CSIR), the UNEP Regional Office for Africa, the South African National Biodiversity Institute (SANBI), the Department for Environmental Affairs, South Africa, and the Stockholm Resilience Centre, with support provided by the Norwegian Environment Agency, the UNEP World Conservation Monitoring Centre (UNEP-WCMC) convened a workshop whose primary objective was to bring together participants from across the SADC Region to assist in their engagement in the IPBES process through capacity building

More specifically, the objectives of the workshop were for participants to:

1. Develop an understanding of the basic concepts of an ecosystem assessment and be able to illustrate both the value and rationale for undertaking one.
2. Gain new ideas and inspiration about how an ecosystem assessment can be used to instigate policy and behavioural change.
3. Be provided with information on how ecosystem assessments fit into the international scene, including IPBES and other international processes and obligations.
4. Be introduced to a variety of tools and data for ecosystem assessments.
5. Contribute to a preliminary 'needs assessment' of southern African countries that will help identify approaches and opportunities for initiating national and regional assessments.

Over 30 participants from around the SADC region – consisting of both science, and policy professionals from a range of government and science institutions attended the meeting. A total of ten SADC countries were represented: Angola, Botswana, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

The workshop itself was run as a series of interactive sessions. The set of work-books and exercises that have been developed as part of the SGA Network programme were used by participants to work through each of the steps involved in the ecosystem assessment process and to understand some of the issues, constraints and challenges that might need to be considered.

The agenda for each day focused on the following:

- **Day One** focused on participants' self assessment and expectations from the workshop as well as setting the scene for the workshop including on MEAs and the SGA Network. This included presenting background information on IPBES and other Multilateral Environmental Agreements (MEAs) as well as the SGA Network.

- **Day Two, Three and Four** focused on the ecosystem assessment framework and, through exercises, developing participants' skills for completing different steps of an ecosystem assessment.

- **Day Four** also focussed on ecosystem assessment tools with the help of case studies. This was followed by a discussion on identifying priority needs for ecosystem assessments in the SADC region and thinking about 'where to from here' including discussion on questions such as: What would a SADC regional assessment look like?; How would an assessment network for the region be set up?; What might the key questions for the region be?; and What are the key capacity needs for the region?

Day 1

3. Opening Session

3.1 Opening Address

The workshop was officially opened by Mr Fundisile Mketeni, Deputy Director General of the Department of Environmental Affairs in South Africa, and member of the IPBES Bureau. Mr Mketeni stressed the importance of biodiversity - at species, genes and ecosystem levels - to economies of African countries and noted that regular ecosystem assessments are a useful tool for monitoring and tracking status and trends of biodiversity, ecosystems and ecosystem services. Mr Mketeni also emphasised the importance of capacity building on assessments, to environmental negotiations at the international level and to the IPBES process and welcomes the timely nature of the workshop.

Opening remarks were then given by Ms Keisha Garcia of the Sub Global Assessment (SGA) Network Secretariat, Dr Luthando Dziba of the Council for Scientific and Industrial Research (CSIR), and Dr Megan Tierney of the United Nations Environmental Programme World Conservation Monitoring Centre (UNEP-WCMC). Together they gave an overview of the workshop, why it had been convened, which was to promote the interaction of the SADC region with IPBES through building capacity, as well as some background information concerning the organisations involved in convening the workshop.

3.2 Welcome and Introductions

The opening addresses were followed by a round of formal introductions from both participants and facilitators. The group composed a mixture of backgrounds in both science and environmental policy, working at a variety of levels within a wide range of organisations specialising in a range of different areas.

3.3 Self Assessment

Participants were then asked to take part in an interactive self-assessment session which aimed to evaluate how participants rated their personal understanding of the assessment process, as well as how 'ready' their individual countries, and institutions, were to carry out an ecosystem assessment. By 'voting with their feet', the workshop participants were asked to form a 'human histogram' by positioning themselves along an imagined axis, scaled from 0 to 10, to depict their answers. The questions posed and overviews of the responses are provided in **Table 1**. Examples of the 'voting with your feet exercises are shown in **Figure 1** and **Figure 2**.

Table 1. Summary of self assessment results.

Questions	Responses
Q1: [Do] I understand what an ecosystem assessment is?	• The majority of participants placed themselves between 1 and 5 on the scale. • Some countries had more people on the upper two-thirds of the scale indicating significant levels of knowledge and understanding as compared to other SADC countries. • There was a suggestion from participants that that Question 1 should be changed to: "Are you familiar with ecosystem assessments?"
Q2a: How much information is there available in my country on ecosystem assessments?	• The majority of the participants placed themselves in the middle (between 5 and 6) on the scale. • Many countries highlighted that data availability; accessibility and lack of sharing between data holders were problematic. • For those countries who indicated they have reasonably good coordination amongst different institutions, and very good data, they indicated that there is still room for improvement.
Q2b: How do they feed into regional global processes?	• In some countries in the SADC region, information exists but is archived and so not readily available to most researchers. • There was a suggestion that setting up databases of available existing ecosystem data would be helpful. • All countries stressed the need to share experiences during the workshop.
Q3: How ready is my institution for implementing or contributing to an assessment?	• Most participants were in the top two-thirds of the scale. • Most participants felt that their institutions are ready to carry out assessments. However, fragmentation of institutions managing different ecosystems (e.g. rangelands, grasslands, forests etc) poses some challenges.
Q4: How confident am I in taking an assessment forward in my country?	• Many participants were in the top two-thirds of the scale. • Some participants had been directly involved in assessments; others had provided technical support to assessments, or only taken part in the conceptualisation stage of the assessment framework.

Figure 1. Response to self assessment Question 1: I understand what an ecosystem assessment is.

Figure 2. Response to self assessment Question 4: How confident am I in taking an assessment forward in my country.

3.4 Expectations of the Workshop

Following the self assessment exercise, each of the participants were then asked to express what they expected or would like to achieve by attending this workshop. Participants were asked to identify whether they were from a science, or policy background (or both). From this discussion, a number of key themes and questions were identified. These have been summarised in **Table 2**.

Table 2. Overview of what participants expected or wanted to achieve by attending the workshop.

Domain of participants	Expectations
Science	• To gain an understanding of what an ecosystem assessment is. • To understand the different types of ecosystems assessment that exist. • To learn about the key steps involved in undertaking an ecosystems assessment. • To learn more about the Science–Policy interface (e.g. how to use ecosystems assessments to inform policy). • To learn about the tools and methods for carrying out ecosystems assessments. • To learn about how data necessary for an ecosystems assessment is gathered and generated. • To improve the capacity to undertake ecosystems assessments. • To understand how indicators can be used in assessments.
Policy	• To find out what an ecosystem assessment entails and how to conduct ecosystems assessments. • To understand the importance of conducting assessments and learn about the various methods and processes for conducting ecosystems assessments. • How ecosystems assessments may inform policy and hence behavioural change in society. • To learn how to put ecosystems assessments high on government agenda. • To learn about ecosystem valuation techniques. • To gain an understanding of the legal and institutional arrangements required to undertake credible ecosystems assessments. • To learn about the financing mechanisms in place to undertake ecosystems assessments. • To explore the data currently available to undertake ecosystems assessments. • To be able to share experiences from those who have carried out assessments. • To build capacity for undertaking ecosystems assessments and train others (training of trainers) in my organisation. • To discuss the establishment of a regional network for assessments. • To learn how to translate the results of an ecosystems assessment into policy decisions.
Science and Policy	• Be part of the scoping process of the SADC Hub under the SGA network. • To better understand how scenarios are developed. • Assessment of the effectiveness of policy interventions. • To learn about case studies where assessment products are regularly used for development and revision of polices. • To gain a more technical insight around different assessment methodologies. • To better understand what information exists about ecosystems assessments and how best to use it. • To investigate what are the best tools for different ecosystems.

3.5 Overview and Objectives

Following the plenary session on what participants expectations of the workshop were, Megan then gave an overview of the agenda including the aims of the workshop and materials that would be covered during the workshop.

4. Setting the scene

4.1 Introduction

To help put the workshop into a global context, Ms Cecilia Njenga (UNEP) gave a presentation about UNEP's work on ecosystem management, what this means for Africa and the green economy agenda, and how the Ecosystem Approach can be used to enhance human well-being, through:

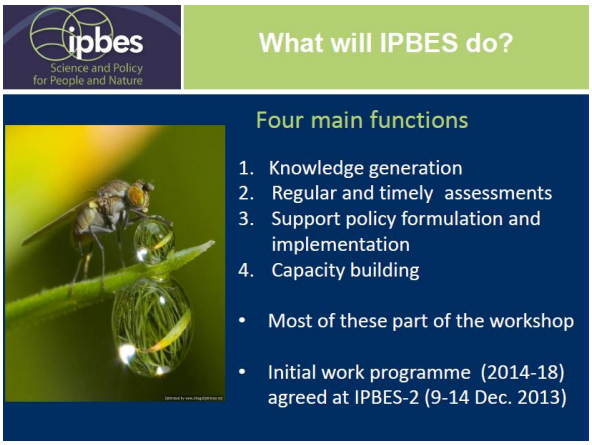
1. Restoration and management – requiring development of tools and methodologies.
2. Development and investment – integrating environmental issues into development planning and investment choices.

Cecilia went onto explain the importance of capacity building in order to ensure that the data required by decision makers is of sufficient quality to allow important decisions to be made correctly. Cecilia ended this session by highlighting that significant opportunities exist for the African continent in terms of economic growth, biodiversity, alternative energy, and productive land. However Africa as a continent also faces a number of challenges, especially in terms of loss of productive land due to unsustainable processes, and poverty. She went onto stress that these problems must be addressed if progress is to be made, and that ecosystem assessments maybe one tool that can be used to provide the required information.

4.2 Introduction to IPBES, MEAs and the SGA Network

Luthando followed this up by giving a presentation on IPBES. Luthando gave an overview of IPBES's goals, activities and why Africa and SADC should be interested in interacting with this body. He noted that with biodiversity and ecosystem services declining at an unprecedented rate, credible scientific information is needed by policy makers to create, and implement policies that are capable of dealing with these challenges.

IPBES provides a mechanism recognized by both the scientific and policy communities to synthesize, review, assess and critically evaluate relevant information and knowledge generated worldwide by governments, academia, scientific organizations, non-governmental organizations and indigenous communities. This involves a credible group of experts conducting assessments of information and knowledge in a transparent way. He remarked that IPBES is unique in that it will aim to strengthen capacity for the effective use of science in decision-making at all levels. IPBES also aims to address the needs of MEAs related to biodiversity and ecosystem services, and to build on existing processes ensuring synergy and complementarities in each other's work.



Luthando then went on to explain how Africa's early involvement with IPBES has set the groundwork nicely for further engagement and has given the continent as a whole the credibility necessary to enable it to inform decision making regarding the Platform. Finally Luthando described how IPBES will work, and the importance of contributing to the intersessional work to ensure that Africa's voice is heard at the plenary meetings.

Keisha followed this introduction to IPBES by giving a presentation about the SGA Network, its history, how it aims to promote and facilitate improved capacity for undertaking and using assessments, and how these can be used to support global processes. Keisha also introduced the idea of 'regional' hubs, and that the workshop would explore the possibility of establishing southern African hub.

