

METT-4

A guide to the online Excel version of the Management Effectiveness Tracking Tool (METT) for protected and conserved areas

Fully updated questions and coverage drawing on 20 years of practical experience in thousands of sites around the world



This guidance document will eventually form chapter 4 of an updated version of the *METT Handbook*, due to be published in 2020. Many of the changes made in METT-4 respond to suggestions made in the Handbook. However, the revised METT, including an online version, is ready to use and we are therefore releasing an early version of this new guidance to help users.

This version of the METT is adapted from Stolton, S., Hockings, M., Dudley, N., MacKinnon, K., Whitten, T. and Leverington, F. (2007). *Management Effectiveness Tracking Tool. Reporting Progress at Protected Area Sites*. Gland, Switzerland: WWF

The full reference for the current handbook is: Stolton, S. and Dudley, N. (2016). *METT Handbook: A guide to using the Management Effectiveness Tracking Tool (METT)*. Woking, UK: WWF.

Excel Workbook Design and Development Team

Marc Hockings, Paul van Nimwegen, M.K.S. Pasha, Mohammad Fahad Imran, Rao Ramendra and Zafar Ahmad

Manual Writing Team

Sue Stolton, Marc Hockings and Nigel Dudley

Funding Support

The development of the Excel Workbook and revised Manual text was supported by IUCN Oceania Regional Office through the BIOPAMA programme (www.biopama.org), WWF International, Conservation Assured|Tiger Standards (CA|TS), Equilibrium Research and IUCN WCPA.

December 2020

Introduction

Following growing interest in protected area management effectiveness (PAME), in 1999 the World Bank/WWF Alliance for Forest Conservation and Sustainable Use set a target: 50 million hectares of existing but highly threatened forest protected areas to be secured under effective management by the year 2005. Various methods were used to measure the target, culminating in development of the Management Effectiveness Tracking Tool (METT), a simple, questionnaire type approach. The METT has since become the commonest PAME tool, used in over 2,500 protected areas covering over 4.2 million km² (i.e. over a fifth of the world's terrestrial protected areas by area) in at least 127 countries.

This is the 4th version of the METT. The 2002 version (now known as METT-1) was updated in 2005 (METT-2) to include an improved threat assessment. WWF supported a more detailed review and revision of the METT in 2007 based on experience, best practices and the need to reflect growing interest in its use from a wide range of other institutions across all protected area types and biomes. This version, known as [METT-3](#), remained the version used or adapted widely for over a decade. In 2016 WWF published a [handbook](#) for this version of the METT and made various suggestions for revision and updating the METT. As a result, the METT-4 has been developed.

METT-4 represents a major leap forward for the METT. The tool has moved from a word document to an Excel file with a range of functions both to present the results and to use the tool more effectively for adaptive management. Additional questions have been updated, to address issues relevant to protected areas today, e.g. climate change, and to provide greater focus on the assessment of outcomes, the lack of which has been a consistent criticism of the METT. The questions have also been reordered to make completing the METT an easier task.

The Excel version of METT-4 and this document were drafted in July 2020; the two documents were then field tested to ensure the functionality of the Excel and clarity of the guidance. The METT-4 Excel file has now been finalised and this document will form a new Chapter 4 of a revised METT Handbook due to be published in early 2021.

Please send any comments on METT-4 to: Marc Hockings (marc@paconservation.com); Sue Stolton (sue@equilibriumresearch.com) and Nigel Dudley (sue@equilibriumresearch.com).

December 2020

4. METT QUESTION-BY-QUESTION GUIDANCE

4.1 METT-4

The fourth version of the Management Effectiveness Tracking Tool (METT-4) has been revised following discussions around the need to develop some new questions, raised in the first edition of the *METT Handbook*, feedback from recent site applications, and the opportunity to build on an Excel version developed by KfW, the German state development bank. The guidance sections below are therefore designed to be used with the new Excel version of METT-4; and section 4.6 specifically deals with data management issues when using the METT. However, as most of the questions remain from earlier versions of the METT, the guidance should also be useful to anyone using older or adapted versions of the METT in terms of understanding the focus and intent of specific questions.

The METT was originally designed and is mainly used in the assessment of protected areas as recognised by IUCN and the Convention on Biological Diversity, although it has also been adapted for use in other sites, such as community forests. In recent years, the concept of “other effective area-based conservation measures” (OECMs) has been recognised; sites outside formal protected area networks where management nevertheless, by accident or design, helps to maintain biodiversity effectively. The METT could easily be adapted for use in OECMs. As in the case of protected areas, the UNEP World Conservation Monitoring Centre has begun to develop a [database](#) on OECMs.

This chapter provides additional guidance for completing the METT-4. It takes each of the main “sheets” in the Excel format in turn and describes how to complete each element in more detail.

4.2 Getting started

Please follow these instructions carefully otherwise you will not be able to use the METT-4 properly.

1. Open the file <METT4MasterFile.xlsm>
2. Depending on the setup of your machine please note:
 - If the file opens in **Protected View** you need to **Enable Editing** when prompted by the **Security Warning**.
 - If a second **Security Warning** appears saying that macros have been disabled, you will also need to **Enable Macros** before continuing.
3. Fill in the details on the **About** page with the following details:
 - Country (e.g., Australia)
 - Site name and year as one word (e.g., Lamington2020)
 - Name (e.g., Hockings)
4. Immediately Save the workbook in order to keep the Masterfile as a blank workbook for future use. **You do this by clicking on the orange button labelled “SAVE” at the top right.** This will bring up a save file dialogue box with the text from the Site name and

year field as the file name. Close the Master file without saving it and then open the newly saved site Excel sheet, again enabling Macros as necessary. You can then go to the METT-4 Introduction using the navigation button on the right of the sheet if you wish to read the general guidance on completing the METT or proceed straight to the Protected area attributes sheet, again using the navigation buttons.

4.3 Dashboard

The second worksheet is a Dashboard that presents a summary of the assessment as it is completed. No data is entered directly into this worksheet, but it can be printed at the end of the assessment to present an overview of the results.

The table "*METT scores per management element*" will be completed automatically. The spiderweb chart (see Figure 1) and bar chart show the percentage of maximum scores in orange and your percentage scores in blue. The chart shows how the various individual METT-4 scores contribute to five of the six elements of management effectiveness identified in the assessment framework from the IUCN World Commission on Protected Areas: *planning, process, inputs, outputs* and *outcomes* (the sixth, *context*, has already been addressed in the sections on attributes and threats). This summary may help to see if there are consistent strengths and weaknesses in management and where greater attention is needed in the future.

