



G.R.A.C.E

GUIDANCE FOR THE **RAPID ASSESSMENT** OF **CULTURAL ECOSYSTEM** SERVICES

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VERSION 1

PREFACE

Cultural ecosystem services (CES) and the benefits they provide have long been overlooked in decision making, yet they contribute greatly to human wellbeing.

GRACE has been developed to help decision makers to recognise and understand cultural ecosystem services and benefits, and to take these into account in their decisions about how to use and manage nature.

GRACE is primarily aimed at conservation and development NGOs working with communities, but should also prove useful to government agencies and businesses. It is a guide for those wanting to know what aspects of nature people value, how these contribute to their wellbeing, and how changes to ecosystems might affect the delivery of these services and wellbeing derived from them.

GRACE is based on years of collective experience, incorporates ideas and practices from the field and literature, and has been written as a simple practical guide for field practitioners.

We hope that GRACE will be useful wherever a relatively rapid and reliable assessment of CES is needed and will help improve decision-making processes.

About Fauna & Flora International www.fauna-flora.org

Fauna & Flora International (FFI) is a biodiversity conservation organisation working in more than 40 countries around the globe, mostly in the developing world. Our vision is a sustainable future for the planet, where biodiversity is effectively conserved by the people who live closest to it, supported by the global community. Founded in 1903, FFI is the world's longest established international conservation body and a registered charity.

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INTRODUCTION

Cultural ecosystem services (CES) and the benefits they provide have long been overlooked in decision making despite their fundamental contributions to human wellbeing. While they are complex and can be difficult to describe and to measure, it is widely acknowledged that CES are as important as other types of ecosystem services (ES), and need to be better incorporated in decision making.¹

GRACE - Guidance for the Rapid Assessment of Cultural Ecosystem services - has been developed to support conservation and development practitioners, as well as businesses, government and communities, to recognise and understand cultural ecosystem services, to undertake rapid assessment of these services in the field, and to communicate information on CES so that decision makers can take account of them.

In this chapter we provide an introduction to GRACE. We briefly describe the ecosystem services approach within which GRACE is rooted, we explain what we mean by cultural ecosystem services and why it is important to include them in decision-making processes, how GRACE can support this, the main stages involved in applying GRACE and its caveats and limitations.

Context – ecosystem services and the ecosystem services approach

The widespread degradation of biodiversity and ecosystems is, alongside climate change, accepted today as one of the greatest challenges facing humankind.

Ecosystems provide a vast array of services that contribute to making human life both possible and worth living.² To name just a few, these include: the provision of food, fibres, and medicines; the regulation of floods, storm damage and climate; and the provision of spaces for recreation, inspiration and spiritual connections. These outputs of ecosystems which provide benefits to people are called *ecosystem services*.³ Changes in ecosystems and the way they function cause changes in the delivery of these services with significant consequences for human wellbeing.

The ecosystem services approach was developed to improve understanding on how ecosystems contribute to human wellbeing so that better decisions can be made about how nature is managed and used. Incorporating information on the provision and distribution of benefits from ecosystems into decision making can enable more informed and fairer decisions, leading to more sustainable and equitable outcomes for society. Importantly, the concept of 'ecosystem services' is focused on valuing the benefits of nature *to humans*. Nature is considered by many to be important in its own right, independent of human interests; however these 'intrinsic values' are not generally considered within ES assessments.

Four categories of ecosystem services are generally recognised - provisioning, regulating and cultural services, and, a fourth, supporting services, which underpin delivery of the others. These services, often combined with human inputs (e.g. labour, equipment or capital

¹ Daniel et al. (2012); Dudley & Coates (2014).

² UK National Ecosystem Assessment - concepts: <http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx> .

³ Mace et al. (2011).

as well as interests and perspectives), deliver “benefits” (i.e. good things⁴) that contribute towards or are essential for human wellbeing.⁵

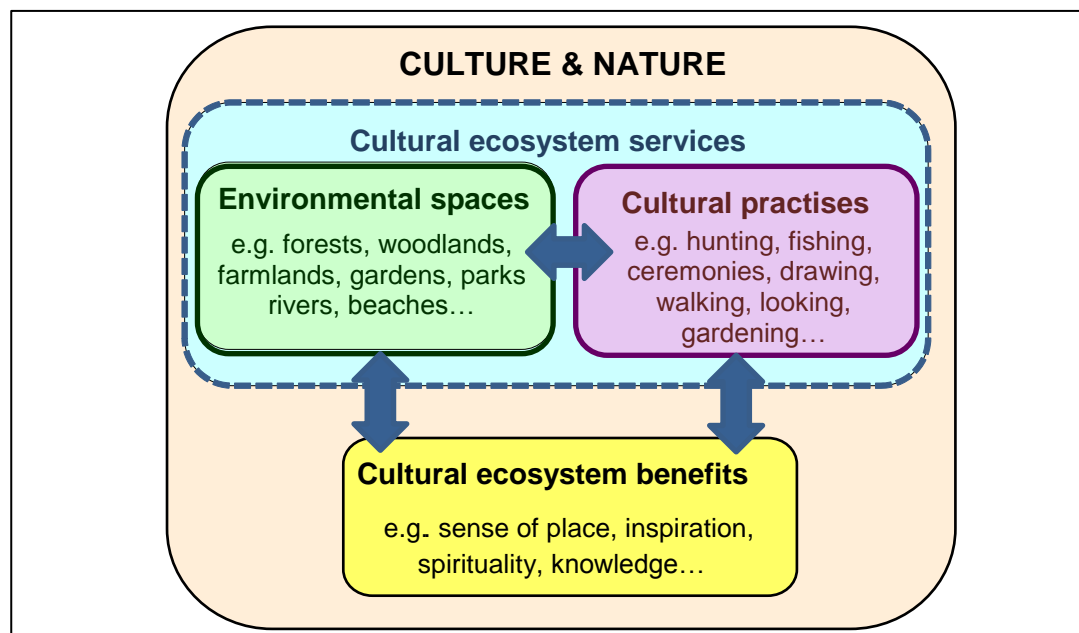
ES assessments are typically focused on investigating, within a particular location, what ecosystem services are provided, who benefits from these services, and how change – man-made or natural – might affect the delivery of these services. However, the cultural services provided by ecosystems continue to be underemphasised in many ES assessments and decisions as they are often considered complex and difficult to measure.

What are cultural ecosystem services?

“Culture” is hard to define. It relates to almost every aspect of what it is to be human, including our spiritual, material and emotional lives, and the traditions, languages, values and aspirations of our societies.

Culture determines what individuals and groups consider to be valuable, desirable, beautiful, proper, good or bad.⁶ All of which influence people’s interactions with the natural world, what they consider to be important about it or value in it⁷, and, in turn, how they use and conserve it. Cultural ecosystem services, like other ES, are shaped and influenced by these perspectives and values.

Figure 1: Culture, CES and benefits



Adapted from Church et al. (2014)

⁴ Bateman et al. (2011); Mace et al. (2011).

⁵ ‘Services’, ‘goods’ and ‘benefits’ interact in complex and contested ways to contribute towards human wellbeing. For simplicity, in GRACE we use ‘benefits’ for both goods and benefits generated by ecosystems. Depending on what you find at your site, you may find it useful or necessary to distinguish between them in your assessment.

⁶ Elwell (2013).

⁷ In the context of GRACE and CES assessment, ‘values’ refers to the cultural perspectives, understandings and beliefs that give importance to an aspect or product of nature that individuals or societies recognise as a benefit and hold to be important.

There are numerous definitions of CES. In GRACE we consider CES to encompass the environmental spaces⁸ (e.g. forests, deserts, seascapes, farmlands, gardens,) and cultural practices (e.g. creating and expressing, producing and caring, playing and praying) that together give rise to the experience of valued material and non-material benefits⁹ (see Figure 1). Such benefits include, amongst others, spiritual enrichment, recreation and aesthetic experiences, creative inspiration, and a sense of place and connectedness. CES assessment is focused on understanding these benefits and how changes in ecosystems or in culture might affect the delivery and experience of these benefits and their contributions to human wellbeing.

Examples of the types of CES benefit that GRACE can help you explore are listed in Table 1. This list is not exhaustive and is intended as a guide only.¹⁰ It is important to understand that *specific* environmental spaces and cultural practises as well as *individual* and *collective* values and beliefs shape CES benefits, so the examples given cannot cover all those that individuals or communities might experience.

Table 1: Examples of CES benefits and possible impacts of change

CES benefits	Description	Examples in the context of change
Spiritual and religious	Many religions attach spiritual and religious values to nature. Spiritual and religious benefits are derived from specific places, features, species and practices such as sites for rituals and ceremonies, shrines, cemeteries and sacred forests, rules and taboos, totems and symbols, links to ancestors, gods or spirit worlds	Forests where ancestors are buried and funerals take place have sacred, spiritual and religious significance. Removal of forest by commercial agriculture, or restriction of access by protected areas, can destroy or reduce these benefits.
Education and ecological knowledge	Nature provides opportunities for formal and informal learning and cognitive development. Engaging with nature creates ecological knowledge allowing for sustainable management and personal enrichment through direct and indirect experience of nature and intergenerational knowledge exchange.	Elders teach the next generation how to fish, farm and hunt based on their knowledge of nature. New technology, such as pesticides and changing farming practices, can make this knowledge redundant, threatening retention of knowledge and practices for resource management.
Cultural heritage, sense of place and identity	Historically important landscapes, places or species are valued; they may connect people to ancestors, practices and beliefs and evoke memories. People may derive a sense of belonging to place and time from features in nature, which can contribute to the human need for individual and collective identity.	An ancient tree reminds people of ancestors who have sat beneath it; its unique features make it a landmark and symbolise 'home'. Unsustainable charcoal burning to meet urban demand can lead to deforestation including loss of these special trees.

⁸ By *environmental spaces* we mean places where people interact with the natural environment (Church et al. 2014). This includes for example, wilderness areas, semi-managed areas, national parks, domestic gardens, farmland, urban greenspaces, beaches, etc.

⁹ Church et al. (2014).

¹⁰ Classifying CES as part of an assessment process may be valuable but GRACE does not provide pre-defined groupings as a potentially infinite number of benefits may arise from interactions between actual cultural practices and the environmental spaces found at assessment sites.

CES benefits	Description	Examples in the context of change
Aesthetic	Benefits derived from feeling, seeing, hearing, smelling and touching nature. Pleasure may be associated with the 'beauty' of an ecosystem, a concept that differs greatly between cultures but is often highly valued.	Dense, green forests are valued for their aesthetic beauty by local communities. Deforestation can leave large areas of land bare and less attractive.
Social and community relations	Nature influences and is often the setting for social relations and activities. Nature provides places for groups and institutions to gather and opportunities for communal activities, such as harvesting of food, contributing to the cohesion, identity and collective wellbeing of a community.	The annual flooding and drying of wetlands concentrates fish in pools that are communally fished under traditional rules about who participates, when and how. Dam construction can prevent flooding, ending the practice and institution.
Mental and physical health	Nature contributes a range of health benefits, by providing places for physical exercise and opportunities to view, imagine, and be inspired by nature. This can be calming and improve emotional, mental and physical health. Attractive and diverse ecosystems promote more activity than unattractive and simplified ecosystems.	Spending time in nature reinforces cultural ties to the land, increasing self-esteem and emotional wellbeing. A degraded and unfamiliar landscape may result in less time being spent outdoors, reducing physical and mental health, and lessening ties to the environment and the desire to protect it.
Recreation and tourism	Nature provides opportunities for recreational activities enjoyed by local people and tourists. Many choose to spend free time relaxing, socialising, wildlife spotting, seeking inspiration, playing sports and exercising based on the characteristics of ecosystems and landscapes.	Local people and tourists may use a lake for swimming and bird watching. Nearby industrial developments may expand to the lake edge and increase pollution, making swimming unsafe and depleting bird populations.
Inspiration	Nature inspires art, poetry, design, folklore, music, architecture, and advertising. Inspiration gives rise to feelings of enrichment, enlightenment and reflection.	A flower is incorporated into traditional weavings and has become a national emblem. It becomes extinct, and the ancient designs are soon lost.
Existence values	Benefits derived from the sense of satisfaction and enjoyment gained from the knowledge that nature, including specific plants and animals, exists irrespective of any personal experience of them or plans to visit them.	People derive joy from knowing that tigers exist in the wild, and they feel a sense of loss at news of the steady decline of tigers in the wild
Bequest values	Benefits derived from the sense of satisfaction and enjoyment gained from the knowledge that nature is preserved for the experience, use and enjoyment of future generations.	People are happy knowing an area of forest is protected for the next generation to enjoy and are dismayed on behalf of their grandchildren at its loss.

Adapted from: Church et al. (2011); Daniel et al. (2012); de Groot & Ramakrishnan (2005); de Groot (2011); MA (2003); SEQ Ecosystem Services Framework; and authors own work.

CES benefits are often closely linked, may overlap, and may be produced or experienced bundled together, making it difficult to assess them separately (see Stage 2). Consequently, in practice it is impossible to put hard boundaries around different CES or even to separate

them from other ES such as provisioning services. This makes the process of assessing CES challenging, and makes open and flexible participatory and discursive approaches the most useful ways for exploring them.

Why is it important to assess cultural ecosystem services?

There are good reasons for ensuring CES are considered in decision-making processes.

- **CES are integral to human wellbeing**

Human wellbeing - being comfortable, healthy and happy - depends on many things.¹¹ Though not always recognised, the benefits provided by well-functioning ecosystems are critical to our wellbeing in all sorts of ways. Individuals, groups and communities attach spiritual, aesthetic, religious and other values to nature; nature provides spaces for worship, ceremonies, recreation and inspiration; relationships with nature give meaning to personal and community identity, providing a sense of belonging and helping to build social cohesion and resilience. This is especially so for people living close to nature who tend to be most directly affected by decisions that affect the natural environment and thus ecosystems services. Understanding the connections between people and nature is essential for a full understanding of the benefits nature provides to humanity so that decisions can be equitable for society as a whole.

- **CES are often unique and irreplaceable**

CES are unique to their location and valued in ways that are specific to individuals, communities, and cultures. This means many CES cannot be recreated elsewhere or replaced with substitutes if lost. For example, a sacred forest that links a people to their gods or a community's sense of place cannot be compensated for or replaced by technological means. The loss of certain CES can lead to social disruption and the loss of cultural institutions, reducing a community's ability to respond to change, stalling socio-economic development.

- **CES benefits can be extremely significant**

For some people, cultural services and the benefits associated with them can be extremely significant, especially when shared with others, and can dominate economic or ecological values. For example, the spiritual values of sites in northern Australia were considered so important by local people that they decided to protect the land, giving up earnings of AUD\$750 million, rather than allowing it to be mined.¹²

- **Ignoring CES can have costly repercussions**

Ignoring CES and the benefits they provide can have costly repercussions, as the UK Government discovered in 2011. Their decision to sell 258,000 ha of state-owned woodland was motivated by economic arguments, but they failed to consider the benefits these woodlands provided to the public and how they would view the loss. Amidst widespread criticism and following protests by over half a million people, the government was forced to abandon plans to sell them, making a policy u-turn that could have been avoided with more careful assessment of the benefits provided by the woodlands.¹³

¹¹ Wellbeing is increasingly used to understand and assess the state of communities. For a government position on "measuring what matters" see www.ons.gov.uk/ons/guide-method/user-guidance/well-being/index.html. Whilst there is no standard definition it is commonly recognised that there are 3 dimensions of wellbeing – material, relational and subjective. See White (2009) and other papers available here - <http://www.welldev.org.uk/wed-new/workingpapers/index.html>

¹² Verschuuren (2007).