Day 2

5. Introduction to Ecosystem Assessments

Day 2 commenced with participants undertaking a short exercise. The exercise was designed to allow participants to share their thoughts on what ecosystem assessments are, and what constitutes their key components. Specifically, participants were asked to identify their thoughts and understanding of:

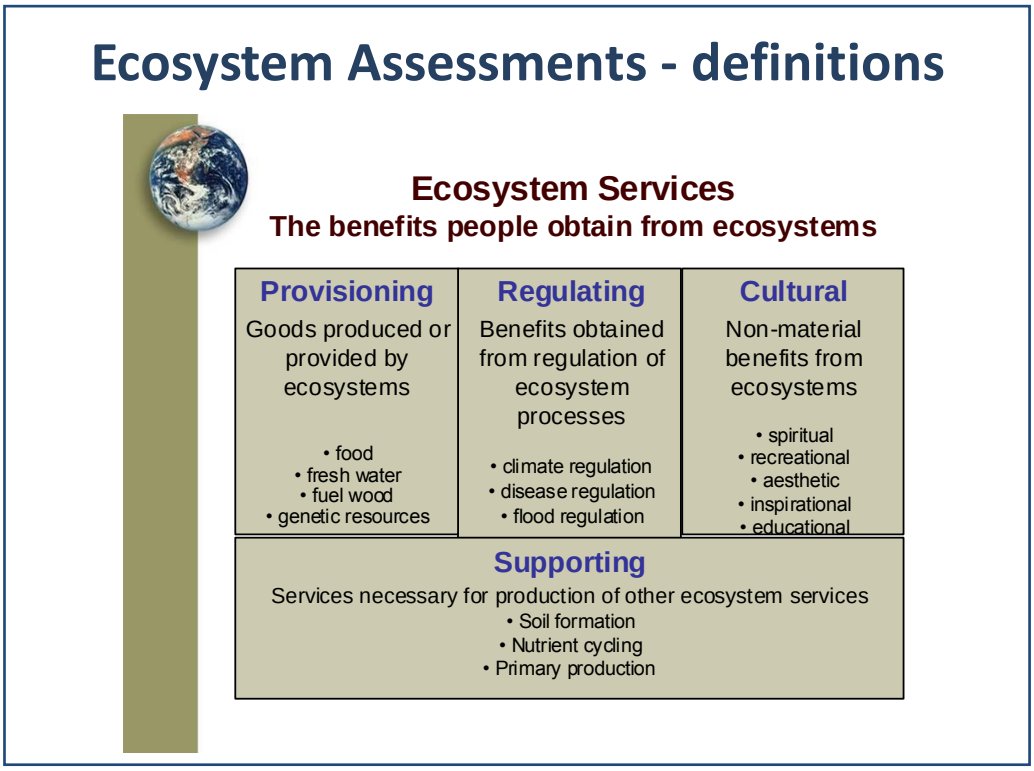
1) How they would define an ecosystem service assessment
2) Why might an ecosystem assessment be undertaken and how might these results be used
3) What are some of the key data types they thought necessary to undertake an assessment
4) Who might be involved in undertaking an assessment
5) How are ecosystem services and human wellbeing linked

Participants were asked to work in pairs and write down their answers to these questions. This session was then followed by a report back session where participants were able to volunteer their thoughts to the rest of the group to share and discuss their understanding. Some example answers are shown in **Table 3**.

Table 3. A selection of responses from participants to questions on what an ecosystem is.

Questions
1) How would you define an ecosystem service assessment?
• A research activity undertaken to determine the condition of an ecosystem, looking at biodiversity, ecosystem services and function of the ecosystem assuming availability of baseline data.
• A comprehensive/integrated analysis of the status of an ecosystem using clearly defined indicators to establish its ability to provide the desired ecosystem services.
• Understanding the link between the ecosystem and living organism including human beings.
2) Why might an ecosystem assessment be undertaken and how might these results be used?
• To enable sustainable management of natural resources.
• To identify, understand and protect the services of that particular ecosystem.
• "You can't protect what you don't know"
3) What are some of the key data types you think necessary to undertake an assessment?
• Ecological: What are expected ecosystem services from a particular ecosystem, Condition of the ecosystem. Social: Community needs/benefits from an ecosystem.
• Ecological data, information of how people interact with ecosystems, importance. Value of the ecosystem in terms of economics, cultural etc.
• Geographical area, species you will be investigating, stakeholders/users, sense of possible risk, baseline data.
4) Who might be involved in undertaking an assessment?
• Social and natural scientists, policy makers, local communities.
• Natural and social scientists, policy makers, stakeholders.
• Scientists (ecologists, geospatial scientists etc), government officials, local people, private sector.
5) How are ecosystem services and human wellbeing linked?
• The functions of an ecosystem; services are for the benefit of the people, e.g. water pollution control, raw materials.
• Culture, livelihoods (trade and subsistence), health, regulation of climate and natural disasters, healthy humans healthy ecosystems.
• They provide shelter and food, generation of fresh air and climate change adaptation.

Following on from this exercise, Megan then worked through some of the key concepts and definitions of ecosystem services and ecosystem assessments, making reference to the accepted standard key terms such that all participants shared a common understanding. Included within this session was the definition of an ecosystem assessment and a brief outline of the four categories of ecosystem service – provisioning, regulating, supporting and cultural – defining how they are classified and providing some examples of each type of ecosystem service. In addition to these definitions, some information framing the need to conduct ecosystem assessments, the benefits they deliver, the role they play in decision making and the conceptual link between ecosystem services and human well being were outlined.



The introduction to "What is an ecosystem assessment?" was concluded by presenting the ecosystem assessment framework (**Figure 3**). Megan briefly ran through the key components of the framework, presenting the stages that would be focused upon over the remainder of the workshop: the exploratory, design, and implementation stages and communication and outreach.

Following on from this brief opening, the workshop participants were introduced to their fictional countries Simbala, Kifarique, Kibokia, Sengoto, and Swalayo. These would serve as the breakout groups of the workshop for the remainder of the week. In these groups the workshop participants were set various tasks all relating to **'**Thandie Mbali**'**, a fictitious scientific advisor from the Ministry of Environment of their respective countries who, having recently attended a SGA Network Capacity Building Workshop, believes that by undertaking an ecosystem assessment they can determine the best way for addressing many of the problems facing her country.

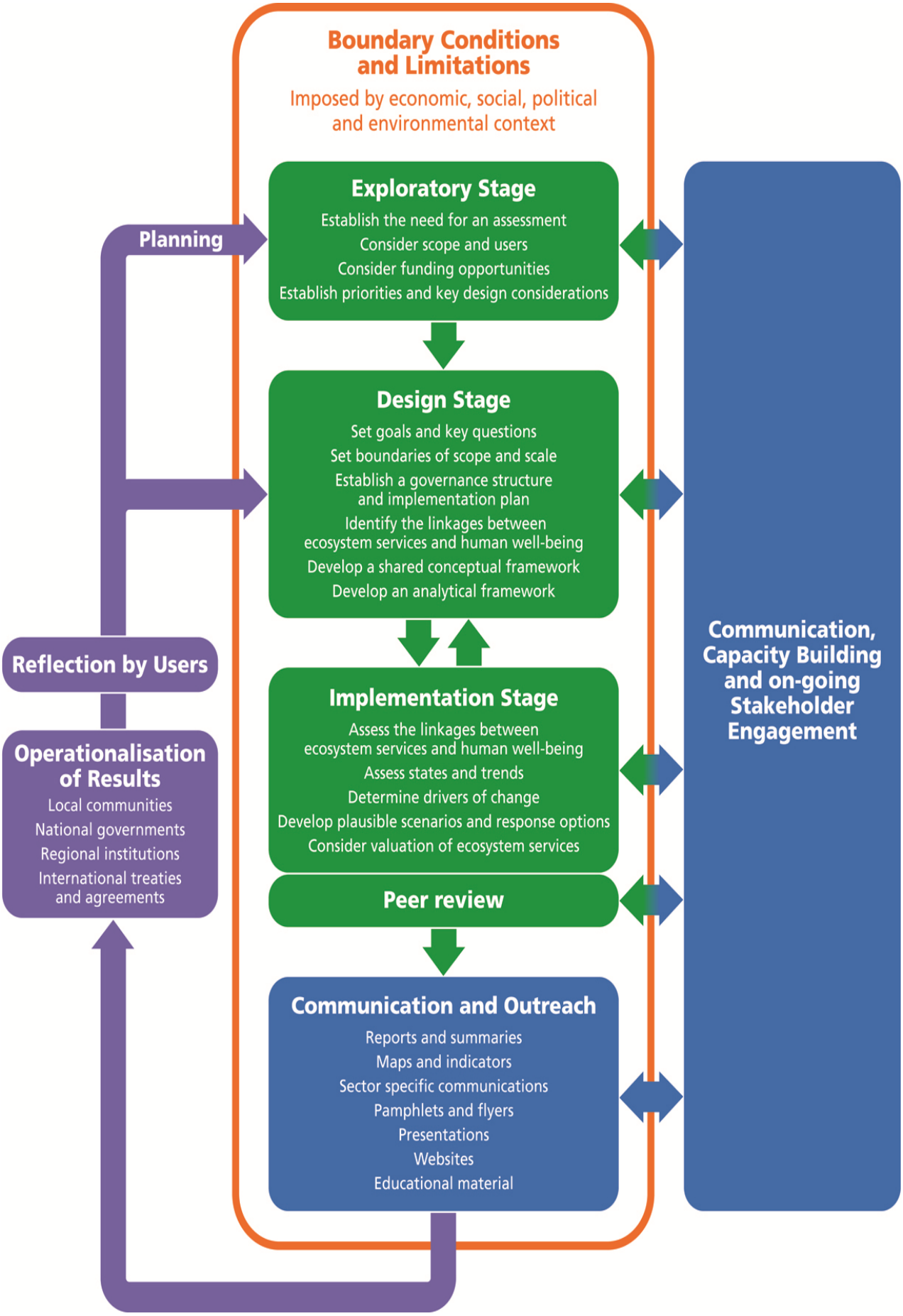


Figure 3. The Ecosystem Assessment Framework.

6. Workbook 1: The Exploratory Stage

This session focussed on the first stage of the ecosystem assessment framework: the Exploratory Stage (see Figure 3). The main components of the exploratory stage were outlined as being:

1. Determining the need for an assessment
2. Determining stakeholder priorities
3. Selling the assessment concept
4. Defining Key Questions that the assessment will answer
5. Design considerations

Particular emphasis was placed on the importance of setting the scope of the assessment, thus ensuring that the process remains demand-driven and relevant to policy needs.

6.1. Exercise 1.1. Scope and Context

In the first exercise, participants were tasked with considering the most important circumstances and issues relating to their countries; who might be affected by these factors; and what types of people might be considered for inclusion on planning and advisory groups for any potential ecosystem assessment: this information was presented to the participants in country fact-files.

Figure 4 shows the results for Kibokia which mirrored responses from four other fictional countries - Simbala, Kifarique, Sengoto, and Swalayo.

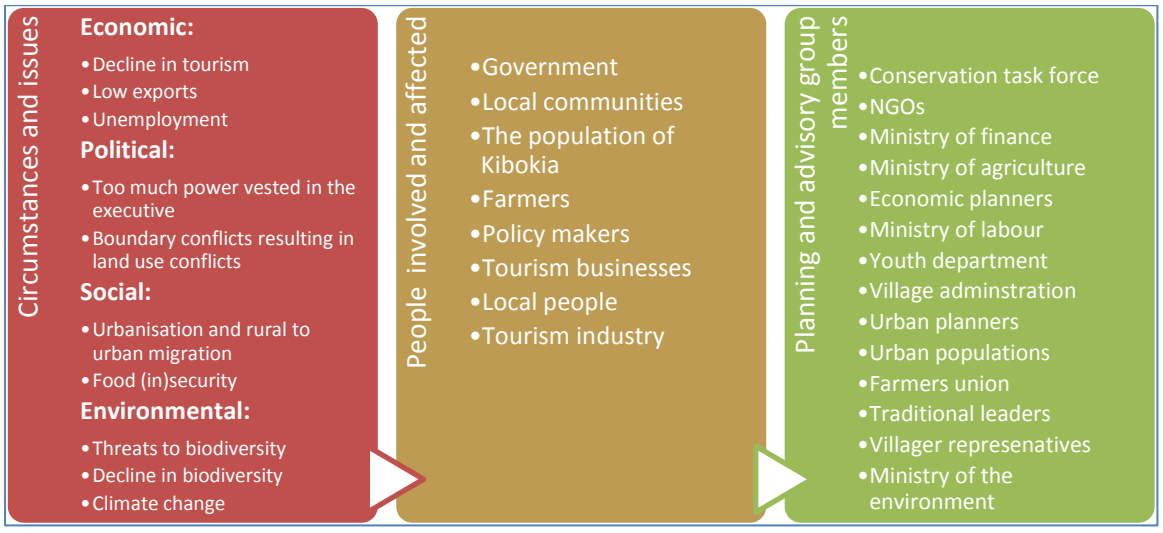


Figure 4. Results from Kibokia for Exercise 1.1.

Key Learning Points from Exercise 1.1:

- Decision makers include a wide range of people. It is therefore important to make sure that these people are considered as stakeholders and therefore contacted and included in the ecosystem assessment process from the outset.
- When approaching stakeholders, you should go to them with some focused options rather than going to them with absolutely nothing and then debating everything as this can just waste time.
- Don't underestimate the amount of effort that it requires to maintain relationships with stakeholders and ensure their continued engagement with the project. The person who coordinates the stakeholders needs to have relevant communication skills. Coordinating stakeholders is an entire job on its own.