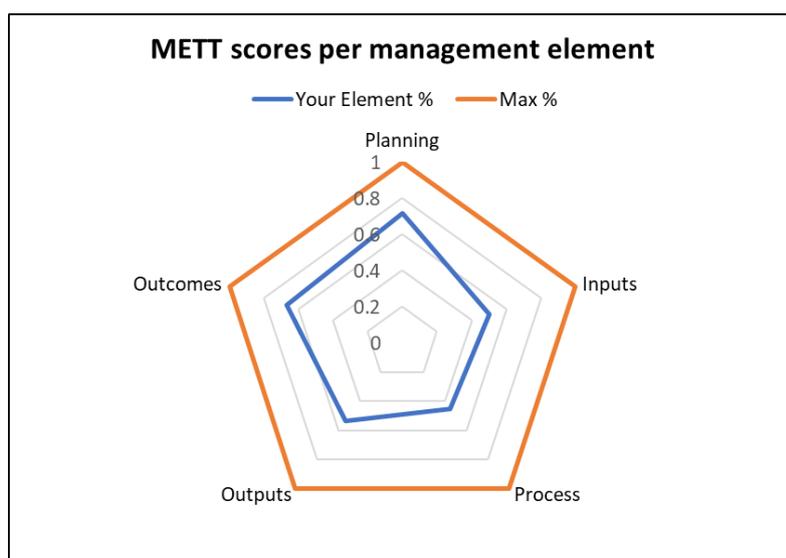


Figure 1: Example of a spider graph illustrating a fictitious sites scores

The Dashboard also presents summary information on threats and on more detailed Outcomes information on condition of values and status and trend of species and habitats.

4.4 Background information on protected area attributes

The first sheet (sheet 4 on the Excel file) which needs completing is "*protected area attributes*"; a worksheet that compiles basic data about name of the protected area, size, any formal designations, etc, but also baseline information vital for the remaining assessment including values, main ecosystem services and management objectives. Some parts are self-explanatory and are thus not discussed further below; for others we give explanatory background wherever necessary.

The format of this page is laid out at the top. There is a list of questions, room for an answer (which sometimes is a tick box or drop down list), space for any notes which help clarify the answer and a “notes” column which includes a shortened version of the guidance given below. Assessors should work down the list of questions and click on the “your answers” box to complete the worksheet.

Several of the questions include drop-down lists of answers. To access drop-down lists where these occur, click on column B and open using the downward arrow that will appear on the right.

Country: in some cases (transboundary protected areas) there may be more than one country to list

Location of protected area: add details of the area in which the protected is sited, e.g. province, state, county etc and, if possible, map reference. Note, the METT is designed to assess entire protected areas. If the protected area is zoned and management is particularly different for each zone, separate METTs could be completed for the different zones.

Year of assessment: add here the year (e.g. 2020) for which you are carrying out the assessment.

Name of protected area: this should be the full name; and should be the same as the name included on any official list (from the government, [World Database of Protected Areas](#),¹² etc). If the site is known by more than one name, or if the name has changed recently, include alternatives, stressing which one is now the “official” name.

WDPA Site Code: each protected area has a unique identifier code, which is listed on the [World Database of Protected Areas](#) (WDPA) (e.g. <https://www.protectedplanet.net/2013> is the site code for Yellowstone National Park in the United States). To find this, type the name of the protected area into the search function, open the record for the site and the WDPA ID is listed on the top left of the page.

NOTE: collecting data on the entire global protected area system is challenging and nothing is ever perfect. If you think there are mistakes on the WDPA relating to your protected area, please contact protectedareas@unep-wcmc.org

Year of establishment: the year of establishment should be provided in the [WDPA](#) record. For state protected areas, usually the date of legal establishment should be provided. However, sometimes state-run protected areas operate for years before the legal process of establishment is completed. In this case the date when the protected area was agreed by the government should be listed. For sites where designation has changed over time (e.g. if a nature reserve has been changed to a national park) list both dates if possible: first establishment of the protected area and then the later change in national designation. For privately protected areas or community conserved areas, usually the date of purchase or the date when an area of land or water was announced or agreed as a protected area is

considered the date of establishment. Along with the data, note what the date refers to (e.g. legal establishment, government announcement, self-declaration by community, etc).

National Designations: this refers to the national category given to the protected area – such as *national park*, *wilderness reserve*, *nature reserve*, etc. Listing this is important because in most countries each designation will have their own policies, rules and sometimes legislation, which will influence management and is important for interpreting the METT results.

IUCN Protected Area Category: most, but by no means all, protected areas are also identified by the national government as falling into one of the six IUCN management categories. This is important, because the way that individual countries define something like a “national park” might be very different in terms of the way that it is managed: the IUCN category provides an international standard. IUCN categories are usually listed nationally and on the site record of the [WDPA](#). For more information see the [Guidelines for Applying Protected Area Management Categories](#) (Dudley, 2008). In the METT, the Excel sheet has a dropdown menu listing all the IUCN categories. Select the appropriate category from this dropdown list – do not type the category name directly into the answer field. If you inadvertently type directly into the field, you will get an error message – select **Cancel** (rather than Retry) and then use the dropdown list. If more than one IUCN category is applied to parts of the protected area (although not common, this can be the case in very large protected areas), list just the *main* category here and list all applicable categories in the next cell (**IUCN PA Category (Other) – list category numbers that apply**). This will be quite a rare situation; protected areas only include multiple categories in a minority of cases and where these are defined in law.

International Designations: the METT includes a list of international designations which may also apply to the site being assessed. Three are important and discussed below, each needs to be reviewed and a dropdown box is used to indicate if the site is listed under each designation and for World Heritage sites the criteria under which the site is listed.

- **World Heritage:** there are hundreds of natural or mixed natural and cultural World Heritage sites around the world and most of these are protected areas. The information needed to fill in this section should be on the [UNESCO World Heritage list](#),¹³ which is in alphabetical order by country. Each site entry includes key information on date listed (the date when the World Heritage Committee recognised the site as belonging to the World Heritage List), the name (which may be different from the name generally used in the country) and the area. The site entry also includes the criterion or criteria (i to x) for which the site was listed, which can be identified by the relevant number(s) in the METT-4 Excel sheet after noting if the site is World Heritage listed or not. You can select multiple criteria by choosing each one in turn and then opening the dropdown list again. Ideally add the link to the site entry on the World Heritage website in the “notes” field (e.g. <https://whc.unesco.org/en/list/682> links to Bwindi Impenetrable National Park in Uganda).
- **Ramsar:** a key commitment of the Convention on Wetlands’ Contracting Parties is to identify and place suitable freshwater and coastal wetlands onto the List of Wetlands of

International Importance, also known as the Ramsar List. There are over 2,300 Ramsar sites. To find out if a site is listed, see the map, list and associated information on the [Ramsar Sites Information Service](#)¹⁴. Ideally add the link to the site entry on the Ramsar website in the “notes” field (e.g. <https://rsis.ramsar.org/ris/1202> links to Humedales Del Sur de Isabela in Ecuador).

- **Man and the Biosphere:** information on UNESCO Man and the Biosphere (MAB) reserves can be found in the [Directory of the World Network of Biosphere Reserves](#) (WNBR),¹⁵ which gives basic data on establishment and size. Note that MAB designations cover three zones: core, buffer and transition, and countries vary about whether or not they list all three zones as “protected areas”: many only list the core zone so in these cases the protected area may be part of the MAB reserve. Ideally add the link to the site entry on the WNBR website in the “notes” field (e.g. <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/asia-and-the-pacific/australia/kosciuszko/> links to Kosciuszko National Park in Australia).
- **Other designation:** There are a number of other, usually regional, designations such as the [Association of South East Asian Nations \(ASEAN\) Heritage sites](#) and [Specially Protected Areas and Wildlife \(SPAW\)](#) in the Wider Caribbean Region. These other designations can be typed into the worksheet.