¹³ For more information see: www.bbc.co.uk/news/science-environment-21275432

- **Incorporating CES into decisions can strengthen community support**

Understanding the significance of CES benefits can help decision-makers avoid and mitigate negative impacts on both ecosystems and their benefits, influencing community perceptions towards policy, planning and management decisions and potentially strengthening support for them. For example, research in South Africa and Australia has shown that communities hold positive attitudes towards their local protected areas where culturally important species and landscapes are protected.¹⁴ Ensuring such benefits are understood and incorporated into management decisions can provide an important entry point for community engagement and building support.¹⁵

- **CES assessment can help to empower people**

When conducted in a participatory way, CES assessment can strengthen community institutions and be empowering for local participants, helping them to analyse their own situations and how decisions may affect them, including possible problems, opportunities and responses.

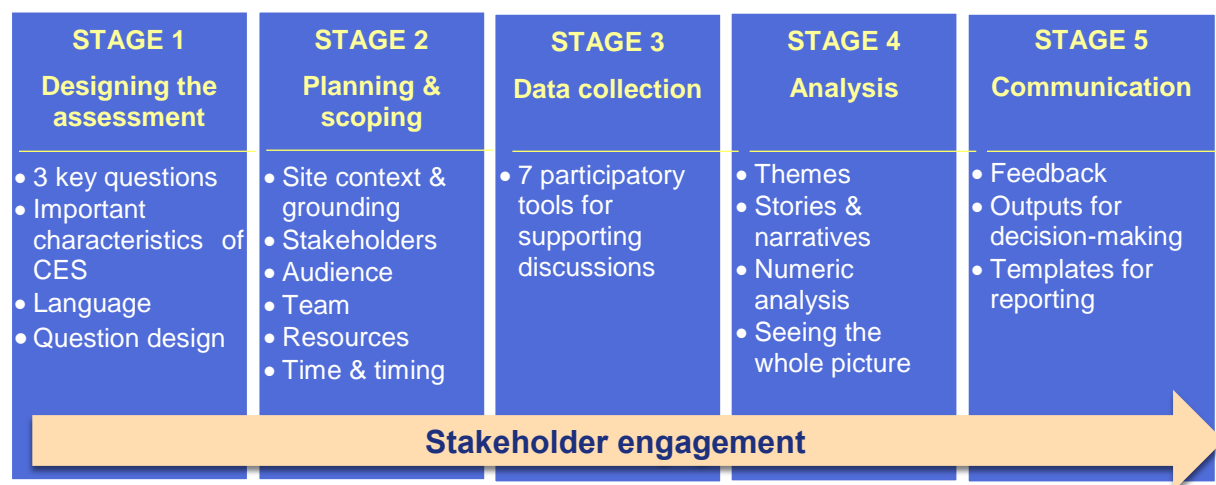
What is GRACE?

GRACE offers guidance suitable for non-experts for assessing CES and communicating their benefits so they can be recognised in decisions. There are five important stages involved in applying GRACE, all of which are underpinned by stakeholder engagement (see Figure 2).

- **Stage 1** allows practitioners to become familiar with important considerations in designing and undertaking a CES assessment. It introduces the three key questions that CES assessments typically aim to address, and considers some of the special characteristics of CES which need to be factored into assessments.
- **Stage 2** focuses on the practical aspects of planning a CES assessment and provides guidance on deciding on the scope of your assessment, stakeholder engagement, team formation and resources.
- **Stage 3** is the main data collection phase. GRACE provides a suite of participatory tools designed to facilitate discussion and help you analyse relationships between people and nature, how nature contributes to wellbeing, and how benefits may be affected by changes in land use, policies, practices and other external drivers of change. Seven tools are described and though emphasis is placed on the discussion that the tools facilitate, rather than the outputs the tools can generate, some 'real-life' examples are included to show the kinds of outputs generated. GRACE does not advise on which tools to use in what combination or indeed whether you may decide to look for others. This is left to your judgement to be determined by your needs, interests, resources and the nature of the site.
- **Stage 4** provides guidance on the analysis of your data including stories and narratives, identifying themes, and seeing the whole picture.
- **Stage 5** provides guidance for the communication of your findings to decision makers and other interested parties.

¹⁴ Strickland-Munro (2013).

¹⁵ Daniel et al. (2012).

Figure 2: Achieving GRACE in 5 steps

Why use GRACE?

The complex nature of culture means that the nature of cultural ecosystem services and benefits will also be difficult to assess. GRACE is expected to be useful wherever a relatively rapid and reliable assessment of CES is needed, where expertise in ES assessment is limited, and when time and financial resources are in short supply. It is designed to be:

- **Practical and suitable for non-experts**

Despite on-going research, most approaches to the assessment of CES are complex and difficult to use. GRACE provides practical guidance suitable for practitioners who are not experts in CES or ES assessment. It is primarily aimed at conservation and development NGOs working with communities, as well as government agencies and businesses. Experience in participatory processes and skills in facilitating group discussions will be advantageous; though experience may be gained through trialling, testing and practising prior to the assessment.

- **Flexible and participatory**

GRACE is a guide rather than a toolkit. Because CES are space, culture and people-specific it emphasises the importance of assessing CES in flexible, open and inclusive ways. It provides a suite of participatory tools well suited to exploring the complex dimensions of CES benefits, and to working in rural communities in low-income countries. These are the contexts in which many conservation and development organisations work, where natural resources are often communally owned or managed and form the basis of livelihood and cultural activities. GRACE fully recognises the importance of stakeholder engagement and participation throughout the assessment process.

- **Rapid**

GRACE takes a rapid appraisal approach because ecosystems are often subject to rapid, unplanned and poorly considered change. Information required to inform and improve decisions is needed quickly in such circumstances, while the resources available for assessments are often limited. A basic rapid assessment - preparatory grounding at the site, planning the assessment, forming the team, using the tools, analysing the information and communicating the findings - will take at least 3-6 weeks. You may require more time depending on your familiarity with the site, the number and

size of the communities you are working with, the complexity of the CES you are assessing, the depth you wish to explore them, and the tools you decide to use.

- **Non-monetary assessment**

Some CES benefits are relatively straightforward to identify, describe and quantify, and their contribution to wellbeing can be assessed in monetary terms, for example the benefits of recreation.¹⁶ Others, however, are more complex and not easily or best expressed in economic terms.¹⁷ GRACE is aimed at such CES that require other ways of indicating their importance if they are to be incorporated into decision making.

- **Complementary**

GRACE draws on a range of resources for ecosystem service assessment (including TESSA - Toolkit for Ecosystem Service Site-based Assessment¹⁸) and seeks to complement these by providing pragmatic guidance on assessing cultural ecosystem services.

Caveats and limitations

The implementation of a relatively quick and simple CES assessment requires that some complex questions be put aside. Culture is so all embracing that it is likely that not all values or benefits can be included. Caveats and limitations associated with GRACE include:

- Culture, associated values and their connections to ecosystems and nature are complex and can be hard to describe, define or even think about, presenting challenges for their assessment
- It is not clear just how quick a rapid assessment of CES can be and still give meaningful results that can support decision making.
- GRACE has been field tested in Bali, Indonesia¹⁹ and whilst this provided useful insights, it has not been tested in most contexts.
- GRACE provides only a brief overview on preliminary planning and scoping and on developing scenarios, since these are well covered elsewhere in the ES assessment literature.²⁰
- GRACE does not include guidance on assessing CES in monetary terms.
- GRACE recommends but does not provide guidance on integrating CES assessment into broader ES assessments, which are beyond the remit of this work

¹⁶ Tools already exist to guide practitioners through the assessment of recreation and tourism benefits, see for example, TESSA: <http://tessa.tools/>.

¹⁷ For example, the sense of place and belonging that an old man experiences when looking over the river where he has fished his whole life, or the spiritual values associated with a sacred grove, may not be easily or adequately translated into a sum of money.

¹⁸ Peh et al. (2013).

¹⁹ The University of Indonesia was contracted to field test GRACE to assess the cultural services provided to local communities by the Subak rice terrace landscape of the island of Bali, Indonesia.

²⁰ For example, TESSA - <http://tessa.tools/> - or InVEST - www.naturalcapitalproject.org/InVEST.html.

In summary:

- *Ecosystem services (ES)* are the outputs of ecosystems which contribute to making human life possible and worth living. There are 4 main types.
- *Cultural ecosystem services (CES)* are the environmental spaces and cultural practices that together provide a range of material and non-material benefits. For example, recreation, spiritual enrichment, and a sense of place.
- CES are *people and context-specific* and can be unique to a particular site, person, community or culture.
- There are many important reasons for ensuring CES are included in decision-making.
- GRACE offers a 5 stage process for assessing CES.

STAGE 1: Designing the assessment

This chapter highlights key issues that you should consider as you design the CES assessment.

1.1 The 3 key questions to inform decision-making

In general, CES assessment – as with ES assessment - is concerned with addressing 3 key questions in order to inform decisions about how we use and manage nature (see Box 1). These questions are central to GRACE and should be central to your assessment; refer back to them frequently to ensure that your assessment remains focussed.

Box 1: 'The 3 Key Questions'

'THE 3 KEY QUESTIONS'

- 1) What **aspects of nature** do people benefit from?
- 2) How do these **contribute to wellbeing**, and **to whose**?
- 3) And, how might **changes** affect the delivery of these services and the wellbeing derived from them?

1) What aspects of nature do people benefit from?

Benefits may be attributed to specific environmental spaces because they provide the opportunity for particular activities to take place (for example, recreational activities, religious inspiration, ceremonies, traditional practices, group activities, educational activities) or because they are associated with certain feelings (for example, providing a sense of place, or memories tied to the landscape) or because of the presence of particular species or features (for example, that are used in cultural ceremonies, considered beautiful, or inspire art). A key element of the assessment process is to identify what cultural ecosystem services occur in the assessment area and, as far as possible, where in the landscape they occur. (It can also be useful to understand why certain environmental spaces are not considered important.) However, it is important to note that it may sometimes be difficult for people to attribute their cultural benefits to a particular place, especially for the more complex benefits, such as identity, cultural heritage, and some values which may transcend the landscape.

2) How do these contribute to wellbeing and to whose?

Understanding how different environmental spaces and practises are valued – i.e. why they contribute to an individual, groups or communities wellbeing - is an essential part of the assessment. It may be possible to gain a basic indication of importance in terms of the number of people involved in cultural activities and the number of people attaching particular cultural significance to different areas. But, for a deeper understanding, it will be important to explore the reasons why particular environmental spaces or species are important. In what ways are they beneficial to individual or community wellbeing? How do they contribute to life? What meaning do they have for people? How important are they? Exploring the 'irreplaceability' and 'substitutability' of a CES can be useful and provide valuable information about the nature of the benefit.

It is also important to consider to whom these services are important, paying attention to sub-groups within the community (or beyond) and any differences between these groups.

This enables decision-makers to avoid policy decisions that may have inequitable impacts or further marginalise vulnerable groups and/or to ensure any compensation mechanisms are appropriately designed.

3) How might changes affect the delivery of these services and the wellbeing derived from them?

To make effective decisions, land use managers, policy makers, and community members require information on the consequences of alternative courses of action so the best option can be chosen. The expected impacts of change on services and wellbeing must be understood. When changing the use or management of ecosystems some level of trade-off between services is inevitable. These can be complex and occur between ES and CES and between different CES. Box 2 provides some examples.

Box 2: Trade-offs

Examples of trade-offs

- The conversion of forest to farmland may provide more food, biofuel or cotton for local farmers, but the loss of forest cover may also reduce the regulation of water flow, meaning more floods downstream, affecting the agricultural production of farms located further away.
- Decisions to increase timber logging may result in a reduction in wildlife, reducing the availability of protein for a community dependent on subsistence hunting; reducing local interest in culturally motivated hunting, which may play an important role in maintaining cultural identity; and negatively impacting on tourism.
- The damming of a river to provide water to irrigate farmland may cause local extinctions of crocodiles considered sacred by local communities. The loss of sacred crocodiles may cause an ancient religion to weaken, which may reduce community cohesion resulting in more conflicts, lowered productivity, and reduced ability to respond to change and opportunities. Traditional values, practices and institutions that influenced the use and management of land and resources may weaken, causing practices that increase soil erosion, reducing the lifespan of the dam.

Asking how a proposed change is expected to impact on different groups' use, experience and enjoyment of nature will help you to better understand the implications of decisions. The potential impacts can be explored by investigating perceptions of trends in services over time, and through the development and investigation of plausible future scenarios.

Trends in CES, and in cultural values, can be explored by investigating perceptions of how ecosystems and the benefits derived from them have changed over time (for example, the past 5 to 10 or more years). How do people expect CES to be in the future (for example, the next 5 to 10 years)? Asking people what they think the impact of possible changes or decisions might be and the ways they and their community might be affected can provide useful information for decision makers.

Change can also be explored through scenarios. A scenario is an imagined sequence of plausible events or an imagined set of plausible circumstances. Asking people to think about how they, or others, might respond to a plausible scenario of how a site may change in the future if current trends continue or proposed policies are implemented can help decision

makers understand the possible implications of their decisions. Importantly, the use of scenarios allows responses to *specific changes* to be investigated. You can ask different groups to consider the *same scenario* and *compare their responses*. For example, if a government plans to establish a new protected area, the impacts of this change can be explored by asking communities to consider future scenarios with the protected area and without it based on current trends at the site continuing.

In summary:

- The '3 key questions' designed to inform decision-making are central to GRACE and should be central to your assessment
- To make decisions, land use managers, policy makers, and communities require information on the consequences of alternative courses of action
- There are likely to be trade-offs between services when ecosystems change
- Choosing the 'best' option requires an understanding of the expected impacts of change on services and wellbeing
- Exploring perceived trends and alternative scenarios can be useful to understand how people will be impacted

1.2 Important characteristics of CES benefits

The benefits derived from cultural ecosystem services possess a number of important characteristics which need to be understood to plan and conduct meaningful assessments.

- **Complex and deeply held**

Many CES benefits contribute to human wellbeing in complex ways, which may be difficult for people to describe or articulate or even to recognise. Such benefits, and the values that shape them, may be deeply held and people may not be experienced in talking about them.

- **Individual and subjective**

Many of the benefits provided by CES will be highly personal and subjective in nature, shaped by an individual's views, needs and values. Because of this, the perceived importance of CES, and their contributions to wellbeing, can vary widely between individuals and groups.²¹ For example, a particular landscape which is viewed as beautiful to one person, but not by another; or the sense of place attributed to a particular setting based on an individual's personal experiences. An open and flexible assessment process is needed, to be able to respond to individual values, and the inclusion of members of different social, cultural and geographic groups, will be essential to capture all possible CES benefits.

²¹ More so than with other ecosystem services.

- **Shared or collective values**

CES benefits can also reflect or include shared, social values that can differ from values held by individuals.²² For example, asking individuals what is important to them may not reveal group perspectives about what is right, fair or good for the community. Because of this, simply focusing on individuals' values may miss important shared social benefits. For a comprehensive picture, assessments will need to also explore group perspectives. Group discussions between community members can bring these often 'hidden' values to the surface. Shared social values are likely to be significant in many of the rural, developing country contexts in which conservation organisations work, where communities often make collective decisions about natural resources.