Participants determining what the key priorities of the stakeholders from their fictional country

6.2. Exercise 1.2. Determining Stakeholder Priorities

Working through the Exploratory stage, the participants were next introduced to the concept of stakeholder priorities and why they are important to take into consideration. Particular emphasis was placed on the concept that "an assessment is defined by its intended audience and users". Reference was also made to the importance of stakeholder engagement and securing their 'buy-in', factors that are central in generating ownership of the assessment, which consequently leads to a sense of value and uptake.

Exercise 1.2 painted a scenario whereby Thandie and her team had organised a stakeholder workshop in order to present the ecosystem assessment concept and to provide an opportunity for stakeholder engagement to garner thoughts, ideas and concerns. The workshop participants were tasked with considering the opinions of the stakeholders (**Figure 5**) and suggesting as to how the proposed ecosystem assessment could meet each of their needs. Some example answers from the participant's of Kifarique are shown in **Table 4**.

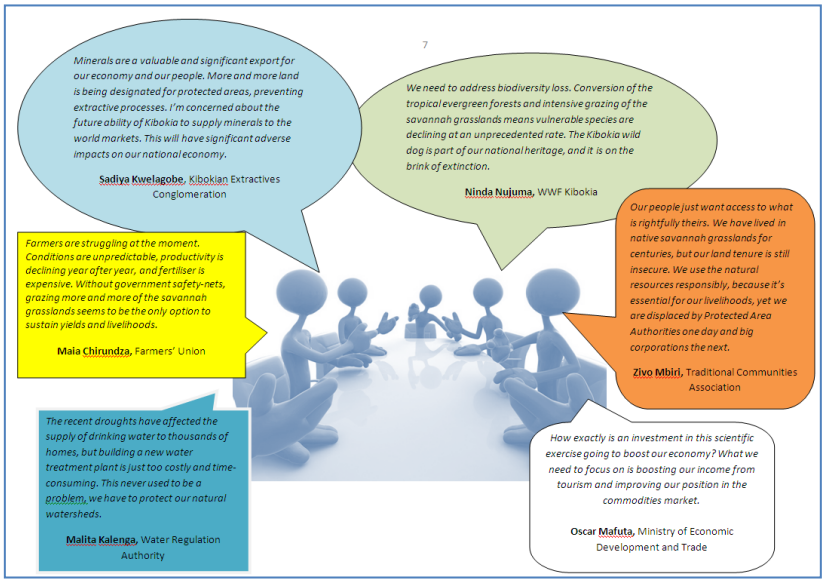


Figure 5. Stakeholder concerns.

Table 4. Results of the participants from "Kifarique" for Exercise 1.2.

Stakeholder	How concern can be addressed by an ecosystem assessment
WWF	• Provides information on trends and distribution, abundance of species. Identify key habitats. • Status of habitats. • Opportunities for intervention identified
Traditional Communities Association	• Identify land uses and land tenure systems – how to secure land tenure. • High light issues of access and community benefit sharing. • Establish indigenous knowledge systems and how they can be used in managing ecosystems.
Ministry of Economic Development and Trade	• Assessment will show that it is not only a scientific exercise but also a social and economic one. • Demonstrate economic value of ecosystem services. • Provide information on ecosystem changes, and its implications to the economy.
Water Regulation Authority	• Identify critical watershed areas. • Assist him/her on how management of ecosystem can be improved leading to cost reductions.
Farmers' Union	• Provide information on grazing potential thresholds. • Assessment could provide information on how to reduce costs of inputs. Provide alternative management options to improve productivity. • Options for capacity building (e.g. financial, technical and institutional). • Provide opportunities for livelihood diversification.
Extractive Conglomeration	• Identify priorities (cost benefit analysis). • Provide info on impacts of mining (positive and negative) • How mining can be practised in an environmentally safe manner. Highlight the existing mineral resource base. • Quantification of land under mining and protected areas.

6.3. Exercise 1.3. Selling the Assessment Concept

To introduce this exercise Mr Abisha Mapendembe (UNEP-WCMC) gave examples of why there might be a need for an ecosystem assessment. It was highlighted that selling the assessment concept is key to generating awareness and interest and for the stakeholders to feel ownership from the early stages. Gaining high-level buy-in is also important for securing funding for carrying out an assessment, for the findings to be incorporated into decision-making and also to help to identify champions who can communicate findings to other users.

Participants were then asked to prepare a 1.5 minute persuasive pitch, to sell the concept of an ecosystem assessment in their fictional country to "Fikile Sangweni", Chief Advisor to the President that they happened to bump into in an elevator. Each group then took it in turns to play out their role with a member of another group playing the role of the advisor.

A range of responses were given during the exercise drawing on the country's current environmental, social and economic issues. **Table 5** provides a selection of these responses.

Participants giving their pitches to the Chief Advisor

From this exercise participants learnt that the pitches that were successful were those that were clear, direct, relevant to the target audience, and that perseverance and patience were important when trying to get the attention of key players.

Table 5. Summary of the key argumens put forward during pitches.

Issues addressed:
• Environmental change
• Competing land user claims
• Agricultural decline
• Tourism decline related to biodiversity loss
• Poverty alleviation
• Economic growth
• Water availability
Justification for an ecosystem assessment being useful:
• We can't manage what we don't know
• Can unlock the value of natural system for socio-economic development
• Can get all these stakeholders talking to each other. Can get them all working together to overcome these challenges
• Identify water source areas to ensure their protection for the benefit of society
• Can provide information to address food security, land use management
The benefits that an ecosystem assessment will have:
• To account for the ecosystems issues facing them such as mining, agriculture so that management strategies can be made appropriately
• Political benefits at the national and international level
• Reverse observed decline, boost the economy, resulting in job creation and votes
• Maximise the benefit of ecosystem services for society. Additionally an ecosystem assessment would inform the formation of sound environmental policies and regulations.
• This will lead to greater economic development and jobs etc (and possibly the president being re-elected)

6.4. Exercise 1.4. Stakeholder Engagement.

Having successfully convinced the high-level Government figurehead to fund further exploration of conducting an ecosystem assessment the next step in the Exploratory Stage was to explore how to engage with stakeholders, and what form this engagement will take. Although an exercise is normally run on this, it was decided to spend more time on the following exercise which addresses the key questions an assessment hopes to address.

6.5. Exercise 1.5. Key Questions

Exercise 1.5 focused on the importance of ensuring key questions identified were policy relevant. Questions should be asked by a user group, target audience or a decision maker. Key questions from the UK National Ecosystem Assessment were shown to illustrate the point.

Participants were asked to consider the country's national priorities and key users' needs when suggesting possible key questions.

The groups suggested a wide range of questions, some being high-level, over-arching questions about ecosystem services provision, while others were much more specific, focusing on a particular economic or social problem where an ecosystem assessment could help to inform decision making around these issues. **Table 6** lists some of the suggested key questions.

Table 6. Sengoto's Key Questions.

Key Question	Reason/Justification	Key users
What is the current status and trends of biodiversity? (e.g. forests, wetlands).	• Take account of the state of ecosystems	• All users • Local communities
What are the status and trends in ecosystem services?	• Take account of the state of ecosystems	• All users • Local communities •
What is the effectiveness of policy and management interventions?	• Identify gaps in policy implementation. • Revise policies or craft new ones	• Policy makers
What is the status of water resources?	• Useful for agriculture, development policies	• Policymakers • Farmers
What are the emerging issues affecting biodiversity and ecosystem services?	• Climate change • Oil and gas • New technology • Invasive alien species	• Policy makers • Researchers • Scientists
What are the future scenarios	• Land degradation	• Policy makers • Farmers

Participants working through their Key Questions.

6.6. Exercise 1.6. Key Design Considerations

Keisha gave participants an insight into the many key considerations when designing an ecosystem assessment – such as capacity, resources, data availability, type of data available, and the importance of the scale at which you undertake an assessment. It was highlighted that these should be discussed with established Technical and User Groups to ensure the plan is feasible and that the right stakeholders are engaged. Five considerations were introduced:

a) Key capacities / resources required;
b) Spatial scales of interest and boundaries;
c) Temporal scales;
d) Important ecosystems and services; and
e) Data requirements and possible sources.

Participants were then asked to discuss what would be the most *important ecosystems and services* to consider in the ecosystem assessment for their fictional country, and one other consideration in more detail. **Table 7** displays a selection of responses.

Table 7. Results of the participants from "Simbala" and "Kifarique" for Exercise 1.6.

Important ecosystems and ecosystem services			
Simbala	Forests	• Fodder for grazing and agriculture • Fuelwood • Food • Nutrient cycling	• Carbon sequestration • Aesthetic enjoyment • Recreation and tourism • Maintenance of biodiversity (habitat for wild dogs)
	Wetlands	• Water purification • Water supply • Flood attenuation • Grazing	
	Rivers	• Water supply • Water for crops • Food	
	Farmland	• Food security/supply • Income • Medicines	
	Grazelands	• Grazing • Food for livestock • Erosion and sedimentation prevention	
Key Capacities and Resources needed			
Kifarique	Human resources	• Social scientists • Ecologists • Biometricians • Economists	• Communication specialists • Politicians • Financial persons • Facilitators/coordinators
	Financial resources	• Fundraisers • Government and private • Donor funding	
	Equipment	• Vehicles • GIS & remote sensing equipment • Office equipment	

6.7 Sharing experiences: South Africa's Approach to Ecosystem Assessments

Day 2 was concluded by a presentation given by Ms Fahiema Daniels (SANBI) on experiences of national assessments of biodiversity in South Africa. National biodiversity assessments (NBA) in South Africa focus on ecosystems (i.e. terrestrial, river, estuarine, marine, wetlands, invasive, indigenous species and climate change environments), ecological condition and biodiversity thresholds. NBAs in South Africa provide core indicators for monitoring and reporting and summarises spatial biodiversity priorities based on best available science.

The NBA provides the science that informs the revision of the National Biodiversity Strategies and Action Plans (NBSAPs). The NBF identifies top priority actions and targets for the next five year period in South Africa. The NBSAP in South Africa has a broad, comprehensive set of strategic objectives and sets long-term targets based on stakeholder engagement and consultation. It informs the National Biodiversity Framework (NBF). Fahiema stressed that biodiversity assessments in South Africa are a multi-stakeholder process involving scientists and practitioners from over many organisations.

Key lessons learned from South Africa's NBA include:

- Ecosystem classification and mapping provides a foundation for ecosystem assessment
- National ecosystem indicators can be applied across environments and linked to policy
- Collaborations and partnerships are crucial for success
- An ecosystem assessment can be done with relatively little data and resources (e.g. NSBA).

Participants during report session.

Day 3

7. Day 3 Introduction

Day 3 continued to work through the assessment framework. However before doing so, a series of short presentations covering the definitions of ecosystems and how their definition can be tailored to meet the needs of an ecosystem assessment were given followed by a group discussion.

8. Workbook 2 - The Design Stage

This session was opened by Megan who gave an overview of the elements that the Design stage incorporates (see Figure 3). She outlined the need for those in charge of organising the assessment to consider the governance structure, content, and process for implementing the work-plan, and emphasised the fact that a thorough design phase, including consideration of funding and the ongoing engagement of users, is a key step in ensuring the success of an assessment process.

8.1. Exercise 2.1. Governance Structure

Expanding on the Governance Structure component of the Design Stage, Luthando highlighted the role which an effective governance structure can play during the ecosystem assessment process, the importance it can have in securing user engagement, raising funds and overseeing progress, and provided some examples of the types of individuals and organisations that might be included in a governance structure and how they may be organised.

Example governance structure groups

Group	Roles and responsibilities	Desirable skills and characteristics
Project manager	Co-ordination and management of project	Strong leadership, Experienced with good overall view of project
Steering committee	Guidance, Monitor and oversee the process	Committed, up to date with the policy issue
Co-ordinating secretariat	Administration, Project management, Oversight of the assessment process	Independent project management experience, Good communicators
Technical working group	Collate, process, summarise and report	Data analysis and writing skills, can critically assess and synthesize information
Communication and outreach	Information dissemination and stakeholder engagement	Good public relations, innovative and creative

Instead of undertaking this exercise in individual working groups, Luthando followed this presentation with a group discussion in plenary, where participants were asked to share their experiences in developing work plans and governance groups. A summary of the experiences shared are summarised below.