Has the site been identified as a site of particular importance for biodiversity? A list of the five common designations for sites of biodiversity importance can be selected from the drop-down list. Multiple systems can be chosen by clicking each relevant designation in turn, by going back to the dropdown list.

1. [Key Biodiversity Area](#) (KBA): are sites contributing significantly to the global persistence of biodiversity, in terrestrial, freshwater and marine ecosystems. The [Global Standard for the Identification of Key Biodiversity Areas](#) sets out globally agreed criteria for the identification of KBAs worldwide.
2. [Important Bird and Biodiversity Area](#) (IBA): are places of international significance for the conservation of birds and other biodiversity. The identification of Important Bird and Biodiversity Areas (IBAs, called Important Bird Areas until 2013) follows [criteria](#) set out by BirdLife International.
3. [Alliance for Zero Extinction site](#) (AZE): identifies the most important sites for preventing global extinctions, i.e. those that have threatened species restricted to just a single site in the world. There are three [criteria](#), which sites need to meet in order to listed.
4. [Ecologically or Biologically Significant Marine Areas](#) (EBSA): support the healthy functioning of oceans and the many services that it provides. The process has been led by the Convention on Biological Diversity (CBD) which has developed [criteria](#) to identify EBSAs.
5. [Important Plant Areas](#) (IPA): are globally significant sites for wild plants and threatened habitats. Managed by Plantlife International, three [criteria](#) form the basis for the listing process.

As with the International designations above, it is helpful to add, where relevant, the URL to the specific site information sheet in the “notes” field (e.g.

<http://www.keybiodiversityareas.org/site/factsheet/9502> links to the KBA at Lille

Middelgrund, Denmark, or <http://datazone.birdlife.org/userfiles/file/IBAs/CaribCntryPDFs/bonaire.pdf> links to Bonaire in the Dutch Caribbean).

Governance Details: four main options for governance of the site are given in the drop down boxes (state, private, Indigenous people and communities, co-management), which reflect the four governance types identified by IUCN; for more information see the *Guidelines for Applying Protected Area Management Categories* (Dudley, 2008). If none of these matches, an “other” option is given. The “notes” field should be used to provide more details and clarification.

Management Authority: name the body responsible for management of the site: this could be a government department, NGO, community, commercial company, etc

Size of Protected Area (in km²): Enter this value directly, converting hectares or other measures to km². Note that this can also be found on the site record of the [WDPA \(see box above on what to do if the record is wrong\)](#).

Number of Staff: first indicate whether the site has staff or not (yes/no). If there are staff, record the number of permanent and temporary staff (in numbers only) who usually work in the site over a year. The “notes” field can be used to provide more detail, for example if staffing has been calculated into terms of FTEs (Full Time Equivalents) etc. Do not forget to include all staff, including those working on administration or staff shared with other sites.

Available Budget: provide the total available annual budget for the area in local currency and name the currency in the next field. If the period being reported is *different* from the year of assessment note the year being reported in the “notes” fields. Ideally, also break budget information down into recurrent (operational) funds and project or other supplementary funds, providing these on an annual basis in the same currency as available budget.

Annual Visitor Numbers: if possible, give the exact number of visitors annually, where this not known give an estimate. Please give the period being reported in the “notes” field if different from the year of assessment.

What are the Main Values for which the Protected Area is Designated? major values might consist of either natural, cultural, social or economic attributes of the area. The METT-4 provides space for the five main values to be listed. Answers should be focused and quite short. Additional information can be provided in the “notes” field. Values may sometimes be written down formally (for instance in application for World Heritage status or in the protected area management plan), or they may be implicit. **Values can be identified at a level of specificity that makes sense in terms of the management of the protected area.** A value could for instance be a particular ecological community or a particular species of special importance. *Sites may have a wide range of social, cultural and/or economic values but they would generally be expected to have at least some natural values.* If detailed values have not been identified a generic list of value types is provided below and in

the METT-4 Excel sheet (click on the “*additional guidance*” link to take you to the final Excel sheet on the METT-4, containing detailed guidance, which can help guide response).

The values that assessors list here are also used to assess impacts of threats so it is worth spending some time really thinking about the values and their management.

Natural Values

Major natural values should include nature or biodiversity values (e.g. threatened species, priority habitats or ecosystems) and should also consider:

- Ecological processes
- Landscape and connectivity values
- Geological and geomorphological features
- Paleontological values
- Scenic values and outstanding natural beauty

Social Values

Major social values may include:

- Recreational use
- Social significance to local, regional or national communities
- Historic sites and structures

Cultural Values

Major cultural values may include:

- Significance to Indigenous people
- Sites and artefacts of Indigenous importance
- Sites with importance to faith groups and religions
- Historical or archaeological importance
- Access to resources of cultural importance (e.g. medicinal plants and traditionally harvested resources)

Economic Values

Major economic values may include income that is importance at the local, regional or national level from:

- Tourism or recreational use of the area
- Sustainable use of resources
- Payments for ecosystem services

What are the main Ecosystem Services delivered by the Protected Area: sites are increasingly being recognised for, and sometimes managed in part for, their ability to supply ecosystem services additional to biodiversity conservation; including contributions to food and water security, disaster preparedness and a range of recreational, cultural and spiritual values. Some of these will be useful mainly to people living in or around the protected area, other ecosystem services will benefit people living further away, or provide general benefits at national or even global scale. An understanding of the main benefits is important in building an effective management plan; some will also be a potential source of income. Note: some of these ecosystem services may have already been identified as values in answer to the previous question.

Sites are asked to identify up to three major ecosystem services from a dropdown list of 11 services. More details can be provided in the “notes” field.

1. Wild food (fish, herbs, honey, game...)
2. Traditional agriculture and aquaculture (farming, livestock grazing)
3. Agriculture support (pollination, pest predators)
4. Water security (quality, also sometimes quantity)
5. Timber and non-timber forest products
6. Health benefits (medicines, exercise, mental well-being)
7. Climate mitigation (carbon sequestration and storage)
8. Disaster risk reduction
9. Cultural, spiritual and aesthetic benefits
10. Recreation and tourism
11. Education and research

List the two most important Protected Area Management Objectives: these should be in the management plan, but there will often be more than two. In this case, or if objectives have not been formally written down, people compiling the METT should agree on the two most important management objectives. **At least one of these should have a *conservation focus*** rather than, for instance, tourism management or supply of ecosystem services. Identifying the management objectives of the site being assessed is important as the assessment of management in the rest of the METT assessment should be made against these objectives.

Number of People Involved in Completing Assessment: it is important that the assessment should not be carried out by one or two people in isolation but that it should be a discussion between various rightsholders and stakeholders. This section records both the total number of people and then includes a breakdown of who was involved. The first row automatically sums the numbers of people from different sectors (e.g. PA manager, PA staff NGOs from the rows below).