- **Co-production and bundling**

Many CES benefits are closely linked and in practise may be bundled together.²³ For example, the 'dreamings' of native Australians may be valued because of their spiritual enrichment and also because they contribute to sense of identity. CES benefits may also be bundled and co-produced with other ecosystem services. For example, the practise of fishing, and of being a fisher, is particularly important for many people and can contribute to the sense of identity of the fisher and the fishers place within the community and, where it is a group activity, to building community relations. At the same time the act of fishing is important because it provides food (a provisioning service). It can be difficult for people to describe and separate out these bundled benefits because they are profoundly linked and because they are often involved in producing them. Skilled facilitation and probing will be important to capture the multiple ways a particular setting and practise can deliver benefits.

- **Dynamic and evolving**

CES and associated benefits will vary with time and with changes in cultural values, social norms and the natural environment. What people hold as important continually changes with time. It is important to remember that culture is dynamic and changes in response to internal developments and external pressures. The tendency to think of culture as relating largely to the past and to notions of tradition must be guarded against.

In summary:

- CES benefits are often complex, deeply-held and may be hard for people to describe
- CES benefits can be diverse between individuals and different social, cultural and geographic groups
- Group discussions are important to understand collective or shared values
- CES benefits may be bundled together and with other ES benefits
- CES are dynamic and constantly evolving as communities and cultures change

²² More formally, shared values concern the "values people hold for ecosystem services as 'citizens'; that is as 'social beings' capable of expressing preferences for ecosystem services not simply in terms of individual costs and benefits, but in terms of social rights and wrongs" (Fish et al., 2011, p2).

²³ Church et al. (2011).

1.3 Language and communicating key terms

Before communities and other stakeholders can begin to discuss the benefits they receive from nature, a common understanding of the meanings of key terms must be communicated and agreed by all parties. In describing these, it is generally more effective to avoid scientific terms or complex or specialist jargon. For example, it has been found that people prefer the term 'nature's benefits' to 'ecosystem services'.²⁴

Explaining CES and the non-material or intangible benefits they provide can be difficult. You can try for example:

- explaining that the experience of CES are different to the experience of material benefits – for example “CES benefits are not the physical things that you get from the landscape; are not items you buy or sell in the market; are not food for your table”
- introducing wider concepts of wellbeing - for example “CES benefits are to do with the cultural aspects of life; they make you happy or healthy; they contribute to your spiritual and intellectual life; they are part of the history of your community”
- talking about how people feel or think about nature – for example “CES benefits are to do with how you feel or think or what you believe about the forest and the animals and plants in it, the activities you carry out in nature, and the changes happening to nature”

It is important to take care to avoid leading respondents and shaping their answers when explaining terms and giving examples. It is preferable to start discussion of CES in an open way, focusing questions and descriptions more strongly as you proceed (see the Upside-down pyramid approach described below).

If you are not fluent in the local language, you will have to use a translator. When a translator is used, some information will inevitably be lost in translation.²⁵ Literal translation of some concepts or words may not be sufficient to fully convey the intended meaning due to different cultural interpretations. A good example is the word 'beauty', which has very different meanings in different cultures. To address this, 'cultural translation' involves extensive discussion with key informants and local team members to understand key concepts and words before they can be used in interviews and group discussion.

In summary:

- Avoid complex scientific and academic terms
- Agree within your team and with key informants on the definitions of key terms and ideas and how best to describe them
- Minimise the loss of information by exploring the meaning of important words and concepts within your team and with key informants
- Be consistent with definitions and explanations

²⁴ Resource Media (2012).

²⁵ Some academics consider translated material to be secondary data as the translator must reconstruct meaning and context. See for example, Temple et al. (2006).

1.4 Asking questions and gaining information

The way people respond to questions about CES is site, people(s) and culture specific. The benefits can be so implicit and deeply held that they may not be understood or recognised as benefits by those who receive them. Because of this, in-depth interviews and group discussions, combined with thoughtful and skilled facilitation, are often the best approaches. To surface deeply held values, and to increase the accuracy of assessments, these should be conducted in a flexible, participatory and *deliberative way*, allowing for reflection, discussion and probing.²⁶

Types of questions

To ensure you can respond flexibly to the situation, GRACE intentionally avoids providing guidance on what *specific* questions to ask. However, the following *types* of question, and considering how they are asked, can be helpful.

- **Open-ended questions** encourage people to describe their reality e.g. What are the uses of this plant?
- **Probing questions** seek to discover more about what lies behind initial replies e.g. How do you think the loss of this plant would affect you or your community?
- **Ask who, what, where, why and how** questions to help make open and probing questions.

The complex and intangible nature of CES means that people may find *direct* questions about them difficult to answer. Using pre-ascribed questions poses the risk of imposing 'outside' perspectives on what aspects of nature are considered important locally, which may lead people to give information they think is 'wanted' and/or leave out other information.

Open and probing questions can provide interesting and unexpected information on CES. In addition, closed-ended attitudinal questions, where participants indicate their level of agreement with a statement, can be useful (see Tool 7 in Stage 3)²⁷. In all cases, the best questions are short, simple and have a single point.

It can be difficult for people to describe feelings about the landscape or nature, so repeating questions several times, in different ways, can be helpful. In practise, the key challenge is to find ways of wording and presenting questions to individuals and groups until the researchers and the participants are satisfied that the questions and the answers have been fully understood. Leading or ambiguous questions should be avoided.

Appendix 1 contains examples of questions and probes for gathering information to address the '3 key questions' and to probe different types of CES. Additional examples of the kinds of questions that can be used with each of the tools to facilitate discussion around CES are also provided in Stage 3.

²⁶ Kenter et al. (2011).

²⁷ More broadly, closed-ended questions can provide a useful starting point for deeper and more probing discussions. For example asking a respondent whether they ever visit a particular setting, can provide an opening to discuss reasons why they do or do not visit.

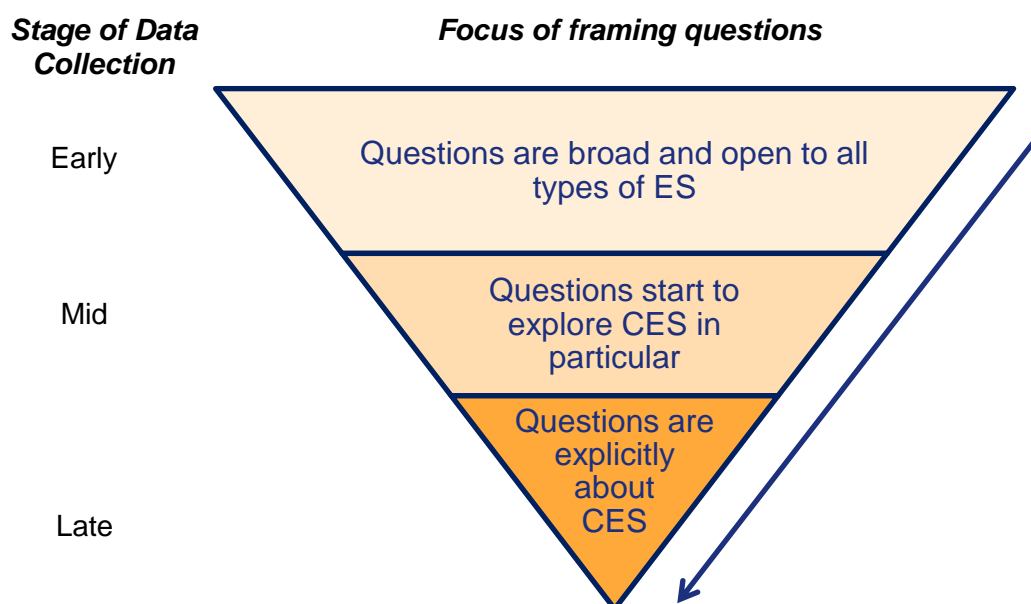
The upside-down pyramid approach

Talking about the benefits provided by nature such as food or timber is often easier and more familiar than talking about CES. So allowing participants to talk about these services can be a gateway into discussions about CES, and can form part of the deliberative process. Nevertheless you must find a balance between facilitating broad discussion and gathering relevant data. The upside-down pyramid approach shown in Figure 3 provides a framework for collecting data using the tools described in Stage 3.

In the early stages of data collection, discussion should be broad and exploratory, allowing participants to talk about all types of ecosystem services they feel relate to the question. As data collection progresses, and as you become more familiar with the services and how participants respond, questions and probes should begin to explore CES.

In the final stage discussion can focus on CES and specific benefits with less danger of missing important information or leading the participants. The practice of starting with broad questions and then gradually focusing applies to all discussions and deliberations.

Figure 3: Upside-down pyramid approach for framing questions



In summary:

- In-depth interviews and group discussions are best for exploring CES
- Allow participants to deliberate, reflect and discuss to surface deeply held values and increase accuracy
- Choose your types of questions carefully, and allow enough flexibility to probe interesting topics
- Consider applying the upside-down pyramid approach to focus discussion specifically on CES at later stages of data collection

STAGE 2: Planning and scoping

2.1 Site context and grounding

If you are not familiar with the site you will need to spend time learning about it. You need to know the area sufficiently well to recognise places, activities, ideas, issues and institutions that stakeholders are likely to talk about during the assessment. A grounding process will help you gain a basic understanding of the site. This stage is especially important for CES as it will help ensure the assessment is feasible, effective and locally acceptable. It will also help you define the scope of the assessment and set boundaries for the assessment site.

The following steps will help you begin.

1. **Find a local helper** – Whether they are formally part of the team or not, finding someone who can introduce you to the area and the community is important. They may be someone you have been introduced to or someone that has been attached to or allocated to your team. It is important to recognise that this person will hold particular views (or represent the views of specific groups in the community) so their support must be managed carefully.
2. **Introductions** - Meet a range of community leaders (for example, local government officials, village heads, opinion leaders, elders, religious leaders). This will allow you to introduce the assessment, get consent, ask for help and support, and begin learning about the area and the issues.
3. **Assess the policy context** – Begin to look at and describe the policy context of the area.
4. **Explore ecological, social and political issues** – Discussions with community members and other stakeholders will help you identify the main socio-economic groups and key issues in the area, and will help you think about how you can investigate them. Designing questions needs awareness of important issues and how different people see them.
5. **Explore the landscape** – Spend time walking the area. Get a feel for the different elements of the landscape, where these are and how they are connected. Appendix 2 provides a form to help you record different ecosystems of the area and use. It is best to do this with a local person. Walking the area with local people could provide the basis for undertaking a transect walk.²⁸ You will have your own responses to the area. You may find it beautiful, ugly, inspiring, scary, biodiverse, etc. Remember these are your cultural responses and may be very different to how local people feel.
6. **Explore governance and institutions** – Begin to look at how decisions are made locally, including those groups who may be excluded from decision making processes. As well as formal government institutions there may be traditional

²⁸ GRACE does not give guidance on undertaking transect walks but this tool could be useful, especially during grounding activities. A transect walk is a participatory activity during which the research team and members of the local community walk through the site, noting and discussing key features and activities observed during the walk. For more detailed guidance see: www.fauna-flora.org/wp-content/uploads/Transect-Walk.pdf and www.fauna-flora.org/initiatives/livelihoods-and-governance-library/#tools.

institutions or new groups that play important roles in local governance (e.g. resource user groups, women's groups, community based organisation, cultural institutions, chiefs and their advisors, etc.).

2.2 Defining the area of study

The scope of the study must be decided by considering the physical nature of the site, the key issues to be investigated, and the technical and financial resources and time available. There are a number of options for defining a spatial boundary for the assessment of cultural ecosystem services. Your grounding exercise should have given you a good awareness of the types of ecosystems you are assessing and their boundaries. When considering the impacts of land-use change, the most appropriate spatial boundary may be one around where the change will occur. Alternatively, administrative, village or protected area boundaries can be used. It may be useful to use natural boundaries such as a river catchment or forest blocks.

In all cases, it is important to recognise that many services produced by ecosystems flow to people living outside the immediate area and sometimes far away. For example, some people may make annual visits to cultural sites to perform ceremonies from where they live. Therefore you will need to take into consideration the location of beneficiaries in thinking about the boundaries of your assessment site.

2.3 Identifying and selecting stakeholders

Central to the assessment process is stakeholder engagement.²⁹ This will strengthen the relevance, robustness and completeness of the assessment and it can also help increase awareness of CES in decision-making. A good starting point may be to 'brainstorm' with your team and key informants to build a list of stakeholders and what their interests are. Local communities will obviously hold a large number of the key stakeholders, either individuals or groups with common interests or characteristics. It is important to recognise that communities are not homogenous and ensure that a range of community members and groups participate in the assessment.

The number and type of stakeholders you involve will depend on the site context, how many you can identify, whether they seem to be key stakeholders or not, and the time and resources you have to engage with them. Many stakeholders will live close to the ecosystems providing the services but others, as discussed above, may live a distance away from the area being assessed. Stakeholder analysis and mapping processes are useful to ensure all relevant stakeholders are identified.³⁰

It will be necessary to secure the consent of stakeholders participating in the assessment before research begins. Prepare an introduction that explains who you are, what you intend to do and why, and any other information needed to obtain informed consent. Refer to

²⁹ A stakeholder is a person or institution with an interest or concern in something. In the context of CES this may include landowners and managers, decision makers, inhabitants and beneficiaries.

³⁰ Materials on and tools for undertaking stakeholder analysis and mapping can be found at:

www.fauna-flora.org/wp-content/uploads/Stakeholder-Analysis.pdf,
www.fauna-flora.org/wp-content/uploads/Stakeholder-Mapping.pdf ; and
www.fauna-flora.org/initiatives/livelihoods-and-governance-library/#tools

Appendix 3 for more information on what this should contain and for an example request for consent. Importantly, if people do not want to participate, you must respect this.³¹

2.4 Identifying your audience

It is important to know who you will be aiming your assessment report at. The analysis of stakeholders will help you identify your audience (if not already decided). It is important to agree within your team and with key informants who the primary target of the assessment is as this will influence the issues you will focus on, how you will design the assessment, and how you will report on it.

2.5 Team formation and expertise

You will need to know what is required of you and your team during the assessment and ensure you have the knowledge, skills and capacity to assess CES.

You must decide whether your abilities and experience will allow you to complete the assessment and whether it is necessary to add skills and knowledge to the team including people who are familiar with the study area.

Selecting and training local assistants takes time but can strengthen engagement with local stakeholders and strengthen the assessment. It is important to select female assistants as well as males, and to consider how different groups within the community may perceive the assistants.

Depending on the assessment and the knowledge and experience of the team members, the team may be just one researcher, a principle and supporting researchers, or a team made up of researchers plus facilitators and translators.

The team should be balanced and able to cover all aspects of the assessment. Specific tasks or responsibilities should be given to different team members.

In conducting the assessment, it is important that team members think carefully about their own cultures and values in order to be aware that they could affect the assessment of benefits experienced by other peoples. In all cases, local knowledge will be vital.

Table 2 lists some of the key skills and roles that may be needed within the team.

³¹ If the assessment forms part of a wider programme it may be appropriate to undertake a Free, Prior and Informed Consent (FPIC) process. FPIC is the principle that communities have the right to give or withhold consent to projects, including research that may affect their lands and resources. Further information available at: www.fauna-flora.org/wp-content/uploads/Free-Prior-and-Informed-Consent1.pdf

Table 2: Useful skills and roles for undertaking a CES assessment

Knowledge and Experience	Roles*
<ul style="list-style-type: none"> • Familiarity with ecosystem services approach, and awareness of importance of cultural components • Participatory approaches including an awareness of importance of gender dimensions • Conducting ES assessments • Facilitating workshops • Conducting interviews • Facilitating participatory discussions • Familiarity with study area and communities • Ability to communicate in local languages 	<ul style="list-style-type: none"> • Team leader • Translator • Note taker • Observer • Analysis (this should be done by the team but it helps to have a lead) • Local organiser (logistics) • Local contacts • Report writer

* Note: Each team member may undertake more than one role, and each role will often be undertaken by more than one team member.