Experiences Shared

- Having legitimacy is important; where you get your mandate from can significantly influence the ease with which you communicate with other organisations and stakeholders. If these groups that you contact perceive you as having a legitimate reason to communicate, then they are tend to be far more cooperative.
- Using existing governance structures can help reduce the problems faced as you can just build upon an existing well accepted structure rather than have to start from scratch.
- Governance structures always have some sort of cost and can take a lot of resources to maintain. They therefore tend to generate large overheads. This in turn can influence how many people you involve in the governance structure of an ecosystem assessment. These potential costs need to be considered carefully in the planning stages.
- The importance of facilitating discussions between the various groups. During the MA, for example, professional facilitators were hired to help resolve conflicts and to help discussions flow. Otherwise this responsibility tends to fall to the project manager. Alternatively a strong chair of a steering committee is required.
- Clear terms of reference for the various groups that are included in the ecosystem assessment is very important, otherwise you end up in a situation with too many chefs, with lots of people wanting the final say. It is therefore important from an early stage to define what their role is.
- The institutional home to an assessment can be quite important, to permit these sorts of assessments to actually occur.
- Where these assessments end, the level of uptake and impact that they have:
    - In South Africa having the support from the Ministry of Foreign and Environmental Affairs is really important, to get the level of impact and uptake that you need, you need to include people that are important to ensure legitimacy.
    - There has to be a perceived need for these assessments. If a country doesn't think that it is worth doing a national level assessment then it isn't going to be really worth it. It is therefore important in the scoping stages to find what the demand actually calls for. By doing this you can ensure that your assessment will be used.
- Experiences of the participants regarding project management:
    - You will be dealing with a group of people that might struggle to meet meet deadlines, therefore to get the project in on time you will need to find an effective way to get them to submit their input on time. You will also need to ensure that you keep a close eye on your budget right from the start and that people in charge of their work plans clearly know what their budget is.

8.2. Exercise 2.2. Work Plan

The plan for this exercise was to have workshop participants identify important activities and milestones for each of the four stages of the ecosystem assessment framework, and to then include these on a time-line with the aim of putting together a draft schematic work-plan for the ecosystem assessment

However, as there had been particular interest in conceptual frameworks, it was decided to skip this exercise and invest the time instead in the exercise on conceptual frameworks.

8.3. Exercise 2.3 and 2.4. Conceptual Frameworks

Megan and Keisha co-presented a session on conceptual frameworks in ecosystem assessments; specifically focussing on what they are, why they are needed and why they are important.

Conceptual frameworks are used to:

- Organising the thinking that has been taking place;
- Understand complexities, interconnections and trade-offs;
- Overcome paralysis by detail;
- Achieve consensus and communication;
- Cross boundaries of different forms of knowledge;
- Set and refine questions for the assessment; and
- Define the linkages between ecosystem services and human well-being.

After the introduction outlining the details of conceptual frameworks, focus was switched to the process of how one would go about producing a conceptual framework for an ecosystem assessment. This was facilitated by detailing the parties that might be involved in the process of drawing up a conceptual framework; highlighting how it is valuable to develop a sense of ownership from the assessment's user groups; the need for sensitivity and compromise between different stakeholder groups with different ideas and opinions; and then by demonstrating some examples of conceptual frameworks, such as those used in the MA, the UK NEA and the Peruvian Vilcanota sub-global assessment to gain an understanding of their main features.

Following on from this introduction, it was emphasised that there are many examples and types of conceptual frameworks, but there is no right or wrong approach or structure – they should be tailored specifically to the needs of the assessment in hand.

To aid in the understanding of the purpose of conceptual frameworks; an interactive session was run whereby participants were asked to consider the 'Robinson Crusoe' scenario – an individual, lone person, who is stranded on an isolated tropical island – and identify:

i) the key elements of well-being, and if these are shaped by ecosystem services;
ii) any ecosystem goods and/or services that most heavily influence the elements of well-being; the factors which directly affect the supply of these ecosystem goods and/or services (direct drivers); and
iii) any indirect influences upon these factors (indirect drivers).

The final consideration for the participants was to try and identify any connections that exist between these elements of well-being, direct and indirect drivers (**Figure 6**).

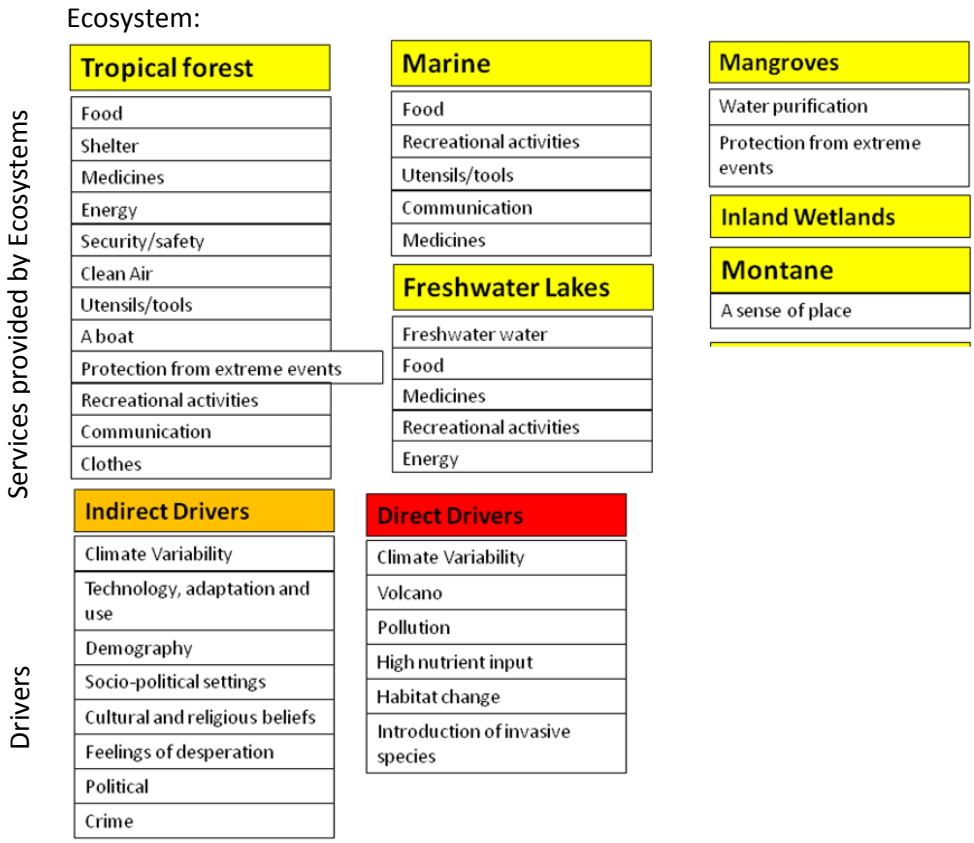
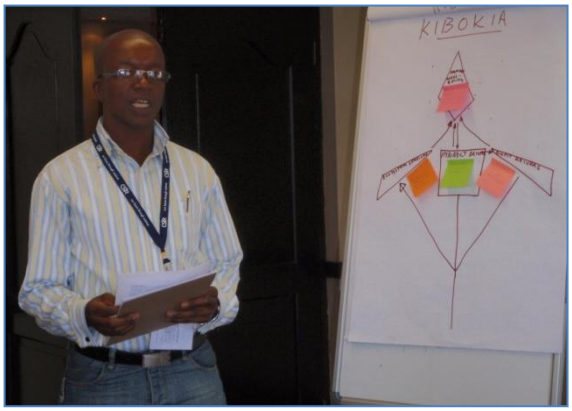


Figure 6. Results from the "Robinson Crusoe" exercise.

8.4. Exercise 2.5. Conceptual Frameworks

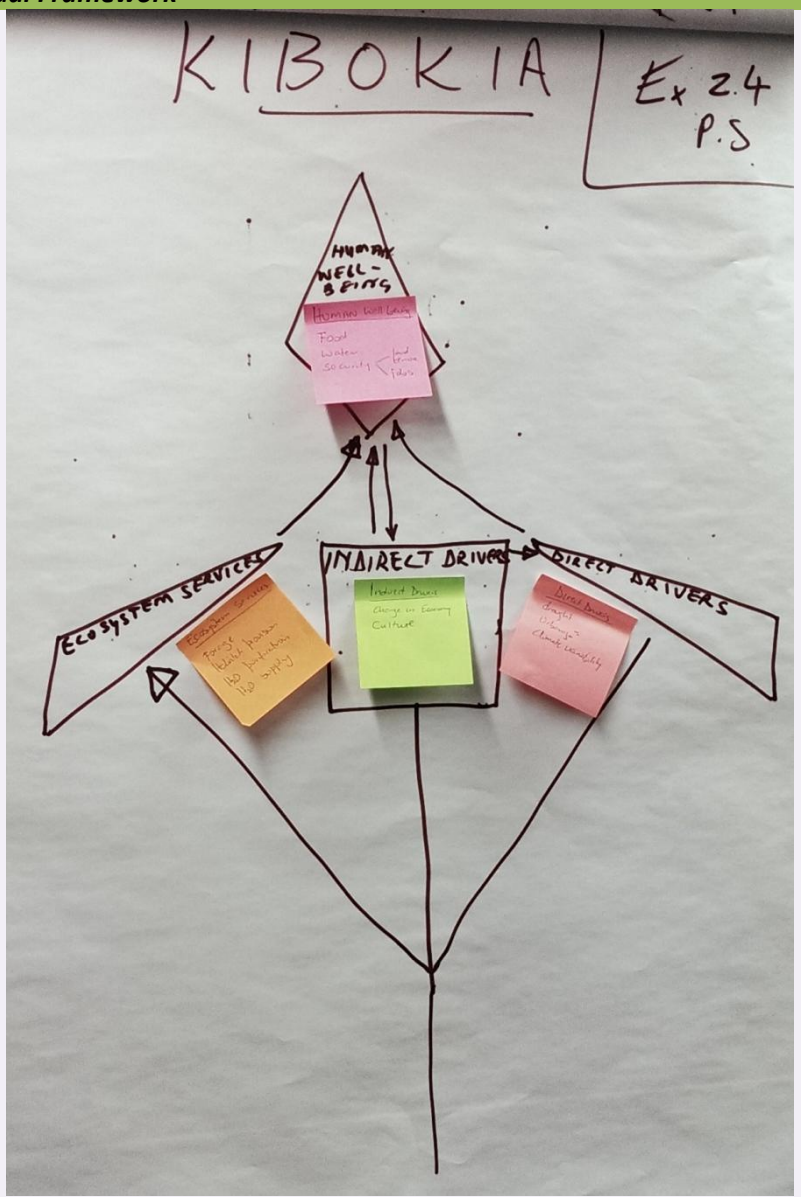
Using the considerations and findings of the presentation on conceptual frameworks, the examples that were given and the outcome of the Robinson Crusoe session as a template, the particpants were then set the task of developing conceptual frameworks for the national ecosystem assessments of their fictional countries. Participants were asked specifically to consider the information they gathered from the stakeholder groups in Exercise 1.2. Determining Stakeholder Priorities, and the key questions the participants had identified previously (Exercise 1.5), factors occurring or changing at a time-scale likely to influence the assessment; and the spatial-scale at which key influences occur. The conceptual frameworks developed by each fictional country are shown **Figure 7**.