Was the METT assessment carried out in association with a particular project, or on behalf of an organisation or donor?: record here why the METT is being carried out; for example as a condition of getting a GEF grant, or because it is standard government policy, or a personal interest of the manager, etc. When the data in the Protected area attributes worksheet has been completed, use the orange navigation button at the top right of the worksheet to move to Threat Assessment sheet.

4.5 Detailed assessment of threats

The threat assessment is based around an adapted [typology of threats](#)¹ developed by the Conservation Measures Partnership (CMP) and IUCN as part of the [Open Standards for the Practice of Conservation](#). The threat assessment provided in the METT-4 is the most detailed assessment included in the METT, a simpler version is provided in the 2007 METT.

However, for many threats even more detailed assessments may be needed. For example, the METT-4 assessment has an overall assessment for recreation activities and tourism impacts, but for some areas there may be multiple and quite different threats under this one heading. In a marine protected areas, for example, recreational threats might include trampling of

¹ For more information see: <https://cmp-openstandards.org/library-item/threats-and-actions-taxonomies/>

seagrass beds which is a local impact and divers threatening coral reefs which might be widespread. For the METT-4 assessment, all threats from a particular activity need to be considered and an overall assessment made; however the threat assessment template provided in the METT-4 can easily be adapted to carry out more detailed threat assessments for specific threats facing a particular protected area, if this is required.

What is a threat?

In this context, threats are the human activities or processes that have caused, are causing, or may cause the destruction, degradation, and/or impairment of biodiversity targets (e.g., unsustainable fishing or logging). Threats can be past (historical), ongoing, and/or likely to occur in the future.

- Column A and B: in the METT-4 Excel sheet: the CMP threat classification is provided in the first two columns; the second column giving the more detailed description, which provides the starting point for the assessment.
- Column C: a short description of the threat should be given here. It is important to define the period of time being assessed here, e.g. is the threat ongoing or imminent (e.g. within 5 years).
- Column D: the more detailed threat assessment which follows should only be made for threats which impact the main values of the protected area. A dropdown box in this column will bring up the values identified in the protected area attributes. If more than one value is impacted by a threat, you can select multiple values by selecting each in turn, by going back to the drop-down list to select additional values. Select these in order, from most impacted to least impacted.
- Column E: Threat extent. This assessment is made using a drop-down list which assesses the extent of the threat (i.e. how much of the protected area is affected) rated as *very high*, *high*, *medium* and *low*, ranging from a widespread threat affecting the value throughout the site to very localised threats in only limited locations. If the METT is being used as a long-term assessment tool it may be useful to develop further guidance for the individual protected area, or protected area network, on how to interpret these classifications, as threat levels vary around the world. Column I (see below) also includes a “notes” section where more information can be provided on the reasons behind this assessment choice.
- Column F: Threat severity. This assessment is also made using a drop-down list with four categories from *very high* to *low*. Again, developing specific site/system level guidance is recommended here if the METT is being used regularly. Column I (see below) also includes a “notes” sections where more information can be provided on the reasons behind this assessment choice.
- Column G: Source of information: It is useful to add details on the information base used to make the threat assessment, both to help in acting on the results of the METT and for reference for those using the METT for future assessments.
- Column H: Management response. *This is the most important column*; not only does it detail responses to specific threats, but it should also be noted when carrying out repeat assessments to see what actions were planned, to check if these took place and if they had an impact in mitigating the threat. Please ensure these responses are reflected in Question 33.

- Column I: Notes. Any notes regarding the assessment can be added here, relating to the threat extent or severity or additional information regarding the threat.

It is important when completing the assessment to note that the first two threat categories are on the impacts of activities happening *within* the protected area, the rest of the assessment looks at impacts from within and beyond the area's boundaries; which can in some cases include activities beyond state and country borders.

The threat assessment categories should be easy to understand and any notes about the specific form of the threat in the site/system being assessed can be made in the column C. It should be noted that:

- Threat 2 (agriculture and aquaculture): the focus is on illegal drug cultivation, the collection of species from the wild is covered in threat 5.
- Threat 3 (energy production and mining): energy generation looks specifically at threats from hydropower dams *within* protected areas. Hydropower developments outside protected areas can also threaten protected areas and the impact of such threats is covered in threat 7.

This assessment is linked to question 33 in the multiple-choice section of the METT, which assesses how threats to the main values are being addressed by management.

SMART Patrolling

The Spatial Monitoring and Reporting Tool ([SMART](#)) is designed to improve anti-poaching efforts and overall law enforcement effectiveness in protected and conserved areas and similar where there is active ranger patrolling. SMART enables the collection, storage, communication, and evaluation of data on: patrol efforts (e.g., time spent on patrols, areas visited, distances covered), patrol results (e.g., snares removed, arrests made), threat levels, and other enforcement activities. It also helps in recording information on important wild species. The "SMART Approach" combines a site-based management tool with capacity building and a set of protection standards. When effectively employed to create and sustain information flow between ranger teams, analysts, and conservation managers, the SMART Approach can help to substantially improve protection of wildlife and their habitats. SMART is already used in over 500 sites in almost 50 countries. People involved in SMART and METT are working together to maximise the synergies between these tools. SMART data, where available, will be a key input to threat assessments carried out for the METT.

4.6 METT-4 questions + scores

This sheet lists all the multiple-choice questions in the METT-4. When you click on a question, you will be taken directly to the sheet that contains the respective question. At the top of each sheet there is a "[Back to METT-4 questions + scores](#)" link. When clicking on this, you will be taken back to this overview page.

The column "*Your METT score*" will be automatically filled in as you go through the METT questions and score them. If some questions are not relevant to your protected area, tick the

box, which is found at the top of each METT question worksheet. The maximum METT score will be automatically adjusted if particular questions are not relevant. However, please note down on the respective sheets why questions are not relevant, so later assessors can understand the reason they were not answered.

Where available, add any METT scores from a previous assessment to the column "*Your METT score from last assessment*". This way, you can more easily identify potential trends or inconsistencies in scoring and see if management is becoming more or less effective over time.

4.7. Explanatory Notes for each of the METT multiple-choice questions

The following notes provide specific guidance on the individual multiple-choice questions, which make up the main assessment element of the METT-4, and where necessary further sources of information are given. Each question has a separate Excel sheet. The questions are addressed in the order they appear on the Excel.

Each Excel sheet is laid out in the same format, which is explained below.