2.6 Methods - key informants and group discussions

The benefits provided by CES relate to individual preferences, often deeply held values, and to shared social values. GRACE recommends a combination of in-depth interviews and group discussions supported using the tools described in Stage 3.³²

• Key informants

In-depth interviews or discussions with key informants (KIs) provide the opportunity to explore relationships between people and nature. KI interviews are good for collecting rich descriptions of personal stories, narratives, local histories and experiences. KI interviews can be used throughout the assessment process and can be tailored to fit the 'Upside-Down Pyramid' Approach. KIs should be selected on the basis of their knowledge of the site, the culture and values of different socio-economic groups within the community, and the policy and governance environment. Care should be taken to ensure that the views of different stakeholders and interest groups within the community are represented. Interviews can be held as open discussions in which the subject of CES is introduced and the informant leads the discussion with the researcher probing issues of interest, or as semi-structured interviews in which a set of pre-determined issues or questions is used to guide the discussion. The aim is to enable an open and interactive discussion. New KIs should be interviewed until no new information emerges, within the constraints of time and budget.

• Group discussions

Gathering people together in groups can be a particularly effective way to assess CES. Values and perspectives can be shared easily through discussions and deliberations. Group discussions provide a relatively quick way of gathering a breadth of information, including a diversity of views, as well as developing consensus on trends and identifying

³² Surveys can also be useful for obtaining information from a large number of people to produce quantitative data. The complex nature of CES makes designing effective survey questions difficult so they are not covered in GRACE.

issues that can be explored in more detail in one-to-one discussions. The recommended group size is between five and ten. As with KI interviews, participants should be representative of the different groups within a community. In many societies it is difficult to discuss certain subjects in mixed groups, and it is good practice to organise separate discussions for women, men, poorer and wealthier people, young people and minorities.

2.7 Resources

Aside from human resources, you will need equipment and materials. The tools in Stage 3 have been selected to require minimal resources and the specific resources needed are listed for each tool. In all cases you will also need:

1. **A space or venue** – for working with individuals or groups. Consider whether the space should be private or public. Is it noisy? Shady? Busy? Make sure the space is accessible and comfortable for all participants. Potential venues can be identified during the grounding stage.
2. **Materials for drawing, writing and scoring** – large sheets of paper and pens are valuable, although the ground can also be used for drawing on with sticks, charcoal or chalk and ‘post-its’ can also be useful. Markers or counters can be used for scoring but small stones or beans can also work well.
3. **Means of recording discussions and outputs** – you should take notes of discussions. You may want to use a recording device (with participants’ permission) and take photographs of outputs such as maps.

2.8 Time and timing

A basic rapid assessment including preparatory grounding at the site, planning the assessment, forming the team, using the tools, analysing the information and communicating the findings, will take at least 3-6 weeks. You may require more time depending on the size of the community, the complexity of the CES, and the tools you decide to use. Stage 3 indicates how much time will be needed to use each of the tools. It is also important to consider the timing of the assessment in terms of the activities of community participants, for example during harvest season it will be difficult to engage with farmers or it may only be possible to talk to certain people or groups in the evenings or very early mornings.

In practise, you will have to plan the assessment based on how much time you have, the availability of participants, and the level of your resources. Based on these you will have to decide how much time you can allocate to grounding and scoping, how many interviews or group discussions you can hold, how many tools you will employ, and how to best feedback findings to participants. Ideally, the assessment will be part of a wider programme of work and the information and knowledge gained will be continually added to through ongoing and two-way communication with community members.

In summary:

- Spending time at the site 'grounding' is essential in CES assessment
- The spatial boundary of the study site should reflect the key issues to be investigated, physical characteristics of the site, current and expected flow of services and beneficiaries, and study constraints
- Stakeholder engagement is central element of the assessment process
- A combination of in-depth interviews and group discussions is recommended to address the 3 key questions

STAGE 3: Data collection

GRACE is rooted in the use of participatory tools to facilitate reflection and discussion to explore CES. These are used to address the 3 Key Questions set out in Stage 1.

‘THE 3 KEY QUESTIONS’		
1)	What aspects of nature do people benefit from?	
2)	How do these contribute to wellbeing , and to whose ?	
3)	And, how might changes affect the delivery of these services and the wellbeing derived from them?	

Seven tools have been provided to give you different ways to address these questions: free-listing, cultural mapping, photo voice/choice, timeline, cultural calendar, ranking exercises and exploring attitudes with Likert scales (see Table 3). They are not new tools but have been modified to make them suitable for application to CES assessment. The tools provide entry points into discussions that enable the collection of data about CES.

Table 3: Summary of the 7 participatory tools

Tool	Overview	Entry point
Free listing	Individual or groups list things that connect them to nature. The frequency and order of items listed can be analysed. Listed CES can be explored in more detail and used to tailor design of other tools.	Direct
Cultural mapping	Drawing maps of a site or place, indicating places and features of importance, stimulates discussions of what is important, why, to whom and how changes in ecosystems and access to nature may impact wellbeing.	Spatial
Photo voice / Photo choice	Photographs of the area taken by participants or researchers prompt discussion of connections between people, landscape and nature, what is important, why and how changes may affect wellbeing.	Visual
Timeline	A timeline is developed to show events and changes in ecosystems affecting benefits from nature over a period of time, enabling discussion of trends, drivers of change, impact of changes and expected future changes.	Time
Cultural calendar	A Cultural calendar helps record events or activities linked to nature that occur through the year such as festivals, ceremonies, rituals and practices, enabling discussion of who is involved, what places or resources are required and how these relate to world views and understandings of nature	Time and activity-oriented
Ranking exercise	Ranking the importance of a range of benefits from nature helps understanding of their relative importance and attitudes towards changes in them.	Direct
Likert scales	Expressing levels of agreement with different statements representing a range of community views of nature gives understanding on their importance and attitudes towards changes.	Direct

The tools may be used singly or in combination to discuss and assess CES benefits provided in the site. Some of the tools are better at eliciting certain kinds of information than others –e.g. cultural mapping is good for collecting information spatially and timelines are useful for exploring changes and development over time.

Using one or more tools will strengthen your assessment by allowing you to triangulate your findings.³³ Tools can be applied using the upside-down pyramid approach (see stage 1), for example free listing can be used early on to generate a general list of benefits recognised by communities, while a cultural calendar exercise can provide more focused insights into CES. Use your own judgement to select tools that will work best for you and your team in the situation you are working and that will be most effective for understanding the benefits you are most interested in. This may be difficult at first but will become easier with practice and experience.

Importantly, the tools provide entry points for discussions with communities and stakeholders in order to answer The 3 Key Questions. Discussion can help establish consensus, but you should note that reaching consensus is not always possible and is not necessarily desired – differences in perceptions can stimulate further and deeper discussions. The key requirement is that you listen carefully to what people say; the words they use, the level of excitement or enthusiasm a subject elicits³⁴, and the ideas being expressed. This is the primary information that the tools will produce and that you should record. You can memorise information or take notes, take photos, and make recordings and videos. It is always required that you ask for permission to record the discussions, including taking notes. You may find that careful note-taking or even efforts to remember key ideas and statements are as effective as making recordings, which require work to transcribe, and result in better discussions.

Analysis of this information will provide understandings from which conclusions can be drawn and recommendations made to inform decision making. Special care must be taken in analysing and giving meaning to translations of discussions as words used by communities may have meanings in their language and culture that are very different from the words used by the translator and their meaning in your language and culture.

The process of working with people to understand how they perceive benefits provided by nature requires you to engage with commitment and attention. GRACE suggests 4 rules to help you carry out a CES assessment successfully.

³³ Triangulation is the process of checking and establishing the validity of your findings by examining questions from multiple perspectives using different approaches. For more information on triangulation see: www.fauna-flora.org/wp-content/uploads/A-guide-to-using-tools-for-participatory-approaches.pdf

³⁴ Lack of enthusiasm may indicate that you are raising subjects that should not be discussed in front of strangers or certain members or groups of the community. For example, some communities have Secret Societies that have secrets that only members should know. You must be careful of trying to force discussion of things that are secret or not readily shared with people from outside of the community.

Four key rules:

- 1) Become familiar with and practice participatory processes before beginning your assessment
- 2) Engage fully with stakeholders and researchers from the start to the end of the process
- 3) When in doubt, use your own best judgment
- 4) The tools are only as good as the discussion they stimulate

Tool 1: Free-listing

Free listing is a relatively easy way to ‘brainstorm’ or elicit knowledge on the connections between people and nature. For example, it can be used to ascertain what aspects of nature people value, and how a community defines a particular category of benefits (i.e. how they categorise benefits and what they include in different categories).

Free-listing is particularly useful for understanding what is important *from the perspective of the community itself* as opposed to the perspective of the external researcher.³⁵ In trying to understand CES we are interested in the former viewpoint i.e. what *local people* think about nature and the landscape.

In essence, the approach involves asking individuals or groups to ‘list as many Xs’ as possible. There is no need to limit responses to benefits understood as strictly cultural in nature. Keeping the initial discussion open may provide a useful way to explore and compare the importance of and linkages between CES and other ES from a community perspective. However, if an ‘open’ free listing question does not result in CES being listed a more focused question can be tried.

What is it useful for?

- Generating lists of benefits provided by nature as recognised by communities.
- Identifying what is readily perceived to be of value in the natural environment.
- Exploring the relative importance of different types of benefits from nature.
- Exploring the relative importance of CES versus ES.

Suggested Steps

Allow **1 hour per participant** or **2 hours per group**

1. Ask the participant(s) to write down or name all the things that connect them to nature. You will have to design the wording of the question carefully in consultation with key informants. Always ask the same question to each participant or group. For example:
 - What do you like about living here? Please can you list everything?
 - What do you like about the natural environment here? Please can you list everything?

³⁵ De Munck (2009).

- Can you list all the reasons why this area/place is important to you?
 - Can you list everything that you would miss if X change happened?
2. Do not interrupt the listing process. When respondents stop listing you can read through their list or repeat the question to encourage them to recall more before completion. Do not prompt or probe to encourage additions to the list as this may influence their list with your ideas.
 3. If you are recording the list, write responses down in the order they are given.
 4. If individuals are writing their list themselves, several people can carry out the exercise at the same time.

Points to remember

- To maximise information capture, ask respondents to 'list as completely as possible' otherwise they may not understand to list all items ³⁶
- The order in which items are listed can be a useful indicator of relative importance.

Tool 2: Cultural mapping

Cultural mapping is a tool for gathering information about places, uses and access to cultural resources. Mapping is particularly useful for prompting discussion of benefits that have spatial locations such as a sacred site, historical or mythical sites of events, hunting grounds or places for collecting particular resources. Mapping can also be used to indicate the presence of less tangible values such as places people go to relax, to be alone, or to perform group activities.

Once the map has been completed it can be used to help guide semi-structured interviews on specific topics of interest (such as how sacred sites have changed and why), for collecting more specific data (such as the range of values, practices, activities, users of a particular site), or in more detailed mapping of areas of significance using GPS.

What is it useful for?

- Exploring how people understand their landscape, environment and resources, how they use them and how this affects their relationships with nature.
- Examining the relationships between different factors (resources, topography, settlement, sacredness, myths, etc.).
- Identifying problems and opportunities related to nature and the benefits nature provides.
- Identifying locations, access and use of cultural resources linked to nature, including biodiversity, uses by different groups within the community and by others outside the community, and institutions related to access and use.
- Discussing changes to cultural resources and values connected to nature over a period of time and talking about what changes might happen in the future.

³⁶ Brewer (2002).

Suggested steps

Allow about **2 - 3 hours** for this exercise.

1. Ask participants to select a suitable place and medium on which to draw the map, which could be on the ground using stones, seeds, sticks and coloured powder; on the floor using chalk; or a large sheet of paper, using pencils and pens.
2. Agree what area the map will cover, such as a village, a territory, a cultural landscape³⁷, and so on.
3. Explain that it does not matter if the map is not accurate or to scale. If participants are illiterate use symbols and a key to interpret them in the local language.
4. Ask participants to start by preparing the outline or boundary of the map and then identify the central point or an important landmark within the area (such as a mosque, sacred forest or mythological or historical site). Other elements of the area can now be drawn. Participants should develop the content of the map according to what they think is most important. The map does not need to show every house, shop, field or shrine but rather the area where they are located. Features indicating CES benefits might include:
 - Sacred groves, trees or forests, sites of ceremonies and rituals, temples and shrines, churches, mosques, etc.
 - Locations of medicinal plants, sources of valued foods and other cultural resources.
 - Water sources, springs, steams, ponds.
 - Locations linked to historical events, myths and stories, the ancestors.
 - Sites for group or individual activities or practices.
 - Natural resources (e.g. areas of forest, or location of species of specific interest) and infrastructure and services (e.g. roads, houses, bridges, schools, health clinics, bus stops, shops and markets - these can be useful to help give structure to the map).
5. Although it might take some time to get going, the process should not be rushed. Once the map is underway, observe and listen; only interrupt in order to answer questions if participants ask for clarification or to help participants if they get stuck.
6. Whether the map is being drawn on the ground or on paper, it is important that a copy or permanent record of the map is available for both you and the community. Photographing the map is an easy way to record it. Making copies from ground to paper or from paper to paper can create useful opportunity for additional information to be given.
7. Drawing a series of maps to illustrate changes over time, or to help explore ideas about the future, can be useful if time allows.
8. Listen to the discussion as the map(s) are being drawn. When completed, ask participants to describe it and discuss it. Ask questions about anything that is unclear or that seems important.

³⁷ Cultural landscapes are the combined works of nature and humankind; they express a long and intimate relationship between peoples and their natural environment (WHC, 2013).

9. If separate groups are drawing maps, each group should present and describe its map to the other groups for their reactions and comments. If there major differences try to understand why.

Questions to guide discussion and analysis

The following questions are examples that can be used to guide discussion (see also the questions and sub-questions listed in Appendix 1):

- What **aspects of nature** do people **benefit from**?
 - What cultural sites and resources exist in the landscape?
 - Are cultural sites and resources linked or connected? How?
 - Why are cultural sites located where they are?
 - What (other) aspects of nature/the landscape are important to you?
- How do these **contribute to wellbeing, and to whose**?
 - Which sites and resources are used? By whom? When? For what?
 - Who makes decisions about access to different cultural sites and resources? How do they make these decisions?
- How might **changes affect delivery** of services and wellbeing derived from them?
 - Are sites or resources degrading? Are sites improving? Why?
 - What changes have occurred to these sites or resources in the last (number of) years?
 - Which sites or resources are there most problems with? Why?

Points to remember

- Precision is not important as this tool is not designed for demarcating boundaries or calculating areas under a particular land use.
- This tool is most suitable for a geographically limited area. For larger areas it may be necessary to produce more than one map.
- Local participants should be encouraged to build as much of the diagram as possible without interruption.
- A tendency to focus on sites, material values (e.g. buildings) and the 'village' itself can be responded to with careful prompting for intangible values, areas of general importance, etc.