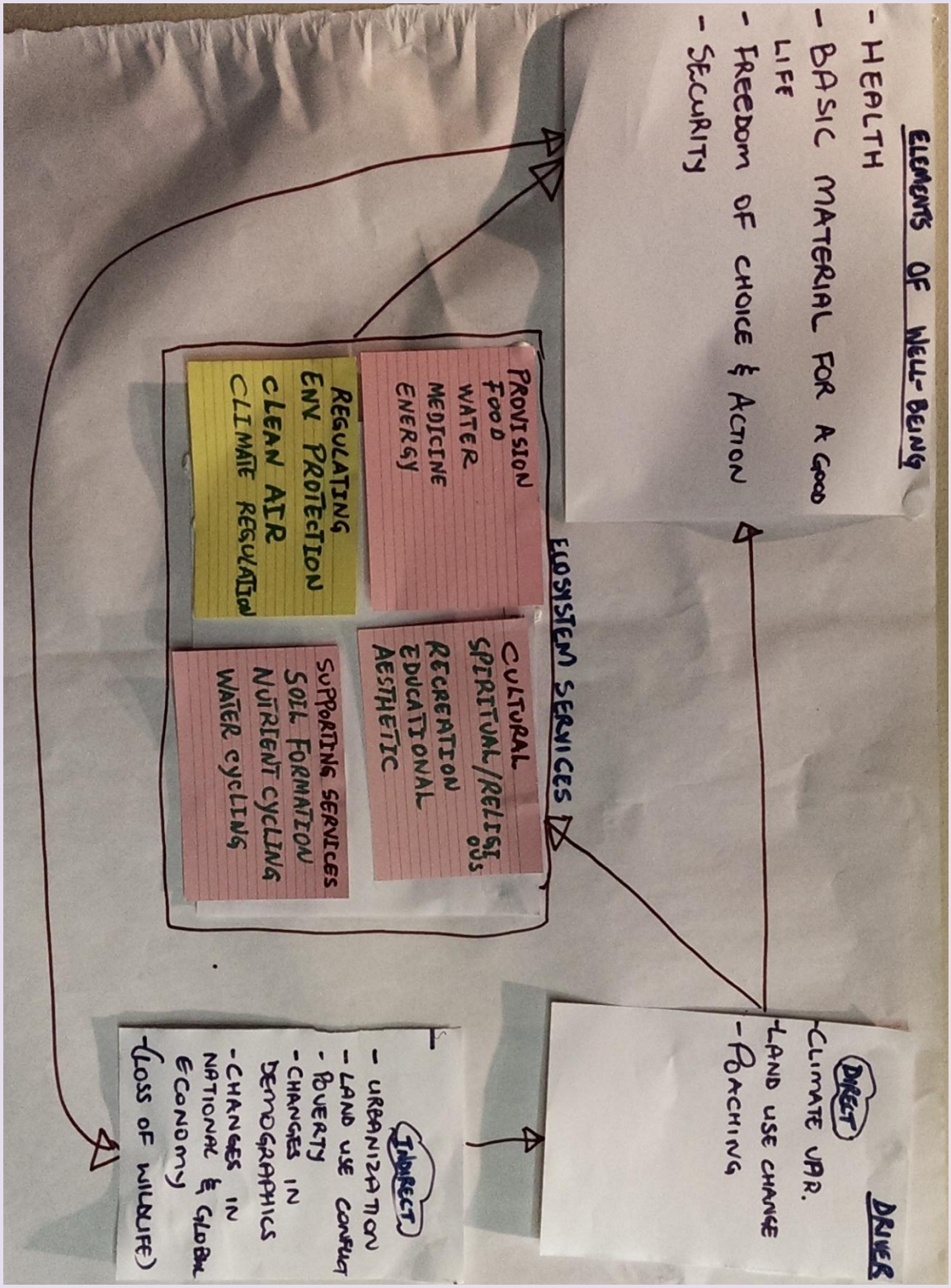


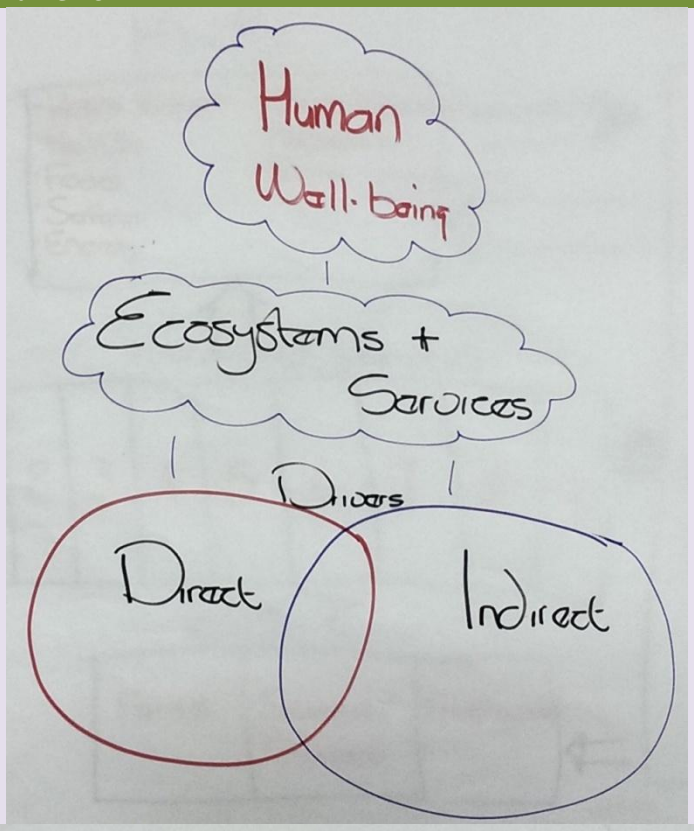
Participants developing their conceptual frameworks.

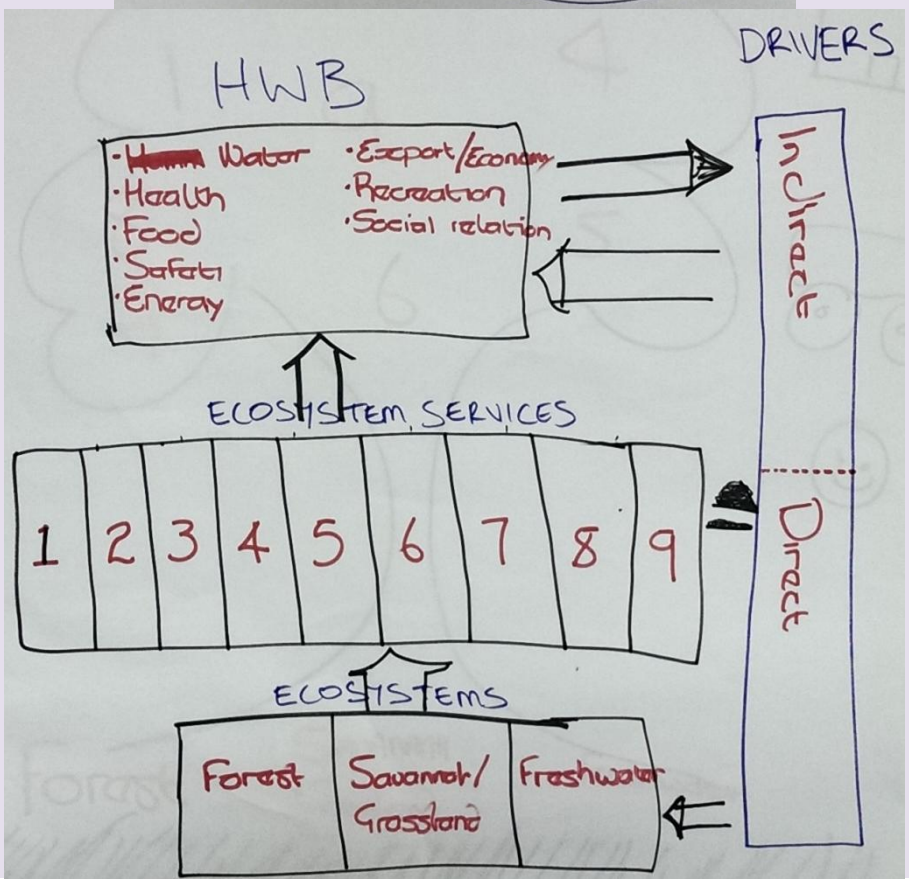
Figure 7. The conceptual frameworks developed by participants.