- For each question, assessors are first asked if the question is relevant, or for questions 37 and 38 if the knowledge exists to answer the question. Most questions should be relevant and completed; but in a few cases (for instance if no Indigenous people are associated with the site) the question should be marked as not relevant and the assessors should move onto the next (click the button indicated). If a question is marked as not relevant, please complete the narrative box below it to provide **an explanation as to why the question was not answered** (note that you will not be able to proceed without providing this justification if you select this option). It is worth reading the whole question and all the answers before deciding if the question is not relevant as the METT tries to be as comprehensive as possible of protected area issues and status around the world. The questions should thus not be marked as not relevant because a specific action or input to management is not in place (e.g. if there is no management plan) as these situations should be included within the assessment, and options in the multiple choice questions are provided for such cases. If questions are marked as not relevant the overall maximum score will be adjusted accordingly.
- Each Excel sheet identifies the topic being assessed on the top line; gives the question, an edited version of the guidance provided here, and then four possible answers. The first step is to make the appropriate assessment of management by clicking on the button to identify which answer matches your situation most closely from the four options provided. The METT has been developed for all types of protected areas (e.g. all governance and management types, all biomes, all sizes etc); inevitably a global tool may not always exactly match the actual situation in a protected area. The next narrative section "*Evidence and justification*" can be used to explain why an answer has been chosen and specific issues which were felt not to fully match the protected area's situation. The answers are automatically converted to a corresponding score from 0-3 for calculating overall management effectiveness results in the METT-4 questions and scores sheet.
- Once a response to the question has been selected, assessors should go to the "*Evidence and justification*" line of the Excel sheet. Here a narrative explanation can be provided

on the reasons for choosing the particular answer. Notes may also be needed on why a specific answer has been selected if the situation described in the options does not totally fit the realities of the protected area. This is a very important element of the METT because it provides a record of the thinking behind the assessment and helps make the tool useful for management, for providing a baseline for subsequent assessments, and to help people who may be filling in the METT in the future. You must provide a response in this field.

- A further narrative section “*Actions to improve management*” should detail next steps and be used to outline adaptive management actions if the response to the assessment reveals management weaknesses. This field is mandatory, so add “*no actions required*” if management is satisfactory. Actions should consider what would be needed to improve management to reach the levels outlined in the multiple-choice answers and thus for improving the overall METT score. This is often the most important part of the assessment because when the METT has been completed you will be left with a list of management objectives that can (i) form the basis of future planning and (ii) be the first things to check in future assessments. The answers provided in this section are then prefilled in the final Excel sheet “*actions to improve management*” which is used to develop a full action plan to implement any necessary management changes as a result of the METT assessment (see section 4.5)
- The final piece of information which can be completed when filling in METT-4 is to provide more details about the information sources assessors used to help inform them about which answer/score to give for each question. Information sources are broken down into six categories (research and monitoring; planning documents and departmental data; staff experience; external expert opinion; community opinion/traditional knowledge and other). As noted above, SMART patrol data is ideally suited to helping complete the METT and recommendations for development of SMART patrolling might be one possible management action. This information is relevant as it helps identify where good evidence is available, e.g. research and monitoring where applicable; and where it is not. It also provides any external reviewer, managers who have not completed the assessment, and those carrying out repeat assessments with vital information on the sources and knowledge base used in the assessment. Finally, it also encourages the use of community opinion/traditional knowledge in the assessment.

METT-4 has 38 questions; eight more than the original METT as some questions have been broken down into two to make responding to them easier, and new questions have been added on issues like climate change. The order of the questions has also been revised in METT-4 to make the flow easier to follow and understand. Because some users may be using older versions of the METT, where question numbers have changed, we give the number used in previous versions in [square brackets].

Below we take each question in turn, as it appears on the METT-4 Excel sheet.

1. **Legal status:** this usually only refers to state-managed protected areas. In the case of many privately protected areas and indigenous and community conserved areas (ICCAs) legal status is not an option and this question is not applicable. The question can be marked as such and there is space provided to explain why the question is not relevant.

Where such areas do have some formal status (e.g. a covenant or legal recognition of Indigenous Protected Areas) and are therefore recognised as protected areas, the METT assessment should be completed. Further information can be found in the IUCN *Guidelines for Protected Area Legislation* (Lausche, 2011).

2. **Protected area objectives:** this question refers to the primary management objectives identified in the protected area attributes sheet. Were these obvious or did the assessment group have to work them out? Lack of clear objectives probably means that management is itself undirected and likely to be inefficient: a process for confirming objectives, for instance a stakeholder workshop, should if necessary be noted in *Actions to improve management*. Key references include the original legislation establishing the reserve, in the case of state-run protected areas, and management plans, information and knowledge of day-to-day activities. [This was question 4 in the 2007 version of the METT.]
3. **Protected area regulations/controls:** this refers to the existence of both legal regulations and customary controls; for instance, protected areas managed by private individuals, trusts or communities should still have clear rules regarding use of land and water. [This was question 2 in the 2007 version of the METT.]
4. **Planning for adjacent land/sea use:** planning for land and water use outside the protected area is generally outside the control of the protected area manager, indeed in some cases adjacent areas may be in different countries or different jurisdictions. But the decisions made can significantly affect the protected area, so it is important that the potential impacts of planned use of adjacent are assessed. Where threats are having a detrimental impact on the area it is important to record this, even though actions to minimise risk may be challenging, as these threats will have an overall effect on the chances of fulfilling the area's conservation objectives. Examples could include upstream dams that cut off water flows, major fish farming developments that increase pollution and create significant disturbance, or large-scale clearing in surrounding areas that isolate the protected area from other habitat areas. [This was question 21 (Planning for land and water use) in the 2007 version of the METT.]
5. **Protected area design:** issues to consider here include whether key species are adequately protected (for instance it would be an issue if a marine protected area omitted a nearby area where many of the constituent species bred), whether it is large enough to support viable populations, and whether events outside the protected area could undermine its value (for instance if a hydroelectric power project dammed a river and interrupted flow). It is also important to consider, where possible, projected future climate change influence in this assessment: for instance, if sea level rises, is there space in the protected area for a mangrove forest to retreat inland?
6. **Protected area boundary demarcation:** it is important that staff, stakeholders and rightsholders recognise the boundary and that people know if they are encroaching the protected area. Maps and/or GPS systems are generally used to create the protected area boundary officially recorded in gazette; however, the boundary on the ground can be different, and often associated with specific features. There is therefore often a need for boundaries to be interpreted according to the local context. Boundaries on land are

often marked by a sign or marker and in marine areas by buoys or coordinates on charts and maps.

- 7. Management planning:** in most cases this will be a formal management plan, written down and in the case of government-managed protected areas often also approved by the relevant department or ministry. In other cases, management plans may be less formal, agreed through discussion with community members, and existing only as oral agreements, minutes of meetings or other customary arrangements. The aim of this question is to see whether management is following a set and logical course.

Additional points on management planning: these additional questions go beyond the basic assessment and identify whether good practices are in place in relation to management planning. All these additional questions should be considered during the assessment. If the area complies with the question being asked, add a tick in the box next to the question. The Excel will automatically generate the additional scores in the “*Your additional points*” field.

Each additional question is discussed in more detail below:

7a. “Stakeholders” in this case refers to people beyond the immediate management authority, such as local communities or indigenous peoples living in or near the protected area, sometimes also tourism operators, local government and industry. If there has been no such involvement, the “*actions to improve management*” box should identify those people who should be involved in the future. Ensuring good governance and equal opportunity includes access by all groups and genders to the processes.

7b. Many formal management plans cover 5-10-year periods. But things can change over this length of time. For example, new pressures can develop, or new management opportunities can arise. This question captures whether there is a way to make sure such changes are integrated into management, and if it is easy for lessons learned to inform actions as management proceeds.