Box 3: Example of a community map**Community map from Lake Piso, Liberia**

This is an example of the beginnings of a cultural map; the next stage would be to explore in more detail the cultural aspects. The map shows a number of important sites including the sites of male and female initiation and instruction (*Sande* and *Poro* bush schools), the graveyard and other locations whose importance and functions could be further discussed.



Source: Infield (2012a).

Tool 3: Photo voice and photo choice

Photo Voice and Photo Choice are ways to help participants talk about their connections to nature and the natural environment in which they live. These tools use photographs to help people and researchers respond directly to visual clues and reminders of values that it would be difficult to achieve without a great deal of walking and time.

Photo Voice works by asking people to take photos of the area, which are then discussed. The photos therefore represent nature and the natural environment from their own perspectives and based on their own values. Photo Choice asks people to discuss photos of the area that have been taken by the researcher, and they are therefore responding to ideas or values presented by the researcher. Photo Voice is a more direct way of assessing people's perspectives but can result in a narrow range of values and benefits to discuss. Photo Choice must be carefully designed to avoid leading and research bias but can ensure diverse values and benefits are included.

Photo tools can be used in different ways. Use your own judgement about what is most relevant or interesting, what you can achieve, and what is likely to work in the site. For example:

- Community members can accompany the researcher during a transect walk and take or ask for photos of things they think are important along the transect.
- Groups can work with a large number of photos, ranking them, grouping them and selecting them as part of an exercise.

- Photos can be manipulated using software to add or remove features in order to discuss ideas about change. For example, photos can be subtly changed increase or reduce the amount of open space, for example, or the amount of forest, to see if people respond to them differently.
- Photo exercises could form the basis of a product such as a book that could be useful for the community.
- Photos can be used in questionnaire surveys.

What are they useful for?

- Recording sites, places, activities and practices that are important or significant to people.
- Learning why specific sites, places and practices are important and to whom.
- Discovering historical and mythical associations with places and practices.
- Talking about the site in terms of a wider landscape as well as discussing specific sites.
- Talking about the way local people and others live in or move through the site.
- Talking about the connections different people have to specific places and why.
- Investigating changes in land use and practices and how people might respond to changes to the landscape in the future.

Suggested steps - Photo Voice

Part 1: Allow about **1 week** for this part of the exercise.

1. Ask individuals to participate in the Photo Voice exercise. Give each a camera and instruct them on how to use it.
2. Ask them to take photos of places, features or activities that they consider important but which are relevant to the assessment of CES.
3. Ask them to take photos at different times of day to record activities at different times at different locations.
4. Give guidance on the kind of values and benefits you want the photos to represent without leading them in their selection of subjects. The more guidance you give, the less the images will represent the 'voice' of the person, but the less guidance you give, the less focused the images and the Photo Voice discussion may not be on issues you, as the researcher, might consider important or relevant to the assessment.
5. Tell them they can take as many pictures as they like (within the limits of the equipment) but they must select a small number, not more than 10, to be presented during the Photo Voice exercise. Ask them not to discuss their choice of photos with others but make the choice themselves.

6. Ask them to give you their selected photos in advance of the date for Part 2 of the exercise.

Part 2: Allow about **2 hours** for Part 2 of the exercise³⁸

7. Present the photos to a group.³⁹ Ask the photographer(s) to introduce their photos and explain their reasons for taking them. Ask the group to discuss what the photo says about the natural world and the community's or the individual's connections to it.
8. Ask the photographer(s) or the group to place the photos in order of preference. Ask them to explain the values or criteria they used to put them in that order, e.g. beauty, remoteness (which may be good or bad), uses for different purposes by different social groups, etc.
9. (Optional) Ask the photographer(s) or the group to score or rank the photos (see Tool 6 for guidance on ranking). Listen to the discussion during the scoring process; ask for explanations of the scores given. Alternatively, draw up a matrix with photos along the top and different criteria down the side. The photographer(s) or the group must discuss and agree the criteria (one photo can represent several different values). Then, ask the photographer(s) or the group to score the photos for the different criteria using a voting tool.⁴⁰

Suggested steps - Photo Choice

Allow about **2 hours** for this exercise.

1. From the photos you took during your time exploring the landscape, select those you think best represent different values of the site. Select photos on the basis of information you have collected about what seem to be important values or issues in the area. Number each photo.
2. Select a range of photos representing different and contrasting values; e.g. sites with significant human use - buildings, fields, etc., and sites with mainly natural landscapes without obvious signs of use. You could include photos of a 'foreign' landscape to see if people respond to photos on the basis of intimate and direct connection to their area or to more general values of nature and landscape.
3. Discuss your selected photos with a key informant to check that your understanding of and suggested value of the photo is relevant to the community. Label each photo with the key value or issue but do not share this with those taking part in the Photo

³⁸ This tool can be used with individuals as well as groups, in which case you ask the photographer to explain their reasons for taking the photos and what they mean to them.

³⁹ The photos can be printed out or displayed on a computer or screen or projector. Printed photos may be easier for a group to work with independently. Being able to handle them, look at them for longer and more closely, order them, group them, etc. can give better results than photos on a screen.

⁴⁰ Groups can be asked to 'vote' on the importance of photos for each criterion. Give each group member a number of 'votes' – beans, small stones, stickers, etc. – and ask them to place one or more 'vote' on the photo to indicate how important it is to them. When all the 'votes' have been placed, counting them gives a ranking order and an indication of relative importance for the group.

Choice exercise – it is for you and will help in analysis). Present your photos to individuals or groups and ask them to discuss the photos.

4. Ask them to rank the photos and explain their rankings and their criteria (see Box 4 for an example).
5. Ask them to score or 'vote' for photos against criteria based on themes coming out of earlier discussions (most beautiful, most frequently used, most threatened, etc.).






















Questions to guide discussion and analysis

You can use the following questions to prompt discussion (see also the questions and sub-questions listed in Appendix 1).

- What **aspects of nature** do people **benefit from**?
 - Why did you take this picture? What is in this picture that is important to you? (Probe for benefits that cannot be seen in the photo, e.g. smells, physical touch, tastes, sounds, thoughts, feelings or memories)
 - Why do you like this picture? Why don't you like this picture?
 - What is the story of this photo?
 - Why did your rank/score this photo low/high?
 - What criteria were you using to rank/score the photos?
 - What is missing? Are there important places, values, activities, issues missing from these photos
- How do these **contribute to wellbeing, and to whose**?
 - How does this picture make you feel?
 - What is the significance of this photo to you?
 - Is it just this site that provides this feeling/value? Do other places provide this?
 - Does everyone feel the same about this site? Is it likely to be more/less important to other people, groups, women, men, children etc.?
- How might **changes affect delivery** of services and wellbeing derived from them?
 - How would you feel if there was a big change to what is shown in this picture, if for example,?
 - Do you think things looked different before? In what way?
 - How do you think this picture might change in the future?

Box 4: Example of a photo ranking exercise**A photo ranking exercise from Uganda**

The photo ranking exercise was carried out to compare the attitudes of three different groups, conservationists, pastoralists and tourists, to vegetation types or conditions in and around a national park in Uganda. The exercise was carried out with 20 individuals from each of the groups. Respondents were selected opportunistically.

Rank	Conservationists	Pastoralists	Tourists
1			
2			
3			
4			
5			
6			
7			

The exercise revealed similarities and differences in ranking between the groups. The most open vegetation type with the shortest grass was most preferred by tourists and least or next to least preferred by conservationists and pastoralists. The thickest vegetation type was the most preferred by conservationists and the least preferred by tourists and pastoralists. A wide-open valley with short but green grass was ranked top by pastoralists, second by tourists and third by conservationists.

The exercise allowed responses to the photos to be expressed in numeric terms based on their ranking. The process also provided information on the themes or criteria people used to rank the photos allowing ranking decisions to be understood. This is described in more detail in Stage 4.

Source: Infield (2002)

Points to remember

- The photos you select will not be objective and will include your cultural biases. As long as you recognise this it is OK to select photos designed to direct thinking and discussion towards key issues of the assessment.
- Responses to the photos are a snapshot in time and can change, sometimes rapidly.
- The photo methods can be used with individuals and groups. Ranking exercises may give better results with individuals, but there will be more discussion in groups.
- Listening to and noting the discussion is as important as recording the order, ranking, and scores given to the photos.
- Remember that respondents should not be not ranking the photos as photos – their technical quality, attractiveness, etc. – but the benefits represented in the photos; this means it is important that respondents identify what it is about the photo that is important.
- You could bring photos of an area important to you to introduce the exercise with an example to help the individual or group understand what you are looking for, but be careful that the example does not lead their responses.

Tool 4: Timeline

A timeline is used to show events and changes over time as experienced by a community. They are mainly used to examine trends and a sequence of events over many years, but they can also be used to look at events over shorter periods. Timelines help to facilitate discussion of changes to culture, values, practices and institutions that affect connections to the natural environment, and how changes in nature may affect communities and their wellbeing. Changes may have taken place over a period of time or may take place in the future.

What is it useful for?

- Recording events or changes that have affected a community's relationship with nature.
- Learning how community members perceive changes in their connections to their natural world.
- Helping to understand connections to and relations with nature and the natural world that have changed over time or may change in the future.
- Understanding the current situation by looking for its causes in the past.
- Exploring likely changes in the future on the basis of past experience.
- Creating a 'vision for the future' that explores how people would like things to be in the future.

Suggested steps

Allow about **1 – 2 hours** for this exercise.

1. Draw a line on a board, the ground, etc. Agree the period of time that will be covered and write the starting date at one end and the actual or future date at the other end.
2. Ask participants to think about and/or write down on cards, or have a facilitator write down, trends, changes and events that have occurred within their community within the time period. These might include:
 - Disasters that affected the area (e.g. earthquakes, fires, famines).
 - Economic, social or political changes or events that effected connections to nature (e.g. wars, enclosure of lands, new industries).
 - Changes in land use, land cover and species (e.g. buildings, crops, forests, sacred areas, tranquil areas, wildlife – both quantity and quality).
 - Changes in access to, use and enjoyment of areas and their resources (e.g. food, medicine, sacred sites, ceremonies).
 - Changes in customs, traditions, practises, livelihood activities and values connected to nature.
 - Changes in administration, authorities, institutions, regulations that effected connections to nature (e.g. new rules on fishing, new local governments).
 - Changes in how people feel, their wellbeing, or happiness.
3. The group arranges the cards along the line or the facilitator or a group member records the changes/events at the relevant place along the line. Put cards that indicate the same event together.
4. Explain that accurate dates are not needed. Use the spaces between events along the line to indicate the time between events. Dates for a major event (e.g. a big flood) can help establish when other events occurred. Concentrate on key events only. Periodically run through the events to prompt recall and help fill in gaps. If you have used cards or post-it notes, the number of cards for the same event might indicate the relative importance of the event for the community.
5. Ask participants to discuss the timeline. Try breaking the line into shorter periods and ask questions about these.
6. If you have split into sub-groups ask each group to present its timeline to the others for their reactions and comments. Try and understand any differences.

Questions to guide discussion and analysis

You can use the following questions to prompt discussion (see also the questions and sub-questions listed in Appendix 1).

- What **aspects of nature** do people **benefit from**?
 - What features of your community would you like to preserve for your children and grandchildren?
 - Have events and trends impacted women and men, rich and poor, different social groups differently?

- How do these **contribute to wellbeing, and to whose?**
 - What major events have affected the community during the time period? How did these affect people and nature? How did it affect interactions with nature?
 - Have changes in demography, administration, governance or regulations affected the supply of CES benefits? Or changed the way people receive benefits from nature?
 - Have people been affected equally, or have some been more affected than others? For example, particular people, groups, women, men, children etc.?
- How might **changes affect delivery** of services and wellbeing derived from them?
 - What changes have occurred in the quantity and quality of resources including land, land cover and species, and the uses of land and access to nature?
 - What economic, social or political events or conflicts have changed the way people connect to nature
 - Which events or trends have the greatest effects on CES benefits? e.g. economic changes - jobs, cost-of-living, crop yields, livestock prices; population trends - birth rates, infant mortality, in-migration; environmental changes - deforestation, erosion; access to nature - land enclosure, protected areas, agribusiness.
 - How has wellbeing/happiness/health changed over time? Are people better off/happier/more content/healthier now or before?
 - How are community relations/activities now compared with before? Are there more or fewer community gatherings or group activities?
 - What trends do you expect will occur in the future? How do you think the wellbeing of different socio-economic groups will be affected?
 - Supposing policy intervention 'X' occurred. How would this affect you or your community? What would change?
 - What features of your community (e.g. customs, ceremonies, practises connected to nature) have changed since the time of your parents or grandparents?

Points to remember

- Sensitive issues from the past might be raised. If the discussion gets 'stuck' on a sensitive issue move to the next event and return to the discussion later on.
- Participants should make the timeline as complete as possible without interruption; if progress slows, try asking if anything else should be recorded.

Box 5: Example of a timeline

A time line from Kashmir, India						
1940	1950	1960	1965	1971	1990	2000
Lower population	Increased population	Road constructed	War	War	More schools, increased literacy	Increased population
Lower household expenditure	Household expenditure increased	Schools constructed literacy increased	Migration due to war	Migration due to war	Increased population	Landholding size decreased
High agricultural production	Land holding size decreased	Opportunities to access different services opened	Lives of people disturbed	Lives of people disturbed again	Forests decreased	Decreased agricultural activities
More livestock	Agricultural production decreased		Houses damaged	Houses damaged	Warmer climate, less rain and snow	Agricultural production decreased
Thick forests			Infrastructure destroyed	Muhajir came from India held Kashmir	Decreased water resources	Less animal rearing
More wildlife			Vulnerability increased	Vulnerability increased		Less farmyard manure
People's behaviour was good						Unemployment
						Lower income
						Poverty

This timeline shows one-off events but also indicates how the past was perceived and how things are seen to have changed over time, for example, in 1940, life was seen as easier or better with more livestock, lower expenses, and so on. It also shows how the community experienced specific events, for example, the war in 1965 led to migration, destruction and increased vulnerability.

Source: World Bank (2005)

Tool 5: Cultural calendar

A cultural calendar is useful for discussing the distribution of cultural activities or events over a year. Many rituals and ceremonies are tied to natural events or cycles such as the farming cycle, the seasons, the lunar cycle, and so on. A cultural calendar can help you ask questions about the connections between culture and nature that open windows into the world-view of a community.

What is it useful for?

- Recording the seasonal distribution of cultural events.
- Understanding relationships between events, conditions, activities and practices including cause and effect relationships.
- Identifying periods of stress, danger or vulnerability to threats, for the community, including spiritual or magical threats, discussing how different groups are affected, and recording cultural responses to these.
- Identifying potential impacts of changes in the future on culture, values, institutions, ceremonies, etc.

- Discussing how changes to the cycles of cultural events would affect different households or groups.
- Exploring CES benefits at different times of the year for different people and the variables that may influence this.

Suggested steps

Allow about **2 hours** for this exercise.