Kibokia Conceptual Framework

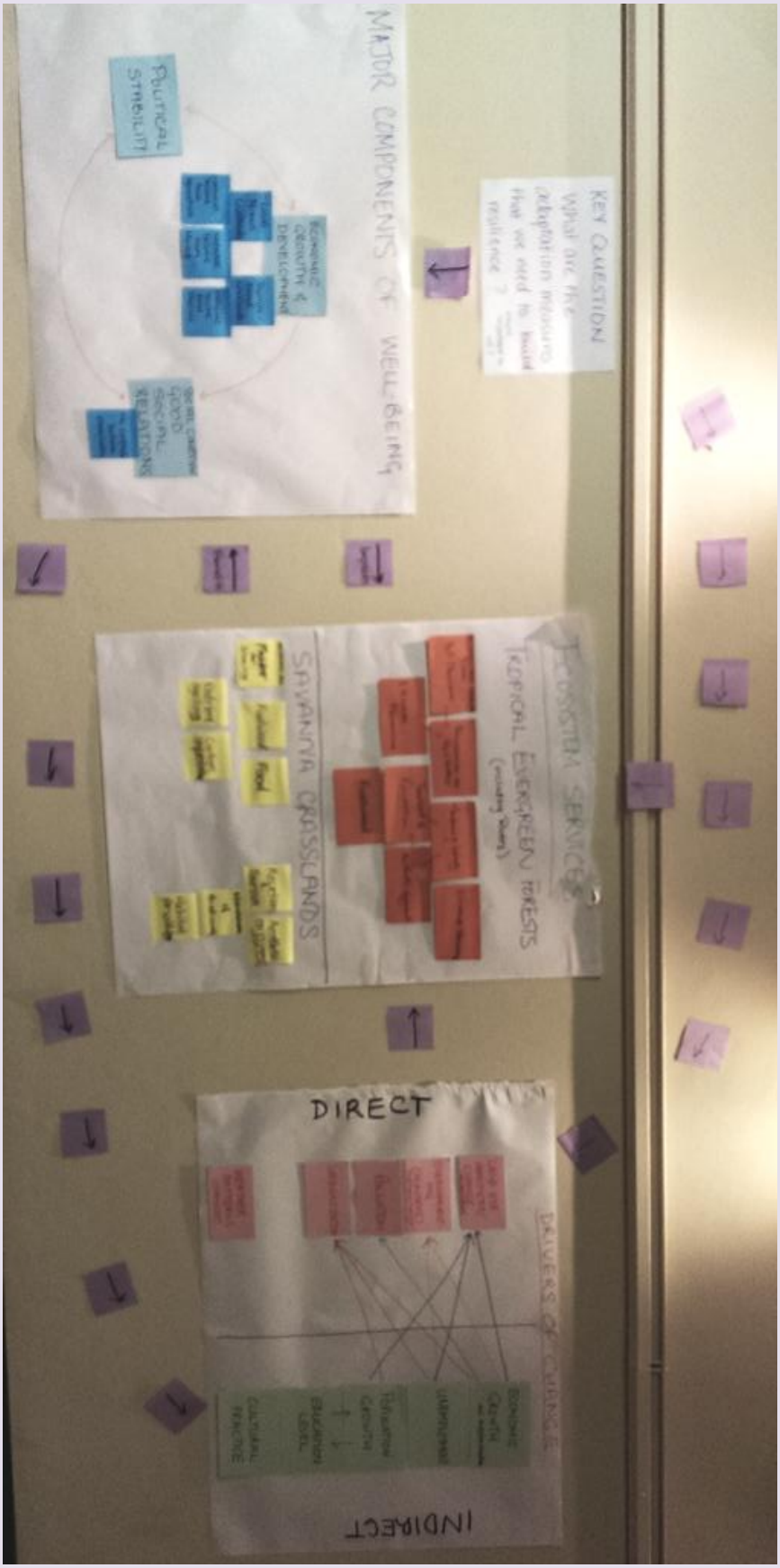


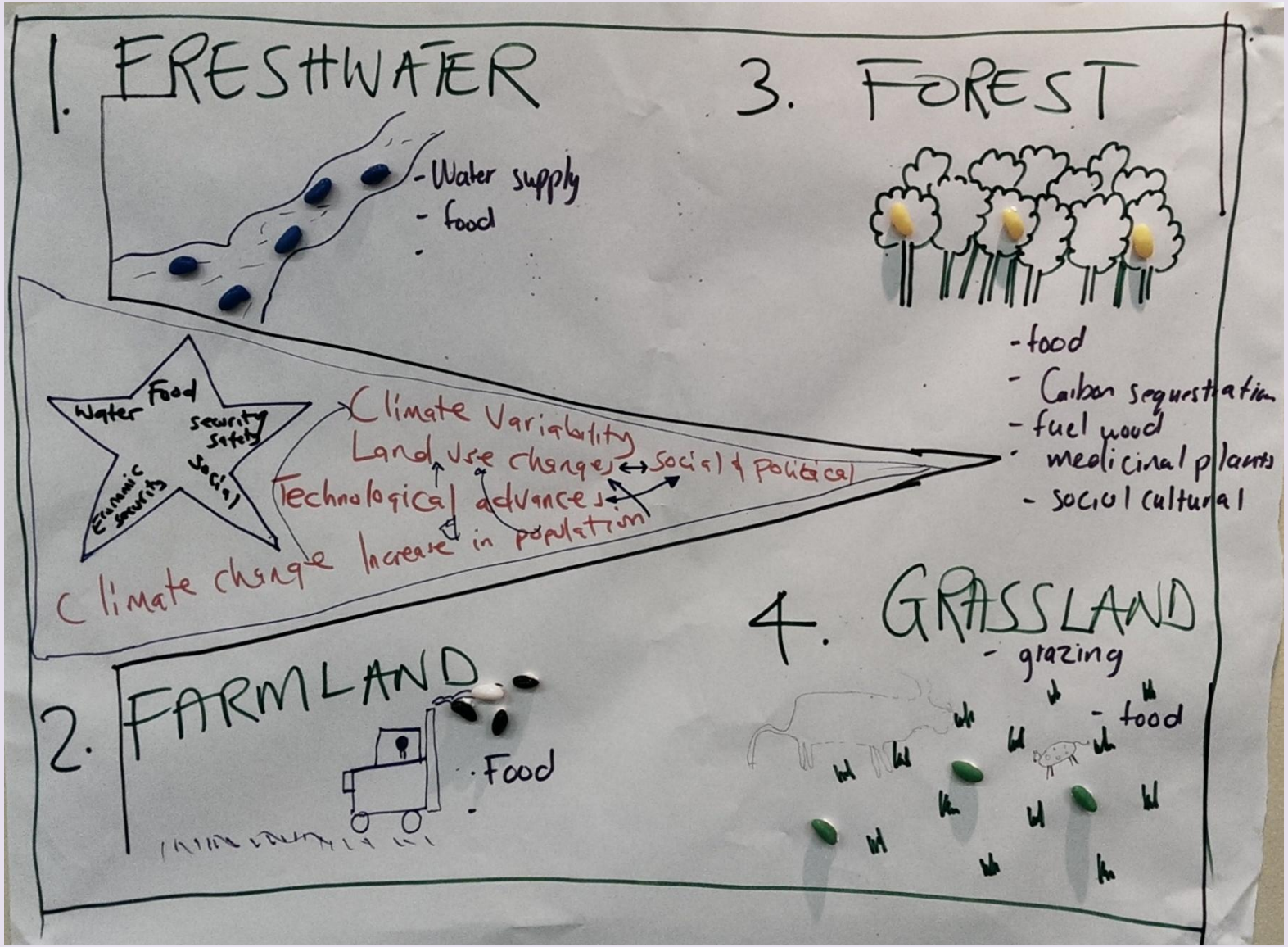

ELEMENTS OF WELL-BEING
- HEALTH
- BASIC MATERIAL FOR A GOOD LIFE
- FREEDOM OF CHOICE & ACTION
- SECURITY
ECOSYSTEM SERVICES
PROVISION
FOOD
WATER
MEDICINE
ENERGY
REGULATING
ENV. PROTECTION
CLEAN AIR
CLIMATE REGULATION
CULTURAL
SPIRITUAL/RELIGIOUS
RECREATION
EDUCATIONAL
AESTHETIC
SUPPORTING SERVICES
SOIL FORMATION
NUTRIENT CYCLING
WATER CYCLING
DRIVER
DIRECT
-CLIMATE VAR.
-LAND USE CHANGE
-POACHING
INDIRECT
- URBANIZATION
- LAND USE CONFLICT
- POVERTY
- CHANGES IN DEMOGRAPHICS
- CHANGES IN NATIONAL & GLOBAL ECONOMY
-LOSS OF WILDLIFE)


Human
Well-being
Ecosystems +
Services
Drivers
Direct
Indirect


DRIVERS
HWB
Water
Health
Food
Safety
Energy
Export/Economy
Recreation
Social relation
Indirect
ECOSYSTEM SERVICES
1 2 3 4 5 6 7 8 9
Direct
ECOSYSTEMS
Forest
Savannah/
Grassland
Freshwater

Simbala Conceptual Framework




1. FRESHWATER
- Water supply
- food
3. FORREST
- food
- Caibon sequestration
- fuel wood
- medicinal plants
- social cultural
Food
Water
security
Safety
Social
Economic
security
Climate Variability
Land use change
Social & Political
Technological advances
Increase in population
Climate change
2. FARMLAND
Food
4. GRASSLAND
- grazing
- food

Following the reporting back session, a group discussion was facilitated asking participants to identify commonalities and salient issues in the conceptual framework that had been made. The results from this discussion are summarised in **Table 8**.

Table 8. Commonalities and salient issues identified by participants between conceptual frameworks, and in creation of conceptual frameworks.

Commonalities between frameworks and the process of creating frameworks:
• It was difficult to decide whether to classify a driver as a direct or an indirect driver.
• In some cases the same driver could arguably be a direct or indirect driver.
• Within groups a variety of views existed and therefore conceptual frameworks can only be finished by reaching a consensus.
• Conceptual frameworks can be expressed in many different ways in order to appeal to different audiences and to meet a number of different purposes.
Salient Issues:
• A need to keep the focus of conceptual frameworks on ecosystems, even though there are many other important factors, as this is an ecosystem assessment.
• To ensure that things are clear from the start, the question that you want to use to get to the end point is crucial.
• Conceptual framework development involves many different people, and different viewpoints coming together to reach a consensus, very different frameworks are produced when a consensus can't be reached.
• Need to emphasise when we are looking to the drivers, some of the drivers aren't negative in their impact, and once you've identified activities that do have positive impacts you have something which you should go for.
• There is no right or wrong way to create a framework.

Key Learning Points from Conceptual Framework Exercise

- When making linkages make sure that there is data present that allows you to support the linkage that you've made, otherwise you'll find that you will spend money and time on linkages that don't matter/ don't get to the heart of the matter.
- Before you do the ecosystem assessment you need to decide the audience, in this case we have targeted the people of Swalayo and the politicians, to make them feel like this assessment belongs to them. It is therefore a framework for communication.
- When building a conceptual framework it is not always important what you put where, or what you link together, what is important is that you all agree. Conceptual frameworks are pieces of cooperative work that help to foster a common understanding of the issues.

8.5 Sharing experiences: Stakeholder Driven Design of Assessments

Following the conceptual framework exercise Dr Jeanne Nel (CSIR) gave a presentation on stakeholder-driven design of assessments and implementation.

She started by outlining the aims of such an approach which are to:

1. Improve communication
2. Increase mutual understanding and common ground

3. Create collective commitment to an implementation partnership long after the assessment is complete.

The presentation looked in detail at the importance of stakeholder-driven design within an ecosystem assessment. After illustrating the success of such ventures through the example of the National Freshwater Ecosystem Priority Areas Project, Jeanne put forward the following principles that are vital when considering stakeholder-driven designs:

1. Provide a dedicated role for stakeholder coordination and communication in the governance structure
2. Involve a broad range of stakeholders but in a focused way
3. Provide stakeholder workshops that cater for different needs
4. Co-design project with stakeholders
5. Design user-relevant products
6. Plan for post-project sustainability

Lessons learnt from their experiences were that such an approach:

1. Takes much longer; costs much more
2. Integration requires “compromises”
3. But can result in a huge uptake, with inputs into many different policy processes.

9. Workshop Dinner - Braai

On the evening of Day 3, participants were treated to a traditional South Africa braai that had been organised as an official Workshop Dinner. It was held within the grounds of the Kievits Kroon Estate. This gave everyone an opportunity for some downtime, relaxation, and an opportunity to consider and discuss the subject matter of the previous three days with fellow participants.

Participants working through different exercises.

Day 4

10. Workbook 3 - Implementation Stage

Megan began this session by outlining the next step in the ecosystem assessment framework, "The Implementation Stage" (see Figure). Given the complex nature of this stage of the ecosystem assessment, a small caveat was presented before delving into descriptions of the stage components and exercises. It was made explicit to the audience that, given the timeframe available, we would just scratch the surface of introducing conditions and trends assessment, scenarios development and analysis and the assessment of potential response options. The workshop participants were directed towards the "MA Methods Manual" (Ash *et al*., 2010) for more information on each of these components of the Implementation stage.

10.1 Status and Trends

An outline of what the "Status and trends" assessment component is, what it hopes to achieve and some of the key definitions associated with this component were presented to the participants.

10.2 Scenarios

The "Scenarios" component of the implementation stage was introduced to the participants next. Megan pointed out that the focus of this introduction, and the exercise related to this component, would only focus on scenarios development rather than also including scenarios analysis; the participants were directed to Chapter 5 of the "MA Methods Manual" (Ash *et al*., 2010) for further information regarding scenarios analysis. Megan presented the definition and aim of scenarios development and analysis, and some examples of scenarios were given.

10.3. Exercise 3.2. Scenarios

Following the brief introduction to scenarios, Exercise 3.2 was outlined. The participants, in their fictional countries, were asked to consider one of three plausible scenarios developed in response to the drivers of change and the conditions and trends analysis. These scenarios were:

1) The 'rapid economic development' scenario;
2) The 'business as usual' scenario; and
3) The 'environmentally aware scenario'.

The participants were asked to develop storylines on one of these three scenarios in respect to their individual fictional countries, and then to describe how well-being and the drivers affecting change might look over the next 30 years.

Participants reporting back on their scenarios

This exercise aimed to get the participants to consider the future of their countries given one of three possible routes taken by their country. An example from Kifarique is presented in **Figure 8**.

Kifarique Scenario Exercise

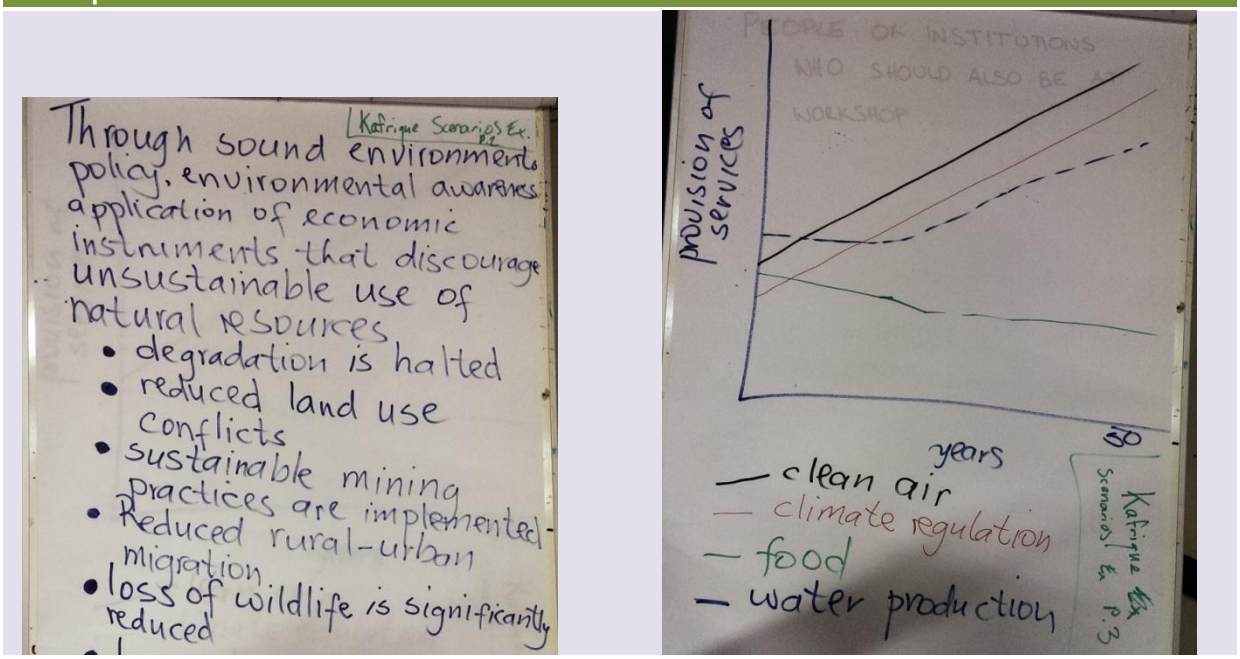


Figure 8. Showing the work of participants from "Kifarique" for Exercise 3.2.