7c. The fact that monitoring takes place, and assessments are carried out, is no guarantee that the results are incorporated into management. The question addresses this and, if answered negatively, the “*actions to improve management*” box should include concrete, time-bound proposals to address the lack.

- 8. Regular work plan:** this will usually refer to an annual plan, aimed at implementing the next stage of the management plan. You can answer this question even if you don’t have a management plan in place. Again, this can be formal (written down and approved) or informal but it must be known about and agreed by all relevant parties.
- 9. Resource inventory:** in this case “resources” refers primarily to biological and cultural values of the site. Have there been recent surveys of plant and animal species? Do managers know where culturally important sites or sacred natural sites exist, so these can be protected? In *Actions to improve management* it is important to identify knowledge gaps and suggestions for future surveys.

- 10. Staff numbers:** this assessment should address whether the protected area has sufficient staff to manage the site effectively and to fulfil its management objectives. It should include consideration of all people working in the protected area if supported by the government (e.g. the army is involved in some protected area management), NGOs or other funding sources. Answering this question might be slightly more difficult for privately protected areas or community-managed sites. Here, the issue will be more about having sufficient numbers of people involved for there to be capacity to manage rather than “employment” in a traditional sense. In some remote protected areas, with few pressures, there may be no permanent staff but rather one person will have oversight of several protected areas. Ideally, the answer to this question should be informed by a needs assessment of staff requirements against completing the actions outlined in the management plan/system. [This was question 13 in the 2007 version of the METT.]
- 11. Knowledge and skills:** this question addresses whether the people currently involved in managing the protected area (managers, rangers, support staff etc) require additional training to be able to manage the site effectively and fulfil its management objectives. Responses can help to identify where training programmes are needed, which can be noted in the *Actions to improve management* field. [This was question 14 in the 2007 version of the METT and the focus was on staff training.] The question has been reworded to make its intent more relevant and the assessment questions more applicable for a wide range of protected area governance types, e.g. where the site is managed by the areas owners not hired staff.
- 12. Current budget:** this question relates to the total amount of annual budget, rather than to budget security which is addressed in the next question (13). Virtually every protected area will consider themselves as inadequately financed! This is not aimed at identifying whether more money would be useful but whether there is sufficient budget to carry out effective management, implement the management plan and fulfil the protected areas management objectives. This question refers to the total amount of funding available to the protected area annually including government allocations, admission fees, project funding, donor support and similar compared to the running costs of the protected area. The assessment should consider total actual costs (operational, staffing, equipment) deciding which of the multiple-choice answers best fits the situation. [This was question 15 in the 2007 version of the METT.]
- 13. Security of budget:** the main question here is whether the budget is reliant on intermittent project funding or whether there is a reasonable chance of it being maintained over time – for instance because it is a core part of a government budget, or maintained through a private organisation, community, or has low costs and strong volunteer support. [This was question 16 in the 2007 version of the METT.]
- 14. Management of budget:** this question assesses whether budget expenditure is properly planned and monitored through the year or if there are over- or under-spends? Consider if accounts are published annually and audited. If the answer reveals serious weaknesses the *Actions to improve management* text should suggest concrete actions, such as drawing up an annual budget, hiring a qualified accountant or bringing in a permanent or temporary business manager. [This was question 17 in the 2007 version of the METT.]

15. **Equipment and facilities:** this could include, for example, equipment such as vehicles, communication systems, tools, uniforms and contributory materials like fuel. Facilities can be buildings and other important infrastructure that is needed to manage the protected area, such as guard posts, offices etc. Note that visitor facilities are specifically dealt with in question 29. [This was question 18 in the 2007 version of the METT.]
16. **Law enforcement:** issues to consider include personal capacity (training, skills) and adequacy of equipment and infrastructure (vehicles, routes to access remote areas, etc.) along with an assessment of whether staff are familiar with laws, regulations and prosecution requirements. “Staff” relates to both those formally employed and those responsible for management in other governance types. The *Actions to improve management* section should identify needs if the score is low. [This was question 3 in the 2007 version of the METT.]
17. **Protection systems:** the question focuses particularly on enforcement, and will be applicable in places where there is pressure from poaching, encroachment, illegal mining etc. In protected areas with no such pressures, designation and management can be judged “largely or wholly effective”. This is less about capacity and resources for enforcement (already addressed in question 16) and more aimed at whether this capacity is being used effectively. Highly trained and well-resourced rangers are being outmanoeuvred by poaching gangs with even better resources; this question aims to determine whether current enforcement activities are sufficient for the pressures being faced. [This was question 10 in the 2007 version of the METT.]
18. **Staff safety:** this question assesses whether the safety of staff is considered in management, including the mitigation of threats where possible (e.g. through adequate equipment, training, etc) and the provision of support to minimise impacts when staff security is impacted (e.g. medical and life insurance, etc). Rangers and other staff face many threats and the results from a major ranger survey found that over 40 per cent thought the job was dangerous and recorded a range of deficiencies in equipment that if in place would make the job less hazardous (Belecky et al, 2019). [This is a new question and was suggested in the development of the Bhutan METT+ (see case study).]
19. **Research:** this could include research work carried out by the protected area itself but more usually covers research by associates, volunteers, students, citizen science recorders and academics. In the case of protected areas run by communities or Indigenous peoples it would include, for instance, surveys of species being used for subsistence, such as fish or non-timber forest products, to ensure a sustainable supply. Monitoring and evaluation are addressed in another question (20); here the emphasis is on particular research projects that can help to understand and thus better manage the site. The presence of researchers is not enough to evoke the top score, but only if research is properly integrated into the needs of protected area management. [This was question 11 in the 2007 version of the METT.]
20. **Monitoring and evaluation:** this question addresses monitoring and evaluation of both the *management activities* of the protected area which impact on the condition of key values and the *threats* to the protected area. In the evidence and justification section it

would be useful to list what is monitored and how often. As with research, the stress is on properly integrating the results into protected area management, as monitoring and evaluation which is not linked back into management actions will have no impact on increasing management effectiveness and achieving an area's conservation objectives. [This was question 26 in the 2007 version of the METT.]

- 21. Resource management:** management here refers to activities in addition to enforcement needed to ensure effective conservation of critical habitats, species, ecological processes and cultural values. It can include habitat creation (plant nursery, coral nursery), protection (fencing, enclosures, moorings) and restoration (reforestation, artificial reefs). It can also include fire management, invasive species control and protection of culturally and spiritually important sites. Where sustainable resource extraction is permitted, management will include monitoring of these resources, possibly introduction of temporary zoning etc. Management also includes active steps to protect culturally and spiritually important sites. Clearly for such a wide ranging question, it is important that the evidence and justification field is completed with details of the various ways such management is carried out [This was question 12 in the 2007 version of the METT.]
- 22. Climate change:** this question focuses on management adaptations to predicted climate change, and how these are already being implemented. [This is a new METT question as suggested in the first issue of the *METT Handbook* and was first proposed by WWF in 2009 to support REDD mechanisms, and by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) as part of the Protected Areas Resilient to Climate Change, PARCC West Africa project in 2012 (Belle et al., 2012).] Adaptation to climate change means reducing the vulnerability of natural and human systems against actual or expected climate change effects. Managing for climate change adaptation in protected areas includes:

 - a. *Building a strong foundation:* Assembling available knowledge and resources, planning for change, and developing a long-term capacity for informed, flexible management.
 - b. *Assessing vulnerability and risk:* Undertaking quantitative or qualitative analyses to determine which species, ecosystems, and other values are most vulnerable to changing conditions, and identifying the key vulnerabilities that pose the greatest risk to achieving conservation goals.
 - c. *Identifying and selecting adaptation options:* Recognizing and prioritizing strategic and tactical actions to achieve short and long-term adaptation goals in protected areas.
 - d. *Implementing actions:* Taking action based on the previous analysis and deliberation.
 - e. *Monitoring and adjusting:* Measuring indicators of success and failure and using that information to evaluate and recalibrate decisions (Gross et al., 2016).
- 23. Carbon capture:** carbon capture and storage describe the process of capturing and storing carbon dioxide before it is released into the atmosphere. Methods for “preventing carbon loss” in protected areas will depend on the ecosystems being managed. They might involve preventing fire in forests or grasslands where fire is not a necessary part of

ecosystem dynamics or managing the timing and intensity of fire in fire-dependent ecosystems. In peatlands, this will involve maintaining natural water regimes and preventing fires from burning the peatlands. If natural vegetation is removed, this frequently also leads to loss of soil carbon (often a far larger store than the vegetation itself); soil carbon will generally take far longer to build up again even if vegetation regrows or is restored. Carbon capture can also be enhanced, where appropriate, through ecosystem restoration or other habitat management that increases the storage of carbon in standing vegetation or in the soil. [This is a new METT question and links to the previous additional question on climate change.]

24. **Ecosystem services:** does management consider ecosystem service provision? This investigates both whether existing or potential ecosystems services are known about and, if so, whether some or all of them are being managed for. Because this is potentially an endless question, it is suggested that answers focus on the major ecosystem services already identified in the attributes section. Given that this is still a new issue for many protected area managers the *Actions to improve management* section should be specific about actions and next steps. [This is a new question and relates to the new listing of main ecosystem services in the protected area attributes worksheet.]
25. **Education and awareness:** this question covers education both for learning establishments, such as schools' programmes, and also the provision of more general educational opportunities for local communities or recreational visitors. Consideration needs to be made on what is appropriate, depending on the location and context of the protected area. [This was question 20 in the 2007 version of the METT.]
26. **State and commercial neighbours:** this question is aimed at assessing the extent to which a protected area either co-operates with or remains isolated from the wider economy. Is there co-operation with government and commercial interests surrounding, impacting on and/or benefiting from the protected area? This could include water suppliers, hydroelectric plants, ranchers, forestry activities or similar. Note that tourism operators are the subject of their own question (27); while this question is aimed at assessing the extent to which a protected area either cooperates with or remains isolated from the wider economy. It does not address local community land users but focuses on government and large commercial or industrial land users. The question can relate to transboundary cooperation where necessary. [This was question 22 in the 2007 version of the METT.]
27. **Commercial tourism operators:** the presence of a protected area is a draw to tourists and thus a boost to the commercial trade. Tourism operators should be natural partners with protected areas, but this does not always happen. If this question generates a low score, the "*actions to improve management*" field could identify some of the key people it would be important to talk to and develop cooperation with. [This was question 28 in the 2007 version of the METT.]
28. **Fees:** not all protected areas should or do collect fees; this question is not applicable in these cases. The aim here is more to find out, where fees are an expected part of the protected area management, whether they are used to help management or simply

disappear into the government and provide no support for the protected area. [This was question 29 in the 2007 version of the METT.]

- 29. Visitor facilities and services:** not all protected areas need visitor facilities; this question is judged against the perceived need. Issue of adequacy and appropriateness is critical here, protected areas with low visitation do not require extensive visitor facilities. Answers should focus mainly on facilities inside the protected area but may also consider facilities immediately adjacent to the protected areas, where these directly impact on visitor experience. [This was question 27 in the 2007 version of the METT.]
- 30. Indigenous and traditional peoples:** this will be not applicable in cases where there are no Indigenous people present. Note that different countries use a range of terms to describe such cultures: ethnic minorities, traditional peoples etc. Consider both formal consultation or less formal contact when judging the answer and consider issue of governance and equity. If possible, it would be useful to also discuss with the Indigenous people and understand how included they feel. Further information: *Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies* (Beltrán, 2000); *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation* (Borrini-Feyerabend et al., 2004). [This was question 23 in the 2007 version of the METT.]
- 31. Local communities:** this assesses the level of influence that communities have on the overall decision-making process: mere consultation is rarely sufficient. "*Relevant decisions*" refers to all decisions about aspects of management that affect local communities and their relationship and interaction with the protected area. [This was question 24 in the 2007 version of the METT.]

Additional points on local communities and Indigenous people: these additional questions identify other important elements in relation to protected area management, local communities and Indigenous people. All these additional questions should be considered during the assessment. If the area complies with the question being asked, add a tick in the box next to the question. The Excel will automatically generate the additional scores in the *Your additional points* field.

Each additional question is discussed in more detail below:

31a. this question focuses on open communication and trust; it is particularly important to discuss why if this score is given.

31b. this could include both programmes directly related to the protected area, such as managed use of non-timber forest products or fish resources, and programmes initiated by the protected area for the general good, such as developing schools or supporting healthcare.

31c. again evidence is needed if this additional score is given; examples could include voluntary patrolling, help with surveys, providing political support amongst local government etc.

- 32. Livelihood benefits:** this question is aimed explicitly at local communities. Benefits can include direct jobs, Payment for Ecosystem Service schemes, indirect benefits from

increased tourism or sales to visitors, and other options such as guiding. To score 3 on this indicator, economic activity associated with the protected area should be a substantial contributor to the local economy. This indicator only refers to economic benefits arising from legal or sanctioned activities, which do not impact the protected area's conservation objectives, and not those arising from illegal activities. [This was question 25 (economic benefit) in the 2007 version of the METT.]

- 33. Threats:** this should consider those threats identified in the threat assessment as having the greatest extent and severity. The focus is then on how the identified threats are being managed. This question captures and summarises the information completed in the threat assessment at the start of the METT. Please refer back to the assessment when answering this question and reflect the management responses given in the threat assessment in the “*actions to improve management*” field. [This is a new METT question.]
- 34. Connectivity:** protected areas remain vulnerable if the species they contain are genetically isolated and the protected area acts like an island. This question focuses on functional connectivity of the protected area, addressing its direct linkages to other natural ecosystems, use of biological corridors, etc. This question may also not be applicable for some sites (e.g. remote offshore islands protected because of unique flora and fauna, or micro-reserves established to protect particular crop wild relatives). But if not answering this question, a careful explanation of why is needed. For more information see Hilty et al, 2020. [This is a new METT question.]
- 35. Condition of natural values:** this question covers the current condition of the important natural values of the protected area. Ideally, the protected areas should have monitoring data relating to key species or habitats, and possibly access to remote sensing data to compare vegetation cover over time. The assessment should compare the current condition to changes since the protected area was first designated OR ten years previously if earlier data are not available.