1. Ask participants to identify aspects in their lives that change on a seasonal basis over the year. Different cultures have different calendars and recognize different seasons. For example, calendars based on the lunar cycle may have 13 months; communities in tropical areas may recognise rainy, dry and monsoon seasons. Start with aspects that appear clearly related to cultural services but do not limit the list to these. These can include:
 - Holidays, festivals, ceremonies and rituals.
 - Periods of scarcity / plenty of food, water, other resources.
 - Planting and harvest seasons, hunting and gathering seasons.
 - Times of migration of wildlife, communities, neighbours.
 - Timing of danger such as cyclones, droughts, floods, illness.
 - Interactions with other communities or groups.
2. The calendar can be prepared as a straight line, as a circle, or in a table with months or the seasons along the top and events down the side - events are noted and described in table cells. A calendar generally covers one year though in some circumstances a shorter or longer period might be needed to cover the full range of events and cultural cycles.⁴¹ Ask participants to indicate under each month or season the events, and indicate their frequency, intensity and significance.
3. If there are differences in events and their timing for women and men, each should be considered separately (and labelled accordingly).
4. Discuss the calendars. Look for patterns and probe for inconsistencies. Note different perspectives of different participants.
5. Groups may decide to prepare separate calendars for women and for men, old and young, different clans, etc. If different groups prepare separate calendars ask each group to present its calendar to the others for their reactions.

Questions to guide discussion and analysis

You can use the following questions to prompt discussion. See also the questions and sub-questions listed in Appendix 1.

- What **aspects of nature** do people **benefit from**?
 - What ceremonies or rituals are linked to what activities? What is the trigger for ceremonies? Do ceremonies trigger activities or do activities trigger ceremonies?

⁴¹ In Bali, for example, the cultural cycle lasts half a calendar year. Each calendar year, the ceremonies and ritual events occur twice.

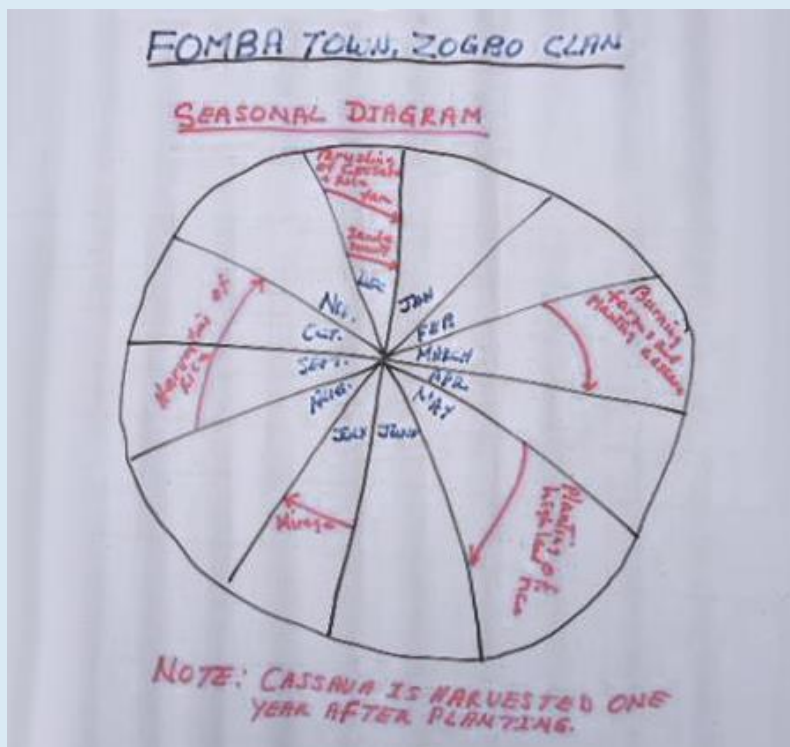
- What part does nature play in these ceremonies or rituals?
- How do women's calendars compare with men's? What differences exist between other relevant sub-groups within the community? What are the busiest periods for different groups?
- How are decisions made on timing of events such as opening or closing of hunting, farming, etc.? How are decisions made on timing of ceremonies?
- Are cultural activities or practices affected by the seasons? Are ceremonies dependent on the seasons? In what ways? Are there longer cycles of ceremonies than annual cycles? (e.g. In China a lunar cycle is used with 13 months for the year and a 12 year cycle - certain events occur only once in 60 years).
- How do these **contribute to wellbeing, and to whose?**
 - Are there key 'cause and effect' relationships between events? For example, ceremonies and farming, hunting, weather, disease, behaviour?
 - Does everyone participate in these ceremonies? Are some people more/less involved than others? For example, women, men, elders, children etc.?
 - Does everyone receive the same benefit from these activities? Or are they more/less important to some people rather than others? To whom?
- How might **changes affect delivery** of services and wellbeing derived from them?
 - Which are the most difficult or high-risk times during the year? How do people plan for and respond to risks? Do these strategies work?
 - Are there differences in the timing of events compared to 10 / 20 / 30 years ago?
 - How might future changes, say if XX happened, impact cultural activities or ceremonies? And how might this affect wellbeing with the community?

Points to remember

- Cultural calendars should reflect local concepts of time and seasonal categories.
- Symbols or drawings can be used to indicate seasons, events and changes. It is important that all participants understand what has been represented.
- Participants should be encouraged to develop the Cultural calendar without interruption.

Box 6: Example of a cultural calendar**A cultural calendar of the Zogbo clan, Lake Piso, Liberia**

This calendar provided more information about the farming cycle than about the timing of cultural events. It should be remembered that these are often closely linked. This calendar demonstrates the common tendency for respondents to focus on material and economic aspects of their life, highlighting the importance of careful facilitation and prompting.



Source: Modified from Infield (2012a)

Tool 6: Ranking exercise

Ranking exercises can help determine the relative importance of CES benefits and help communities compare different kinds of benefits. For example, the importance of different institutions; the demand for different kinds of resources; the importance of different values attached to specific sites or practices; and, the importance of different ceremonies to different groups.

It may be difficult for communities to rank or compare certain values, and it may be inappropriate to ask them to do so. For example, people may not be able or willing to compare or rank ceremonies linked to traditional beliefs against ceremonies linked to new religions. Both may be considered essential to life and wellbeing. If participants are pushed to say which of two values is more important, the results may not be accurate.

What participants are asked to list will depend on what the discussion is to focus on. If the interest is in comparing the importance of provisioning or regulating ES with CES to support a discussion on trade-offs, for example, participants will need to list both ES and CES important to their community.

Numeric scores can also be given to values using voting methods, which may be simpler to use and more engaging for participants.

What is it useful for?

- For putting numbers to a range of CES and benefits.
- For putting numbers to tangible and intangible ideas and values.
- For comparing the relative importance of CES and other ES, or of different CES benefits.

Suggested steps

Allow about 2 hours for this exercise.

1. Ask participants to list CES benefits important to their community. This can be done by a facilitator writing them down as participants call them out or by participants writing them on cards.
2. Ask the group to select the most important - not more than 10 - which will be used in the ranking exercise. This may not be easy and take some discussion.
3. Draw up a matrix. The matrix must have a row and a column for each CES benefit plus an extra row and column.
4. Leave the top left hand cell blank. Write each CES benefit in a cell along the top and down the side of the matrix in the same order. In the example below 'a', 'b' and 'c' represent different CES benefits (see Figure 4).

Figure 4: Example of ranking matrix

	a.	b.	c.
a.			
b.	A		
c.	a	c	
Scores	2	0	1

5. The same CES benefits cannot be compared against each other, so where they meet, shade the cell. In the example above (see Figure 4), where 'a' meets 'a', the cell is shaded, where 'b' meets 'b' the cell is shaded, and so on.
6. In Figure 4, comparing 'a' with 'b' is the same as comparing 'b' with 'a', Duplicate comparisons should not be made. Shade the cells to remind you and participants not to duplicate comparisons.
7. Ask participants to compare the importance to them and their community of each CES benefit along the top of the matrix with each one along the side.

For example, in Figure 4, CES benefit 'a' is considered more important than CES benefit 'b', and the cell is scored 'a'; 'a' is considered more important than 'c' and

the cell is scored 'a'; 'b' is considered less important than 'c' and the cell is scored 'c'.

8. At the end of the exercise, the scored cells are added up to give the relative importance of the different CES benefits.

Questions to guide discussion and analysis

You can use the following questions to prompt discussion (see also the questions and sub-questions listed in Appendix 1).

- What **aspects of nature** do people **benefit from**?
 - Is it difficult to compare these CES benefits? Why?
 - Would all members of the community agree with this? Why might others disagree with this?
 - Are there any other aspects of nature that are not included that are important?
- How do these **contribute to wellbeing, and to whose**?
 - Why is CES benefit 'a' considered more important than CES benefit 'b'?
 - Would all members of the community agree with this rank? Or would some feel it should be ranked differently? Which groups might feel differently? Why?
- How might **changes affect delivery** of services and wellbeing derived from them?
 - How might the ranking change if X changed in the future? Why?

Box 7: Example of a ranking exercise

An exercise to rank the cultural values of a community in Lake Piso, Liberia

Value	Grave Yard	Bus School (Jade)	Ceremonial Prayer Site	Golba Well	CANOE	Tienimai Creek	JayJaynai Creek	Kenwood Forest
Grave Yard	////	Grave	Grave	Grave	Grave	Grave Yard	Grave Yard	Grave Yard
Bus School	1	////	Jade	Jade	Jade	Jade	Jade Bush	Jade Bush
Ceremonial Prayer Site	1	1	////	Ceremonial Prayer Site	Ceremonial Prayer Site	Ceremonial Prayer Site	Ceremonial Prayer Site	Ceremonial Prayer Site
Golba Well	1	1	1	////	Golba Well	Golba Well	Golba Well	Golba Well
CANOE	1	1	1	1	////	Canoe	Canoe	Canoe/Kenwood Forest
Tienimai Creek	1	1	1	1	1	////	Tienai Creek	Kenwood Forest
JayJaynai Creek	1	1	1	1	1	1	////	Kenwood Forest
Kenwood Forest	1	1	1	1	0	0	0	////
TOTAL	7	6	5	4	2	1	0	3

Source: Modified from Infield (2012a)

Tool 7: Exploring responses to attitude statements (Likert scales)

Asking people how strongly they agree or disagree with carefully designed statements using a Likert scale is a useful way to assess attitudes and perceptions towards both tangible and intangible values and can help compare them.⁴²

A five-point scale can be used to measure levels of agreement. This should provide respondents with a range of positive and negative response options, as well as a neutral mid-point. For example: 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree', or 'strongly disagree'.

Attitude statements can be included as part of key informant interviews or presented as part of group discussions.⁴³

What is it useful for?

- For assessing attitudes and perceptions towards both tangible and intangible values and comparing them (using numbers if appropriate)
- For assessing attitudes and perceptions towards a range of CES and ES and their benefits.
- For comparing the relative importance of CES and other ES, or of different CES benefits
- For comparing attitudes and values across individual and groups.

Suggested steps

1. Prepare a series of statements that indicate likely views or positions held by people in the community towards nature and the natural world, drawing on information and understandings already gathered. The statements must be carefully tailored to the cultural resources and values of the area and should represent both positive positions towards CES benefits and negative positions.
2. Ask key informants to check that the statements are relevant, make sense and will be understood. Refine the statements as needed.
3. Ask people whether they 'strongly agree' (score 2), 'agree' (score 1), 'neither agree nor disagree' (score 0), 'disagree' (score -1) or 'strongly disagree' (score -2), with each statement and record their score. Note, agreement with positive statements should be recorded as a plus '+' score, and disagreement with positive statements as a minus '-' score. Agreement with negative statements should be recorded as a minus '-' score and disagreement with negative statements as a plus '+' score. For example:
 - Responses to a positive statement would be scored as follows: 'strongly agree' = +2, 'agree' = +1, 'neither agree nor disagree' = 0, 'disagree' = -1 or 'strongly disagree' = -2

⁴² Likert scales are widely used to measure attitudes, knowledge, abilities, behaviour, personality traits and values on a numeric scale.

⁴³ They are also often used in questionnaire surveys.

- Responses to a negative statement would be scored as follows: ‘strongly agree’ = -2, ‘agree’ = -1, ‘neither agree nor disagree’ = 0, ‘disagree’ = +1 or ‘strongly disagree’ = +2
4. Scores for responses to the statements can be added up and used to indicate and compare overall attitudes, positions or perspectives, both for and between individuals or for a group as a whole or between different groups. The statements can also be used just to stimulate discussion.

Examples of statements

The following statements represent possible positions of people towards nature, its values and decisions that might be taken to conserve it. Each of the statements could be framed as either a negative or a positive position with some re-wording. Whether a statement is considered to represent a negative or a positive perspective depends on an individual's perspectives and values. Information is collected on the perspectives of individuals or groups to inform and improve decision making, not to make judgements about them. The statements offer examples of ways to explore aspects related to the ‘3 key questions’:

- It is important to me to spend time in nature/outdoors because it makes me happier/more content/more relaxed/healthier (a positive position statement from a conservation perspective linked to CES benefits)
- We must protect the traditional way of farming so that we can stay connected to our heritage (a positive position statement from a conservation perspective, linked to CES benefits)
- It is important to fish/hunt/farm together because it keeps the community connected/strong/healthy (depending on the context this is a positive position statement from a conservation perspective linked to CES benefits)
- It is important to protect the mangroves/coral reefs for future generations to enjoy (a positive position statement from a conservation perspective linked to CES benefits)
- It is important to protect the sacred groves/woodlands/sites (a positive position statement from a conservation perspective related to CES benefits)
- Being outdoors and in nature helps the children to learn (a positive position statement from a conservation perspective linked to CES benefits)
- The natural environment is *only* important for the physical things it provides, like food and water (a negative position statement with respect to the acknowledgement of CES benefits)
- The forest/mangrove contributes to our wellbeing in many ways that cannot be replaced or bought in shops (a positive position statement from a conservation perspective with links to CES benefits)
- I am proud of how the local landscape looks today (depending on the landscape this could be either a positive or negative position statement linked to CES benefits)
- If the mine came/X occurred, I would be happier/better off (a statement which can be used to explore attitudes towards change)
- If the mine came/X occurred, everyone in the community would be happier/better off (a statement which can be used to explore attitudes towards change)
- We should keep the landscape as it is now (a statement which can be used to explore change)

- We need the land for farming so it would be better if we cleared the forest (a negative position statement from a conservation perspective)
- We should restrict development so that we can enjoy the beauty of nature (a positive position statement from a conservation perspective, linked to CES benefits)

Points to remember

- Statements should be carefully worded to ensure they are clear and emphasise a single point or position
- It can be helpful to provide respondents with diagram of the scale (without the scores) so they remember all the possible response options – this can be drawn on the ground, a board or paper

In summary

- Seven participatory tools are provided to support CES assessment: free-listing, cultural mapping, photo voice/choice, timeline, cultural calendar, ranking exercises and exploring attitudes with Likert scales.
- The tools provide different entry points for discussion about CES with individuals and communities in order to address the 3 key questions.
- Tools can be used singly or in combination; it is recommended that at least two tools are used to enable validation of findings
- The tools are only as good as the discussions they stimulate

STAGE 4: Analysis

Guidance and examples of the ways you can analyse your information are provided in this chapter. Before you begin to examine your data, it is worth recapping The 3 Key Questions:

'THE 3 KEY QUESTIONS'

- 1) What **aspects of nature** do people benefit from?
- 2) How do these **contribute to wellbeing**, and **to whose**?
- 3) And, how might **changes** affect the delivery of these services and the wellbeing derived from them?

The tools described in Stage 3 mainly yield 'information' about CES rather than the kind of 'hard data' many natural and social scientists are most familiar with. This information is largely qualitative in nature, rather than quantitative, although some methods of analysis can generate numeric information from qualitative information. Analysis is required to draw out the meanings contained within this information to be able to address the key questions and so that you can describe your main findings. The following sections describe a variety of approaches for analysing the data.