10.4 Ecosystem Assessment Tools

Abisha followed this scenario exercise by giving a presentation on "*Toolsets available to assessment practitioners, and the knowledge gaps which exist within these*". In this presentation, Abisha provided a brief introduction to, and overview of what ecosystem assessment tools are, why and where they are needed, their uses, and some of the tools that are available to assessment practitioners.

This presentation grouped some of the tools that are available into several broad categories:

- **Publications as tools**.
  - Ecosystems and human well-being: a manual for assessment practitioners (Ash *et al.*, 2010);
  - The World Resources Institute's "Ecosystem services: a guide for decision makers"; and
  - Measuring and monitoring ecosystem services at the site scale: introducing a practical toolkit (CCI and Birdlife International, 2011).
  - Note that these reports can be downloaded from: http://www.ecosystemassessments.net/resources/tools-and-publications.htm
- **Mapping/spatial analysis tools**
  - ARIES (ARtificial Intelligence for Ecosystem Services) (http://www.ariesonline.org/)
  - CEV (Corporate Ecosystem Valuation) (http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true)
  - InVEST (Integrated Valuation of Environmental Services and Tradeoffs) (http://www.naturalcapitalproject.org/InVEST.html)

- MIMES (Multiscale Integrated Models of Ecosystem Services) (http://www.ebmtools.org/mimes.html)
- PRESS-PEER (PEER Research on Ecosystem Services) (http://www.peer.eu/projects/press-project/)

- **Methodological tools**
  - Scenarios development and analysis
  - Valuation
  - Conceptual frameworks
  - Indicators and metrics

10.5. Measuring Ecosystem Services: a Guideline for Development

Following the presentation on tools, a talk was given by Dr Patrick O'Farrell (CSIR). The talk focused on a number of topics related to ecosystem assessments, including:

1. Providing some guidelines for the development of rigorous measures to evaluate the status, trends and value of ecosystem services for human well being.

2. Some specific detail regarding the "Co$ting Nature" and "ARIES" tools as examples of existing models of existing ecosystem service models and the potential questions that these models can help answer, and therefore the role that they can play in ecosystem assessments.

Patrick concluded his presentation by asking participants to take part in a survey as part of the WISER (Which Ecosystem Services Models Best Capture the Needs of the Rural Poor) initiative which seeks to investigate stakeholder needs for ecosystem service information in order to guide and inform policy and interventions. Some of the questions asked are shown in **Figure 9**.

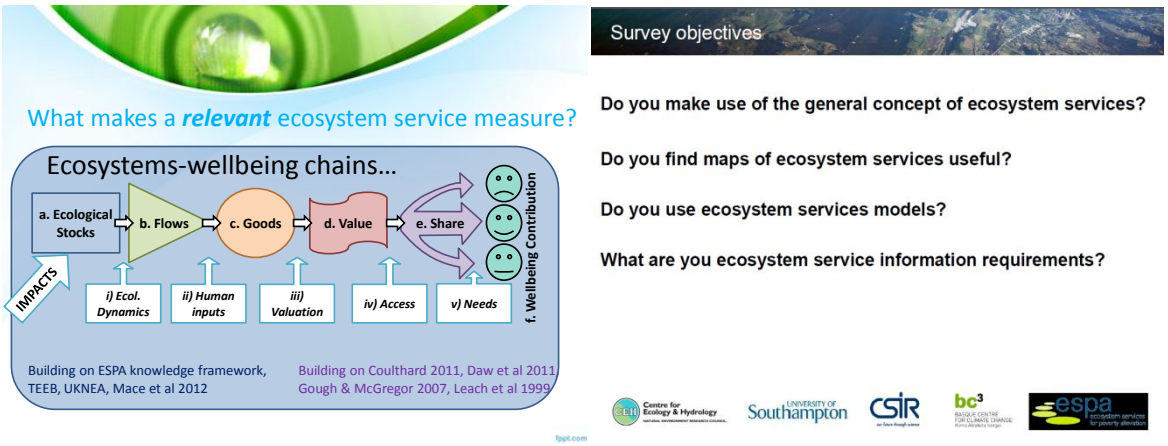


Figure 9. The questions regarding models asked as part of Patricks presentation.

11. Workbook 4: Communication and Outreach

Moving into the afternoon session Mr Max Fancourt (UNEP-WCMC) gave an introduction to the fourth and final workbook which focused on communication and outreach. In the presentation, the importance of effective pinnacle internal communication throughout the assessment process was emphasised in order to facilitate an ecosystem assessment process that provides reliable, policy relevant information that has substantial traction. In terms of external communication and

dissemination of results, success in this element of the assessment process depends on a well thought out Communication Strategy which conveys both the process and the outputs.

11.1. Exercise 4.1. Communications Strategy

This exercise asked the participants, as a group, to the look back to the key questions that they generated early in the workshop, and to consider how they would package the information generated by an ecosystem assessment in order to answer those key questions, and so meet stakeholders needs. An example of how this might be done for the forestry companies was given to help provide guidance (**Figure 10**).

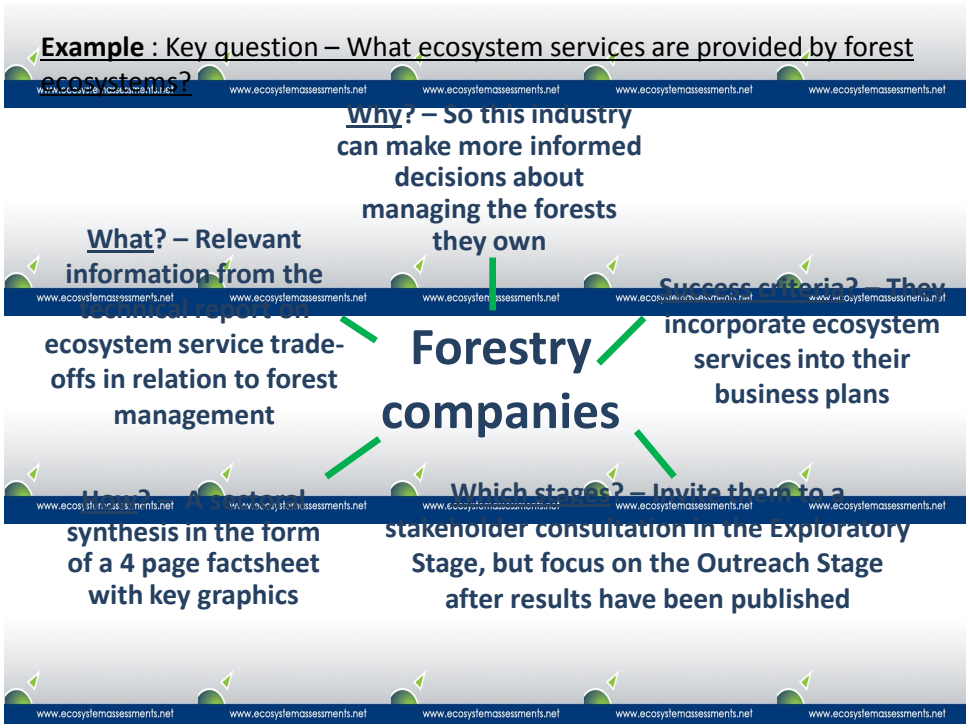


Figure 10. An example of how the information from an ecosystem assessment might be packed to meet specific stakeholders needs.

11.2 Sharing experience: Making the Case for the Biodiversity in South Africa

Mr Mahlodi Tau (SANBI) gave a presentation on the importance of communication when making a business case for biodiversity, based on SANBI's experiences on promoting the concept of 'ecological infrastructure' in South Africa. The presentation stressed the importance of positive messaging and linking that to key policy priorities at national level such as water, food and energy security and disaster risk reduction and management. Mahlodi noted that SANBI's success in pitching the importance of managing, maintaining and restoring ecological infrastructure for water security has gained traction with new audiences such as the National Treasury, Department of Agriculture and municipal engineers in South Africa . This also attracted financial investments for ecological infrastructure (e.g. the uMngeni Ecological Infrastructure Partnership which focuses on water security for Durban through investing in maintaining and restoring EI in greater uMngeni catchment).

Participants discussing aspects of ecosystem assessments.

12. Regional Hub Discussion

Following the talk on communication Luthando Dziba gave a short talk exploring the possibility of starting a southern African regional hub to assist with the sharing of expertise, knowledge and experience between its members and to help build capacity to undertake ecosystem assessments. Four key questions were discussed in plenary. A summary of this discussion is presented in **Table 9**.

Table 9. Key points raised during the discussion on the establishment of a regional hub.

1. Do we need a regional hub?
• A regional hub would be useful, but some important questions that need answering are: where will it sit? and who will run it?
• SANBI as an organisation would benefit a lot from a regional hub, such a hub would allow us to conduct an ecosystem assessment which we don't have the capacity to do alone.
• Starting a hub isn't too difficult, however sustaining a hub is. One of the problems that we face here is that we have to start small, and undertake quite a significant amount of work before approaching SADC. To successfully approach SADC we need to know what the focus of such a hub would be, how people will join, and then look to different institutional mechanisms and structures before make the call for others to join. Therefore we will have to accept that at the start this will be a very small group that will grow as others see the products coming out of the hub.
• To minimise the cost of such a hub and maximise the productivity, the hub should look to identifying already existing hubs and contact them, to ensure that we aren't duplicating effort, to ensure that we can clearly identify the gaps and work together to get the work done.
• Such a hub would have to ensure that it would deal with issues that are common for all the participating countries in order to appeal to them.
• A useful regional hub would also help to build capacity, provide resources, and expertise to allow countries to undertake ecosystem assessments by themselves, or to be able to access the resources to help them undertake one.
• No single country or institution at the moment has all the skills necessary to undertaken an ecosystem assessment, but as a regional hub we would.
2. How are other hubs in the SGA network funded?
• The SGA network will be able to provide a seed pot of money which would be sufficient to get the hub started and to have a workshop on specific topics of interest.
• Strong institutional capacity is required. One of the conditions on joining the network is that you have to start fund raising, but you don't have to do this alone. If you align your objectives with IPBES then there are going to be opportunities available for you, and this could also help the SGA network as a whole.
• Being part of the SGA network, allows you to write a proposal around our hub that can actually get you funding. At the moment many opportunities may arise, but it isn't possible for individuals to write

	a proposal that is competitive enough to win them. As part of a larger network there is the expertise and the resources that mean you can be significantly more competitive by drawing on the networks' expertise.
	• One of the bodies that IPBES is currently setting up is the capacity development body. It is currently open for nominations. Could each of your countries get involved with this?
3.	**What are the next steps?**
	• To organise a follow up workshop to potentially include discussion around the hub, to give more in depth training in some of the topics that we have covered, for example: conceptual framework, use of tools, developing meaningful proposals, training in how to use INVEST, scenarios.
	• Sign up to the SGA Network mailing list to be kept in the loop about activities.
4.	**Who else should have been here?**
	• Participants agreed to forward the names of individuals, organisations and contact details who could be part of the regional Hub.

13. Capacity Assessment Exercise

Before the conclusion of the workshop the self assessment session was repeated in order to assess the effectiveness of the workshop. A comparison of the responses to questions 1 and 4 at the start and end of the workshop provides an indication that the level of understanding and participants' self-confidence in being able to undertake an ecosystem assessment improved greatly (**Figure 11**).

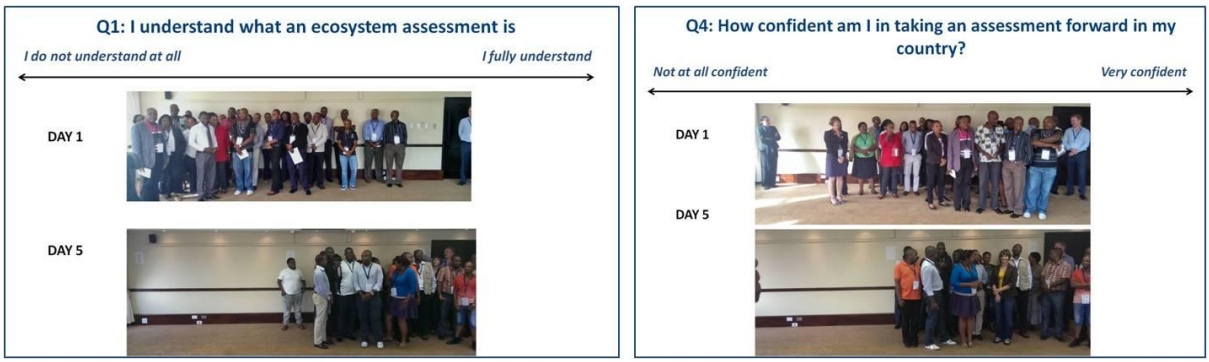


Figure 11. How participants at the SADC workshop assessed their understanding of the ecosystem assessment process at the start and end of the workshop.