When selecting methods for analysis you must consider what information you need to answer The 3 Key Questions for your site, as well as the audience for your findings and how you will communicate your results to them.

4.1 Identifying themes

Much of the information collected during CES assessment will be verbal. Drawings, maps and other outputs of the participatory discussions may also provide valuable information.

The way people say things, the words and phrases they use to express themselves, are informative. If many people use the same words or expressions, this may indicate something important.

Analysis of this kind of information requires themes to be drawn out from the material, to represent the main ideas about CES expressed by community members. Your descriptions of the themes will change and evolve and become more accurate as you reach new understandings as you go through the material you have collected. Box 8 presents an example of themes generated to express perceptions of CES in a rural community in Romania.

Once themes have been identified and defined, information can be 'reduced' to 'short-hand' phrases or words that carry meaning for you and your team. This allows you to go through your collected notes, texts, images and recordings and draw out meanings from them. The themes and their definitions or descriptions will become important outputs of your assessment, and the process of developing them, a primary form of analysis.

Box 8: Examples of themes**Themes and commentaries on CES of a rural landscape, Romania**

A preliminary assessment used unstructured conversations with local officials, local men and women of various ages and a few non-local residents, facilitated by a translator.

Themes

Themes were identified during conversations with respondents and from notes written during or after conversations. Themes were given a 'short-hand' term or title and brief descriptions.

Fresh air: produced by trees; their greatest contribution; linked to expansion of forest

Landscape diversity: varying colours and textures; balance

Vistas: open, long-distance views; to see from one village to another

Easy walking: open paths allow easy movement

Traditional practices: pride in traditions of area; pride in their retention

White & ginger cow: Values of breed; looked best in landscape; social practices

Attachment to place: Positive associations of place and being in it

Commentary

The themes identified were described in relation to the ideas expressed by respondents that were relevant to CES and the benefits people got from the cultural landscape.

Fresh air: mentioned consistently by local and non-local respondents; increasing tree cover has made air even fresher; idea of 'fresh air' associated with other ideas - openness, lack of constraint, independence and freedom.

Landscape diversity: changes in land use changes landscape; diversity, colour, texture, patterns valued; balance between forest, pastures, fields, villages, gardens; concern over trend towards modern farming; increases in forest reduce diversity; change in landscape linked to deteriorating economy.

Vistas: openness of landscape linked to mobility and social connectedness; want to see from one village to the next; cultural landscape valued; forest expansion a concern.

Easy walking: more and less managed forest reduces views and makes walking difficult; paths used to reach farms and high fields becoming closed; sense of increasing isolation and reduced social interaction; reduced use of wild resources.

Traditional practices: Pride in traditions and wish to share them and preserve them; traditional festivals linked to traditional costume; traditional practices waning; decline in use of oxen and horse for draft; mechanised farming could not access all resources.

White & ginger cow: decline in cattle linked to economic decline; grazing important cultural and social activity; women associate grazing with social interactions, harvesting of resources, embroidering; men associated grazing with "holiday" from responsibilities

Attachment to place: produced by other values/activities; difficulties of many who leave due to lack of access to landscape and its resources; strength of attachment to place and activities; their intimate knowledge of the valley and its resources.

Source: Modified from Infield (2012b)

Themes can be listed and presented in a table (see Box 9). This can help you compare perspectives on values, issues or concerns related to CES, or compare the importance of different issues between groups.

Box 9: Example of frequency table of themes

Number of times theme is mentioned by different community groups			
Themes	Groups *		
	Local Men	Local women	Non-locals
Fresh air	6	6	2
Landscape diversity	4	6	0
Vistas	5	2	1
Easy walking	4	5	0
Traditional practices	2	3	2
White & ginger cow	1	5	0
Attachment to place	3	1	4

*Not actual figures

Source: modified from Infield (2012b)

As noted above, the words people use can be important in understanding their views. If recordings are made of interviews and transcribed, simple counts of word can be made using computer software. The frequency with which words are used can provide valuable insights and can be compared between groups. Box 10 shows an example of a word count being used to show differences in responses to CES amongst different groups.

Box 10: Example of a word counting approach**An example of counting words to assess preferences for nature**

Preferences for different vegetation types were assessed amongst three groups - conservationists, pastoralists and tourists. Respondents were asked to rank photographs in order of their personal preferences for the vegetation shown and explain their ranking decisions. Explanations were recorded and software used to counts word used in them. The words formed 20 'themes' of interest in or response to the vegetation types.

Six themes were common to all three groups (cells marked green) suggesting a set of common interests. The lushness and greenness of vegetation seemed important to all groups, as was the height of the grass. Some themes, including highly scored themes, were unique to the different groups (cells marked yellow), indicating different interests and values. Pastoralists were strongly interested in 'shade', which the other groups did not mention. Conservationists were unique in talking about the health of the vegetation while tourists were concerned about feeling comfortable and relaxed.

	Conservationists	% of words	Pastoralists	% of words	Tourists	% of words
1	Perceived degradation	2.50	Presence of grazing or pasture	4.31	Openness or thickness of vegetation	4.52
2	Level of disturbance or use	1.42	Openness or thickness of vegetation	3.83	Walking	2.56
3	Presence of grazing or pasture	1.33	Cows	2.53	Seeing, watching and views	2.03
4	Wildlife	1.13	Lush / green or dryness of vegetation	1.72	Level of disturbance or use	1.33
5	Lush / green or dryness of vegetation	1.02	Height of grass	1.19	Height of grass	1.17
6	Diversity	0.78	Shade	1.05	Wildlife	1.06
7	Height of grass	0.77	Perceived degradation	0.95	Lush / green or dryness of vegetation	0.98
8	Openness or thickness of vegetation	0.76	Seasons	0.63	Comfortable, inviting and relaxing	0.83
9	Habitats	0.74	Dams, wells	0.41	Interest and excitement	0.78
10	Seeing, watching and views	0.69	Valleys	0.33	Paths, tracks and roads	0.71
11	Perceived health of the environment	0.48	Water	0.32	Perceptions of beauty or ugliness	0.63
12	Technical management	0.44	Opportunities for construction	0.20	Diversity	0.58
13	Fire, burning	0.43	Sunshine	0.19	Recreational use	0.54
14	Recovery, regeneration, succession	0.41	Swampy land	0.18	Perceived degradation	0.56
15	Walking	0.37	Signs of people	0.18	Signs of people	0.48
16	Signs of people	0.27	Protection of species	0.17	Thorns and prickles	0.44
17	Cows	0.25	Wildlife	0.15	Sensations and imagination	0.34
18	Potential for agriculture	0.24	Flatness	0.15	Feelings of safety or danger	0.30
19	Protection of species	0.21	Place for resting	0.15	Habitats	0.22
20	Perceptions of beauty or ugliness	0.18	Fire, burning	0.14	Colours	0.15
Analysis of themes						
	Shared with all 3 groups	6	Shared with all 3 groups	6	Shared with all 3 groups	6
	Shared with Tourist group	6	Shared with Tourist group	0	Shared with Pastoralist group	0
	Shared with Pastoralist group	4	Shared with Conservationist group	4	Shared with Conservationists group	6
	Unique to Conservationist group	4	Unique to Pastoralist group	10	Unique to Tourist group	8

Source: Adapted from Infield (2002)

4.2 Stories and narratives

People often tell stories during interviews and group discussions. Stories can provide a large amount of information about CES and their contributions to wellbeing.

For example, stories can shine a light on values and CES benefits that are important to individuals and communities, how they experience nature, their attitudes and social norms towards it and how they perceive they benefit from it. Stories can describe changes that have been experienced or observed over time and indicate thinking about the future. Stories can provide information about attitudes towards a value, a place or a practice and on proposed policies or decisions that might impact on these.

By drawing out key ideas from stories, the researcher can develop narratives – accounts of the information provided – which describe and explain the positions and perspectives of individuals and communities.

Narratives, when firmly based on and representative of the material gathered, can be important outputs of the research. They must be prepared carefully to give them clarity and authority. They may draw upon a range of materials, including individual or family stories, notes from group discussions, field notes, conversations, and photos. They should be relatively short and easy to read and understand. Including quotations can strengthen narratives. People often express their views in strong and evocative language that can communicate their message effectively.

Box 11 provides an example of a narrative drawn from field notes of group discussions held in several villages in Liberia.

Box 11: Example of a narrative

Connections to crocodiles; stories from Liberia

A cultural connection exists between crocodiles and some *Vai* communities. It differs between villages but where it exists, people said it was important to them. Two clans had stories about crocodiles and what they mean to them.

One community described how a large and ancient crocodile would tell them whether the coming year would be a good one or not. An elder with the knowledge would call the crocodile and make offerings of a rooster and palm wine. If the crocodile took them the year would be a good one, if not, it would be a bad one.

Another community explained that their crocodiles help solve disputes in the village, while in another village crocodiles bring good fortune.

“Crocodiles are our friends. They never harm us. Even the children are not afraid of them.”

Though no one calls the crocodiles these days as those with the knowledge have passed on and the youth don’t know how, people felt that the practice could start again. Though the sacrifices and offerings no longer happen, people were clear that they neither hunted nor eat crocodiles. They tried to protect crocodiles from others, were not afraid of them, and did not consider them a threat or a danger.

Women in Marverma Town explained that Mawua Lake and the Mafa River were especially important for crocodiles but they were being killed by fishermen when they got tangled in their nets. The women explained that the fishermen were not sympathetic to the crocodiles. *Vai* women would always rescue a young crocodile nets, men might not. They asked for help to ban net fishing in key areas.

“We need the Lake Piso Warden to help us protect our crocodiles. We cannot save our crocodiles alone.”

Source: Modified from Infield (2011)

4.3 Analysing information from the free-listing tool

The order in which participants list items in free-listing exercises may indicate the relative importance of CES benefits. If many people's lists have a similar order, this indicates the relative importance of items listed to the community as a whole, providing the participants are representative of the wider community.

The frequency that CES benefits appear on lists indicates what a group or community considers important. Free-listing can generate counts of the most frequently listed CES benefits, rankings of the CES listed, and identification of rarely listed values which may nonetheless be important.

4.4 Analysing information from the ranking tool

Ranking methods can provide numeric information. Individuals or groups can be asked to list CES benefits and then compare them by deciding which are more important. This will allow the overall importance of different benefits to be compared and ranked (Box 12). When all the comparisons have been made, the total scores for each value can be calculated. The total scores provide the ranking and indicate which are considered most important.

Box 12: Example of analysing a ranking exercise

Analysing a ranking exercise of cultural resources in Liberia

A total of 28 comparisons were made. The graveyard was ranked as the most important site, scoring 7 out of a possible 7. This was followed by the bush school forest, which was considered more important than all other sites except the grave yard.

	Grave Yard (GY)	Bush school (BS)	Ceremonial prayer site (CS)	Go Tor well (GT)	Canoe (CN)	Tierimai creek (TC)	Jayjaymal creek (JC)	Kenwood forest (KF)
Grave Yard (GY)								
Bush school (BS)	GY							
Ceremonial prayer site (CS)	GY	BS						
Go Tor well (GT)	GY	BS	CS					
Canoe (CN)	GY	BS	CS	GT				
Tierimai creek (TC)	GY	BS	CS	GT	CN			
Jayjaymal creek (JC)	GY	BS	CS	GT	CN	TC		
Kenwood forest (KF)	GY	BS	CS	GT	KF	KF	KF	
Total score	7	6	5	4	2	1	0	3
Ranked position	1st	2nd	3rd	4th	6th	7th	8th	5th

The ranking largely follows the order in which the group wrote down the values, suggesting that simple listing in order can give a similar result to ranking. But it can be seen that the last value listed, Kenwood Forest, was ranked 5th even though it was the last to be listed.

List order	Ranking order
Grave yard	Grave yard
Sande bush school	Sande bush school
Ceremonial and prayer site	Ceremonial and prayer site
Go Tor well	Go Tor well
Canoe	Kenwood forest
Tierimai creek	Canoe
Jayjaymal creek	Tierimai creek
Kenwood forest	Jayjaymal creek

The ranking exercise indicated that areas of forest with cultural or sacred significance ranked higher than areas of forest or creeks that might have had more importance for resources. The three highest ranked values had no connection to material or economic resources. Their contributions to wellbeing were nonetheless considered to be of the highest importance.

Source: Modified from: Infield (2012a).

4.5 Analysing responses to attitude statements using the Likert scale

The Likert scale allows comparisons to be made between attitudes towards different values or issues. Numbers generated using a Likert scale can be converted into relative proportions (percentages of the total number of responses) allowing comparisons to be made or for indexes to be created by adding them together (see Box 13 for an example).

Box 13: Example of analysing attitude statements

Figures generated by a Likert scale used to create an index of attitudes towards a protected area and compare attitudes between groups

A series of statements representing attitudes towards the conservation of wildlife and a protected area were prepared and presented to respondents. Using a 5-point Likert scale, respondents were asked to agree or disagree with them. Scores were added up for individual respondents and used to indicate their position towards conservation and the protected area. The figures shown below are the percentages of respondents surveyed at different times or from different groups found to be positive, neutral or negative towards conservation and the protected area.

Statements presented to respondents

Positive attitude statements

- It is important to protect animals and plants so that our children can see and use them in the future
- The tourist who come to the area are useful to the people
- It is important to set aside a place for plants and animals to live in
- Grazing and farming should be prevented in the park, or else all the animals will disappear

Negative attitude statements

- What people and their livestock need is more important than protecting wild animals and plants

- The government made the park to take our land and keep us poor
- People should be allowed in the park to farm and graze animals as they wish
- Parks are a waste of land in Uganda when people are short of land
- People should be allowed to eat game meat. Why keep animals we cannot eat

Attitude index	1991 - 1992	1996-1997	Community project area	Outside community project area
Very negative	16 %	19 %	14 %	38 %
Negative	18 %	17 %	16 %	22 %
Neutral	16 %	16 %	14 %	19 %
Positive	21 %	19 %	22 %	8 %
Very positive	28 %	29 %	34 %	13 %

Source: Infield & Namara (2001)

4.6 Seeing the whole as greater than the sum of its parts

Throughout the assessment process a great deal of detailed information about the site will be recorded. You will encounter - and have to consider and try to understand - new, complex and interconnected ideas and ways of thinking.

Working as a team with local experts and stakeholders, everything that you have learnt will need to be condensed into a coherent idea of the CES of the site and their significance to the community so that they can be communicated to and understood by others.

Understanding is drawn from and backed up by all of the different pieces of information collected about the site but is reached by considering it as a *whole*. This means going beyond the sum of the many different pieces of information collected to create a comprehensive picture that is greater than the sum of the parts and conveys a deeper understanding.

The 3 key questions will provide a useful structure for pulling together the conclusions and key understandings. The questions can be supplemented and/or adapted to address the key issues at the site and primary concerns of the stakeholders and intended audience.

In summary

- The frequency that themes occur, or particular words are used, can provide valuable insights into the importance of particular benefits and to whom.
- By drawing out key ideas from stories, interviews, discussions and field notes, short narratives can be developed to clearly describe and explain the perspectives of individuals, groups and communities.
- Including quotations can strengthen narratives and communicate messages effectively.
- Analysing the frequency and order in which CES benefits appear in free-lists can be a useful indicator of what is considered important and to whom.
- Scores in a ranking exercise can be summed to understand the relevant importance of a space or benefit and to whom.
- Likert scale statement scores can be analysed to understand the perceived importance of CES benefits, attitudes towards change, and how these vary across individuals and communities
- To build a comprehensive picture it is important that the results of the various tools, discussions, interviews are brought together and digested as a whole.