Participants were also asked to fill in a questionnaire about the capacity of their country and institution to undertake an ecosystem assessment. While filling out this questionnaire, a few participants were called upon to give their answers to some of the questions; some of which are detailed in **Table 10**.

Table 10. Key points raised during the capacity assessment exercise

Identifying Priority Capacity Needs
In some countries the existing governance structures makes it easier for collaboration as the methods already exist.
Communicating the information which you have collected can be as important as generating it in the first place. Ensuring that the information filters down to the practitioners themselves is a challenge as many of them don't have internet.
Funding is often a significant constraint in undertaking assessments.
In the case of Zimbabwe a limited government environmental budget is a barrier to conducting an ecosystem assessment, however Zimbabwe is a signatory to a number of MEAs, e.g. the UNCCD, obtaining funding on the basis that they would contribute to these international obligations is a possible funding route.
In some countries capacity exists, and so the problem becomes one of trying to mobilise them from the various sectors to work together.
How well does the policy community understand the EA process **How much does the policy community value the EA process**
Overall it seems that the policy community is does not see the value of an ecosystem assessment process, especially between in between conducting Ecosystem Impact Assessments, it is therefore often just seen as being expensive process that adds little value.
How well does the science community understand the EA process **How much does the science community value the EA process**
Understand it yes, but value it no.
More people need to realise that how you conduct an EA can make or break the project
Having a strong scientific foundation to an assessment is crucial for good policies to be made.
For your report to have traction and actually be used it is important to engage stakeholders from an early stage and actually listen to them.
Project Wind Up Comments and Thoughts
How do we work together to ensure that we incorporate indigenous knowledge, and that we are as trans-disciplinary as possible.
ecosystem assessments are successful because they are able to bring together a diverse set of people, so that all stakeholders thoughts are incorporated and acknowledged.

14 Workshop Evaluation

Before leaving, participants were asked to complete an evaluation form to identify where the workshop succeeded, and where improvements could be made. Thirty-four forms were completed. An average score of 8 was given to the question "*How useful was this workshop in developing your capacity to design and implement a national or regional ecosystem assessment, ON A SCALE OF 0-10?"*

Looking at the value of the workshop to the participants, the majority of participants felt that the workshop had increased their knowledge of the ecosystem assessment framework considerably, and that they now better understood the value of undertaking such a process and the role that they can play in supporting national priorities and objectives. Many participants also noted that having completed this workshop they would now be very likely to actively promote the use of ecosystem assessments in their work.

The scores and comments from each participant have been carefully evaluated so as to inform the preparations for future 'Capacity Building for ecosystem assessment' workshops.

15. Conclusions and Next Steps

To wrap-up the workshop Megan began by reiterating the primary objectives of the workshop and by outlining some of the expectations put forward from participants at the workshop outset. She impressed upon participants that ecosystem assessments are a social process and that no one size fits all as different countries have different social, economic and environmental contexts and that there are different purposes for undertaking assessment. Megan emphasised the importance of making assessment policy relevant was reemphasised so is the need to make the scope of the assessment achievable within resource constraints. She also stressed the important of making the ecosystem assessment as transparent, flexible and adaptable as possible. Wide engagement of stakeholders at the early stages and throughout the process and a communication strategy both internal and external is crucial.

In terms of setting up a southern African regional hub and next steps, all the participating countries welcomed the idea of establishing a regional hub and the possibility of undertaking a regional ecosystem assessment. Participants pointed out that they would welcome an opportunity to meet up again and discuss next steps on the Hub and further training courses on the issues that were covered during the workshop including more attention on scenarios, working through detailed case studies or even providing data for participants to use in an exercise – to give a flavour of what implementation of an ecosystem assessment actually involves. The SGA Network Secretariat indicated that there could be potential funds available to support a workshop involving members of the proposed regional hub.

Annex 1. Participants List

Title	Name	Country	Organisation	Position	Email Address
Dr	Abel Ramoelo	South Africa	CSIR	Senior Research: Earth Observation	ARamoelo@csir.co.za
Mr	Abias Huongo	Angola	National Department of Environment, Angola	National Director of Environment	huongoam@hotmail.com
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Mr	Mahlodi Tau	South Africa	SANBI	Grasslands Programme Officer	M.Tau@sanbi.org.za
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				Africa	
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Mr	Max Fancourt	UK	UNEP-World Conservation Monitoring Centre	Assistant Programme Officer	Max.Fancourt@unep-wcmc.org
Mr	Abisha Mapendembe	UK	UNEP-World Conservation Monitoring Centre	Assistant Programme Officer	Abisha.Mapendembe@unep-wcmc.org
Dr	Will Banham	UK	UNEP-World Conservation Monitoring Centre	Head of Capacity Development	Will.Banham@unep-wcmc.org

Annex 2. Workshop Agenda

Day 1 (3rd February): Introduction to Ecosystem Assessments

Time	Session	Facilitation	Format
14:00	Participants registration	-	-
	Opening Session		
14:30	1. Opening address (***Mr Fundi Mketeni,*** *Deputy Director General, Department of Environmental Affairs, South Africa*)	Department of Environmental Affairs	Plenary
15:00	2. Welcome & introductions	WCMC / CSIR / UNEP	Plenary
15:20	3. Self assessment	WCMC	Plenary
15:40	4. Expectations of participants	WCMC	Plenary
16:00	5. Overview & objectives	WCMC	Plenary
16:10	6. Introduction to 'running of the workshop'	WCMC	Plenary
16:20	***Tea/Coffee break***		
	Setting the Scene		
16:30	7. Introduction	WCMC	Plenary
16:40	8. Setting the assessment landscape (regional and global) (***Dr Cecelia Njenga,*** *UNEP Regional Office for Africa*) (TBC)	National Research Foundation	Plenary
17:10	9. Introduction to IPBES (***Dr Luthando Dziba****, CSIR*)	CSIR	Plenary
17:40	10. Introduction to other MEAs and the SGA Network (***Ms Keisha Garcia****, Sub-Global Assessment Network secretariat*)	SGA Network	Plenary
	Introduction to Ecosystem Assessments		
18:10	11. Exercise: What is an ecosystem assessment	WCMC	Break-out
18:40	12. Report back (market place)	WCMC	Discussion

Time	Session	Facilitation	Format
19:00	**Close**		

Day 2 (4th February): Ecosystem Assessment Framework – Exploratory & Design Stages

Time	Session	Facilitation	Format
08:30	1. Review of Day 1 and agree Agenda for Day 2		
08:40	2. The ecosystem assessment framework	WCMC	Plenary
	The Exploratory Stage		
09:10	3. Exercise 1.1: Country fact file; Scope and context	WCMC	Plenary
09:20	4. Break-out in working groups	WCMC	Break-out
09:50	5. Report back	WCMC	Discussion
10:10	6. Exercise 1.2: Exploring stakeholder needs	WCMC	Plenary
10:20	7. Break-out in working groups	WCMC	Break-out
10:50	8. Report back	WCMC	Discussion
11:10	***Tea/Coffee break***		
11:30	9. Exercise 1.3: Selling the assessment concept	WCMC	Plenary
11:40	10. Break-out in working groups	WCMC	Break-out
12:00	11. Report back	WCMC	Discussion
12:20	12. Exercise 1.5: Key questions	WCMC	Plenary
12:30	13. Break-out in working groups	WCMC	Break-out
13:00	***Lunch***		
14:00	14. Report back	WCMC	Discussion
14:30	15. Exercise 1.6: Draft assessment plan	WCMC	Plenary

Time	Session	Facilitation	Format
14:40	16. Break-out in working groups	WCMC	Break-out
15:10	17. Report back	WCMC	Discussion
15.30	***Tea/Coffee break***		
	The Design Stage		
15:50	18. South Africa's approach to ecosystem assessments based on the National Biodiversity Assessment and lessons learnt (***Ms Fahiema Daniels****, SANBI*)	SANBI	Plenary
16:20	19. Group discussion	SANBI / WCMC	Discussion
16:40	20. Exercise 2.1: Governance structure	WCMC	Plenary
16:50	21. Break-out in working groups	WCMC	Break-out
17:30	22. Report back	WCMC	Discussion
18:00	***Close***		

Day 3 (5th February): Ecosystem Assessment Framework – Design Stage

Time	Session	Facilitation	Format
08:30	1. Review of Day 2 and agree Agenda for Day 3	WCMC	Plenary
	The Design Stage - continued		
08:40	2. Exercise 2.3 and 2.4: Exploring conceptual frameworks and linkages between ecosystem services and human well-being	WCMC	Plenary
09:00	3. Break-out in working groups	WCMC	Break-out
11.10	***Tea/Coffee break***		
11:20	4. Report back	WCMC	Discussion
11:50	5. Exercise 2.5: Designing the conceptual framework	WCMC	Plenary
12:00	6. Break-out in working groups	WCMC	Break-out

Time	Session	Facilitation	Format
12:35	7. Report back (market place)	WCMC	Discussion
13:00	***Lunch***		
14:00	8. Stakeholder-driven design of assessments and implementation (***Dr Jeanne Nel****, CSIR*)	CSIR	Plenary / Discussion
	The Implementation Stage		
15:00	9. Exercise 3.1: Drivers of change and trade-offs	WCMC	Plenary
15:10	10. Break-out in working groups	WCMC	Break-out
15:45	***Tea/Coffee break***		
16:05	11. Report back	WCMC	Discussion
16:35	12. Exercise 3.2: Scenario development	WCMC	Plenary
16:45	13. Break-out in working groups	WCMC	Break-out
17:30	14. Report back	WCMC	Discussion
18:00	***Close (19:30 Workshop dinner – Braai)***		

Day 4 (6th February): Ecosystem Assessment Framework –Tools & Communication

Time	Session	Facilitation	Format
08:30	1. Review of Day 3 and agree Agenda for Day 4	WCMC	Plenary
	Ecosystem Assessment Tools		
08:40	2. Ecosystem Assessment Tools Introduction	WCMC	Plenary
09:00	3. Ecosystem Assessment Tools – Modelling (***Dr Patrick O'Farrell****, CSIR*)	CSIR / SwedBio	Plenary
09:30	4. Group discussion	CSIR / SwedBio	Discussion
	Communication and Outreach		

Time	Session	Facilitation	Format
10:00	1. 'Making the case' – communications strategy for ecosystem services under ProEcoServ (***Mr Mahlodi Tau**, SANBI*)	SANBI	Plenary
10:45	2. Group discussion	SANBI / WCMC	Discussion
11.00	***Tea/Coffee break***		
11:30	3. Exercise 4.1: Communicating to target audiences	WCMC	Plenary
11:40	4. Break-out in working groups	WCMC	Break-out
12:30	5. Report back	WCMC	Discussion
13:00	***Lunch***		
	Capacity needs		
14:00	6. Self Assessment	WCMC	Plenary
14:30	7. Identifying priority needs (***Dr Luthando Dziba**, CSIR*)	CSIR	Survey / Discussion
15:10	8. Regional support network (***Ms Keisha Garcia**, SGA Network secretariat*)	SGA Network	Plenary / Discussion
15.30	***Tea/Coffee break***		
	Next Steps		
15:45	9. Discussion: Where to from here?	WCMC / CSIR / SANBI / UNEP	Plenary
	What would a SADC assessment look like?		
	How would an assessment network for the region be set up?		
	What might the key questions for the region look like?		
	What would the key capacity needs for the region be?		

Time	Session	Facilitation	Format
17:00	10. Evaluation	WCMC	Individual
17:20	11. Thanks and conclusion of workshop	WCMC / CSIR / UNEP	Plenary
17:20	12. Closing remarks	SANBI	Plenary
17:30	***Workshop Closes***		