STAGE 5: Communicating findings and conclusions

This chapter provides guidance for communicating findings and recommendations to the key decision-makers. The primary purpose of carrying out a CES assessment is to help ensure that decisions that may have impacts on ecosystems are informed by a good understanding of the many contributions these make to human wellbeing. In order to achieve this, final outputs must be communicated clearly and effectively to the target audience and the data must be accurate and verifiable.

5.1 Feedback

A critical first part of this stage involves communicating the results of the analysis with key informants and if possible, with representative groups or the community as a whole before finalising the conclusions. This can lead to further discussions, new insights and the correction of mistakes.

If the assessment is part of an on-going process of engaging with a community to support their decision making, there will be continuous feedback. If the assessment is a discrete activity to support another interested party such as a government, an NGO or a corporation, the information collected and the analysis carried out must be shared with those that participated in the process for their feedback.

How to report and present information to the community members and other stakeholders must be carefully considered. The same information may need to be presented to different groups in different ways or formats. For example, some people may not be able to read a long report or understand a complicated presentation.

5.2 Outputs for decision-making

In finalising the outputs you must take into account your audience. Who will use the outputs? How will they use them? This requires thinking about appropriate languages, communication formats and styles. The content of the output template is designed to be transferable to a range of communication media including a presentation, field report, synthesis and for face to face meetings.

The interests of decision makers vary and tailoring communications to the interests and perspectives of different groups is important – the actual information itself of course should not be tailored. A politician is likely to be concerned about how voters may respond to a decision and therefore how they may be viewed. A businessperson or corporation may be most comfortable looking at numbers or tables. Community groups may find it easier to understand short written reports with clear graphics and stories. Pictures and graphics can be powerful ways of communicating information to all groups. Alongside the results, a clear presentation of methods, assumptions, and limitations of the assessment must be provided.

Where the CES assessment is intended to feed into a broader ES assessment it is important to consider how the more qualitative information generated by GRACE, can be combined and integrated with information on provisioning and regulating services which may be more quantitative or monetary in nature.

Finally, the information contained in the final outputs should be considered to belong as much to those that provided it as to those that collected it.

5.3 A template for reporting outputs

Using a template may help you structure your report and communicate your findings effectively. An example template is provided below that you can use to communicate the outputs of your assessment to decision makers.

It should be understood as guidance rather than a prescription because the most appropriate styles and methods for communication will be different in every context, and should be tailored accordingly. However, providing a summary of the main findings of your assessment using a standardised structure may prove useful and allow comparison of assessments across sites.

The template has been filled in with hypothetical examples. You can modify the template by expanding boxes, adding rows, etc. to meet your needs.

It may be useful to add annexes to include additional information that may be useful for reference, validation or transparency purposes (e.g. list of key terms and their meanings, interview questions, sampling methods, sources of any secondary data, summary statistics from analysis of numeric data, etc.).

Cultural Ecosystem Service Assessment		
Assessment site, <i>E.g. Golden Falls National Park Hydro-electric Dam impact site</i>		
Country <i>E.g. Biodazia</i>		
Date of report: <i>E.g. 15th October 2020</i>	Assessor: <i>E.g. An organisation or individual.</i> <i>Include correspondence details.</i>	
Date of assessment: <i>E.g. 1st September to 29th September 2020</i>		
Summary and statement of intent: <i>Explain how you expect this document to be used and a brief description of what information it contains.</i>		
PART 1: SITE CONTEXT		
Area of site assessed: <i>Area within the boundary of the assessment site</i>	Biome: <i>Type of ecosystem(s) and climate.</i>	Site location: <i>Geographical coordinates and description i.e. km from city.</i>
Number of Participants: <i>How many participants took part in the assessment process</i>	Demographics of Participants: <i>Include how many males/females; locals/visitors took part in the assessment. If details on age, ethnic and wealth composition of the participants is known include this here.</i>	
1.1. Description of proposed change: <i>Briefly describe the proposed change that will affect the provision of CES at the site. Include timescales, policies and the institutions involved.</i>		

PART 2: RESULTS FROM ASSESSMENT	
Key Question 1. What aspects of nature do people benefit from?	
Places identified by participants: <ul style="list-style-type: none"> • E.g. Graveyard forest • E.g. River 	Map showing places identified: <i>If participants have produced a map it may be useful to include it - a copy of the original image (if legible and clear) or a schematic reproduction. Include a key.</i>
Types of cultural ecosystem services identified: <i>List the different types of CES people identified, noting where they find them.</i> <i>E.g. <u>Spiritual and religious</u>: from the graveyard and from a local stream where spirits live.</i> <i>E.g. <u>Recreational</u>: visitors hike up the mountain.</i>	
Key Question 2. How do these contribute to wellbeing and to whose?	
Most important spaces and CES: <i>From the analysis carried out, which spaces and/or cultural ecosystem services are the most important to different socio-economic groups? Include data and/or explanations that explain why they are considered important. It may be useful to include key quotes</i>	
<ul style="list-style-type: none"> • E.g. <u>Graveyard</u>: The graveyard ranked highest for all groups. The graveyard was also a focal point in narratives of cultural practices; one participant said 'The graveyard trees are still respected by all in the community, including the children, even when other customs are no longer respected by the younger generations'. The graveyard provides spiritual and religious CES as people go there to pray and perform religious burial ceremonies. It is part of the cultural heritage of the community because ancestors are buried there and the traditions have been upheld for many years. 	
<ul style="list-style-type: none"> • E.g. <u>Shade</u>: The term 'shade' was the 3rd most common theme for participants. Shading is valued because it provides places to talk, meet and rest out of the hot sun, contributing to CES such as health and social cohesion. Shade is provided by the central village tree and by big trees in fields. 	
<ul style="list-style-type: none"> • etc. etc. 	
Key Question 3. How might changes affect the delivery of services and wellbeing derived from them?	
List the CES that will be most affected by the proposed change: <i>This list will be informed by the findings from tools that explored or stimulated discussion on future change. You may also want to include CES that are particularly vulnerable; such as those that cannot be replaced by technological means or other alternatives. Provide a short explanation of the places that will be affected, how they will be affected and who will be affected.</i>	

- *E.g. Cultural heritage: The proposed development involves damming the river, which will reduce the river level and deplete fish stocks. Currently locals, particularly males, fish in the river; an activity they consider to be part of their way of life and self-identity. A young man said 'Fishing is very important to our community. All our ancestors fished in the river and we want to carry on the practice'*
- *E.g. Aesthetic: The proposed development involves damming the river and reducing the river level. All community members found the river to be attractive currently. However, today it is less attractive than the past when the river level was higher. One participant said 'The river is beautiful and natural and provides much joy to look at'*
- etc. etc.

PART 3: RECOMMENDATIONS

Summary for decision makers:

Provide a short summary paragraph on how the proposed change will affect CES at the site.

E.g. The findings from the application of GRACE indicate that if X change goes ahead, CES at the site will be lost/alterd/unaffected. Y is likely to be lost completely due to... Z will no longer be as aesthetically attractive to the community... etc.

Are there any alternatives that will minimise negative affects?

Do the team feel there are preferable alternatives to the proposed change based on the suggestions of the participants or from their own understanding?

E.g. It is recommended that the plan as it stands does not go ahead unless some alterations are made. The community indicated that the grassland to the north of the site is less important to them and suggested that more of this could be used for X development in place of the forested land.

Is there any further research that should be carried out before a decision should be made?

E.g. The scope of the study was not broad enough to explore the CES associated with a nearby lake that is outside the village boundary. Furthermore the results of the biophysical ES assessment should be consulted to identify other ES provided by the forest ecosystem, in order to strengthen its protection against land use change.

Annexes

Supplementary information useful for reference, validation, or transparency.

APPENDIX 1: Examples of questions and probes for investigating CES

Table A1.1: Example sub-questions and probes for each of the 3 key questions

3 key assessment questions	Examples of sub-questions and probes for revealing CES
1) What aspects of nature do people benefit from?	<ul style="list-style-type: none"> • What do you value? What natural resources do you value? Are there other things in nature that you value? • What aspects of nature/the natural environment/the cultural landscape do you value/are important to you/ matter to you/do you like? • What environmental spaces/natural features/ species/animals/plants/trees do you or other people in the community value or care about? • Where in the landscape do these occur? What bounds them? Do they occur in all habitats like this/in other places/just here?
2) How do these contribute to wellbeing and to whose?	<ul style="list-style-type: none"> • In what ways do individuals, groups or communities value aspects of nature/the natural environment/the cultural landscape? • How do you value them? Why do you value them? Why do they matter? Why are they important to people? In what ways are they beneficial to your/your communities' well-being? How do they contribute to your life/your community? What meaning does nature/the natural environment/the cultural landscape have? • If the feature/setting/species disappeared/reduced/changed, could these values be partly or fully replaced by something else? Could you find another way of getting the same benefits? Could you get the same thing from another location? What would you accept in their place if they were taken away? How would this affect you/your community? • Whose well-being do they contribute to? And in what ways? Are they important to everyone equally, or more or less important to others?
3) How might changes affect the delivery of services and wellbeing derived from them?	<ul style="list-style-type: none"> • How will changes in nature/natural environment/cultural landscape change over (specified) time affect wellbeing? • How has nature/ natural landscape / cultural landscape changed over time? How has what you value changed over time? How do you see it changing in the future? What are the drivers of these changes? What is going to cause these changes? • Suppose that in <i>X years</i>, <i>scenario Y</i> occurred, how would things be different, if at all? How would this affect your use and enjoyment of nature? How does this future compare to other futures? Would things be better, worse, or the same? • How would your/community wellbeing be affected by these changes? In what way would you/community benefit or lose? Who benefits and who loses from these changes? Would the impacts be the same for all members within the community, or would some individuals or groups be affected differently?

Table A1.2: Example indicators and probes for revealing specific kinds of CES benefits

CES benefits	Example probes for revealing specific kinds of CES benefits and indicators
Spiritual and religious	<ul style="list-style-type: none"> - Are there any places locally that you go to feel connected spiritually or religiously? Are there religious or sacred places for you in nature, where? Do you attach spiritual or religious feelings or values to some specific places locally? Where are these places? What do they mean to you? - What ceremonies or rituals are held in this landscape? Where are they held? Could they be held elsewhere? Who attends? Are any particular products from nature important in these ceremonies? Are there any other spiritual or religious or other ceremonies that take place in any areas? - # of intact ecosystems providing setting for spiritual/religious values - # of people participating in sacred activities/ ceremonies/rituals - # of people who relate religious/spiritual experience and wellbeing to local nature /landscape - # of species, plants, animals that used in sacred activities/ ceremonies/ rituals
Educational and ecological knowledge	<ul style="list-style-type: none"> - How is knowledge about the landscape shared? - Are there local places that are important for learning and education for example for children? Where are these places? Why are these places important? Who are they important to?
Cultural heritage	<ul style="list-style-type: none"> - Are there specific areas of local culture, traditions or wisdom that you appreciate and think are important? Why are these important? Do others share these values? Who? - Are there values handed down from other generations? How is this done?
Sense of place	<ul style="list-style-type: none"> - What about this area makes you feel particularly proud/happy/content/ why? - What places/features/sites contribute to making you feel that 'you are at home'? Could you tell me more about this? - When do you feel you are 'at home'? Are there important landmarks/natural features/trees/sounds/smells that help you to place yourself? Where are they? How do they contribute?
Identity	<ul style="list-style-type: none"> - How do you feel personally about the local area/landscape? What ties do you have for this area? Could you tell me about this? - Is your personal identity related to nature? - Does your community have an identity that links to nature?
Aesthetic	<ul style="list-style-type: none"> - Where are the most beautiful places here? Which sites are the most beautiful or attractive here? - Is there a sound, smell, feeling from nature that makes you feel good? - # of scenic places/views/trees/natural features - # of people enjoying scenic places/views/trees/natural features - # of people attributing scenic/aesthetic/visual benefits to a place/site/setting
Social / community relations	<ul style="list-style-type: none"> - Are there, for example, any particular activities that you do outside/in nature/ with other people? Why are these important? Could you do these in other locations? - Are there, for example, some important meeting places for you, or do you go somewhere to meet with other people?

Mental and physical health	<ul style="list-style-type: none"> - How does being in or looking at nature make you feel? Why? - Does nature affect your physical or mental health in any way? How?
Recreation and eco-tourism	<ul style="list-style-type: none"> - What are the favourite things you like to do after working hours and after you have finished the daily chores? Where are those activities done? Why?
Inspirational, creative or artistic	<ul style="list-style-type: none"> - What natural motives or artefacts, if any, do you use in your art, folklore? - What environmental spaces/natural features/species etc, if any, have been featured in art, sculptures, music, songs, and stories?
Existence values	<ul style="list-style-type: none"> - Are there any features or wildlife in this landscape that you feel are important to preserve irrespective of their use to you now or in the future?
Bequest values	<ul style="list-style-type: none"> - Are there any features in this landscape that you feel are important to preserve for your grandchildren, or for future generations?

Adapted from Fagerholm & Kayhko (2009); Hernández-Morcillo and Ilic (2013); and authors own work.

APPENDIX 2: Recording ecosystems at the site

This worksheet can be used to record landscape types and land uses observed. Add landscape types as needed. You will learn some things from direct observation but other information will come from local people.

Ecosystem	Present	Kinds of use	Signs of use	Local place names
FOREST (e.g. tropical, riverine, mixed, woodland, scrubland, plantation, etc.)				
AGRICULTURAL LAND (e.g. cultivated fields, fallow land, pastures, orchards, etc.)				
NON-PRODUCTIVE LANDS (e.g. rocks, abandoned land, mountain peaks, caves, etc.)				
WATER and WETLANDS (e.g. river, lake, springs, marshes, swamps, etc.)				
COASTAL and MARINE (e.g. mangroves, coral reefs, fishing locations etc.)				

Adapted from Illic (2013).

APPENDIX 3: Example of introduction and request for consent

When you first meet with a member of the community or other stakeholders, you will need to explain why you are there and request their consent to proceed. You must make a clear statement of who you are collecting the information for and why this information is wanted. Cultural ecosystem services assessment is generally carried out in order to improve decision-making in relation to ecosystems and the benefits they provide to people. The request for consent will need to be translated into the local language, and a written version may be distributed as appropriate.

Include in your introduction/request for consent:

- Your name(s)
- Where you come from
- Which organisation(s) you are with
- Why you are here
- That you will be taking notes and/or recording (if they are happy with this)
- How you will share the results and who with (externally and locally)
- That any information provided will be anonymous (unless otherwise agreed with specific individuals)
- Ask them if they are happy to go ahead with the interview/discussion and make it clear that they are free to say no
- Ask if they have any questions
- Thank them

You can use the example below as a template, filling in the blanks.

My name is

I come from and I work for

I have come to your community to talk to you about how people think about nature and the natural world here, in your place of, and how it affects your lives. I want to ask you and your community what you think about nature, what benefits you get from nature, and how nature is part of your lives here, now and in the past. I also want to ask you about what changes you think will happen to nature in the future and how this might affect you. There are no right or wrong answers.

I want to work with your community to prepare a report that will be given to The information is needed in order to

I will make notes of my conversations with you and use them to write my report. I will be happy to share my results with you before I share them with others so that you can be sure they are correct. All information that you or others give me will be treated anonymously – no personal names will be put in the report.

I would be grateful if you would agree to help me with this research, but if you prefer not to, please do feel free to say “no”.

Do you have any questions?

Thank you

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