Before question 35 there is an additional “*Detailed Assessment of Values*” sheet which should be completed where there are sufficient data available on the condition and trend of values to be able to make an assessment. This additional assessment does not contribute to the overall “score” of management effectiveness in the METT but can inform the rating on Condition of Values that is made in Question 35. In completing the assessment table, it will be important to review available monitoring results and to draw upon the knowledge of researchers, managers and community members in reaching a consensus understanding of the condition and trend in values. The assessment will be prefilled for each of the values identified in the attributes sheet. For each value assessed, a justification of the assessment and management suggestions for improving the condition and/or trend should be included. The Excel sheet provides full guidance on the criteria to be used when completing this assessment.

If there is insufficient knowledge to make this additional assessment, this should be indicated in the tick box provided and Question 35 should then be answered based on available knowledge. The informed opinion from managers and rangers, or from other management groups such as local communities, will give some indication of the

condition of natural values. Given the significance of this question, a careful listing of *evidence and justification* and *information sources* is particularly important. Some sites and protected area agencies choose to expand this question to include additional questions relating to particular indicator species. [This was question 30 (condition of values) in the 2007 version and is split into two (35: condition of natural values and 36: condition of cultural values). The METT was not designed to assess conservation outcomes, as this involves detailed monitoring not conducive to a rapid assessment. But there have been consistent calls to enhance the METT's outcome assessment, hence these additions.]

Additional points on the condition of natural values: these additional questions identify other important elements in relation to protected area management and natural values. All these additional questions should be considered during the assessment. If the area complies with the question being asked, add a tick in the box next to the question. The Excel will automatically generate the additional scores in the "Your score" field.

Each additional question is discussed in more detail below:

35a. Monitoring: to really know if nature conservation values are increasing or decreasing, monitoring data are needed. It is practically impossible to monitor everything, so most sites choose to monitor a few key species, or areas of natural vegetation, and to keep a more general note of other obvious changes. Monitoring can be carried out by rangers (for instance as part of SMART monitoring), by research scientists that come and make periodic counts, by volunteer citizen scientists or by local communities.

35b. Management programmes: this implies something more than day-to-day management, such as restoration programmes, eradication of invasive species, habitat creation or special efforts at reducing poaching threats. These will often include special, time-limited programmes funded by government or donor grant, or temporary changes in management using existing resources in different ways. Give details in the *evidence and justification* section.

35c. Routine part of management: some long-lasting threats and pressures need to be addressed as a routine part of management, such as anti-poaching controls, regular removal of invasive species, or seasonal supply of supplementary water. The question implies that the management action is a deliberate step to addressing an actual or potential threat. Again, give details in the *evidence and justification* section.

36. Condition of cultural values: many protected areas contain important cultural values: sacred natural sites, pilgrimage routes, historic buildings, archaeological remains, etc. Protected area managers are generally at least in part responsible for the upkeep of these; in the case of some privately protected areas or ICCAs these may be the main values stimulating protection. This question will not be relevant to all sites. Note that some cultural values may also be partly natural values, such as such as maintenance of ancient woodland coppicing systems, or traditional nomadic pastoralism. [This question is new, although it comes from splitting the 2007 version question 30 into two parts.]

Additional points on the condition of cultural values: these additional questions identify other important elements in relation to protected area management and cultural values. All these additional questions should be considered during the assessment. If the area complies with the question being asked, add a tick in the box next to the question. The Excel will automatically generate the additional scores in the “Your score” field.

Each additional question is discussed in more detail below:

36a. Monitoring: this is likely to be less formal than for monitoring of natural values, but implies that some regular monitoring is taking place; for example that rangers regularly check that historical or cultural sites are undamaged and – where appropriate – that there is regular contact with institutions or communities that are interested in these sites.

36b. Management programmes: tick if there are particular management programmes in place to protect cultural values, such as fencing of archaeological remains, repair of ancient trackways or restoration of traditional woodland management. Give details in the *evidence and justification* section.

36c. Routine management: tick here if the management and operational plans include routine management of cultural sites; this might include working with local communities to ensure that sacred natural sites remain intact, zoning areas to avoid visitor damage to historical or prehistoric remains or regular maintenance of traditional management systems. Again, give details in the *evidence and justification* section.

- 37. Conservation status of key indicator species:** this is a key question to find out how well the protected area is doing and gives additional information to back up question 35; a definition of an indicator species is given in the box below.

As with question 35, there is an additional “*Detailed assessment of species*” sheet which should be completed where there are sufficient data on the status of at least some key indicator species present in the protected area to be able to make an assessment. This additional assessment does not contribute to the overall “score” of management effectiveness in the METT but can inform the rating on Conservation Status of Key Indicator Species that is made in Question 37. In completing the additional assessment, it will be important to review available monitoring results and to draw on the knowledge of researchers, managers and community members in reaching a consensus understanding of the status of key indicator species. The Excel sheet provides full guidance on the criteria to be used when completing this assessment.

If there is insufficient knowledge to make this additional assessment, this should be indicated in the tick box provided and Question 37 should then be answered based on available knowledge.

If the protected area implements a monitoring protocol to measure the condition of key indicator species regularly, using specific indicators and defined thresholds, the results will help answer both the additional assessment and question 37. We suggest you score C if some but not all indicators have improved. [This is a new METT question.]

Definition of indicator species:

A species sensitive to environmental change, which can therefore provide a measure of health for the ecosystem. Indicator species can signal a change in the biological condition of a particular ecosystem, and thus may be used as a proxy to diagnose the health of an ecosystem. For example, plants or lichens sensitive to heavy metals or acids in precipitation may be indicators of air pollution. Indicator species can also reflect a unique set of environmental qualities or characteristics found in a specific place, such as a unique microclimate. However, care must be exercised in using indicator species. Judging an ecosystem based on the response of a single indicator species might be like taking a pulse on a patient and immediately prescribing a treatment without a) further examination, b) other indicators such as blood pressure, or c) knowledge of the patient's past medical history.²

- 38. Conservation status of habitats:** this question focuses on the status of habitats within the protected area over the five years previous to the date of the assessment. If your protected area implements a monitoring protocol to measure the condition of habitats regularly, using specific indicators and defined thresholds, the conclusions from your monitoring activities will help answer this question. We suggest you score C in cases where some but not all habitats have improved substantially. [This is a new METT question.]

As with questions 35 and 37 there is an additional “*Detailed assessment of habitats*” sheet which should be completed where there are sufficient data on key habitats (e.g. seagrass beds, old growth forests, lakes and rivers) present in the protected area to be able to make an assessment. It does not contribute to the overall “score” of management effectiveness in the METT but can inform the rating on Conservation Status of Key Habitats that is made in Question 38. In completing the additional assessment, it will be important to review available monitoring results and to draw upon the knowledge of researchers, managers and community members in reaching a consensus understanding of the status of key indicator species. If there is insufficient knowledge to make this additional assessment, this should be indicated in the tick box provided and Question 38 should then be answered based on available knowledge. The Excel sheet provides full guidance on the criteria to be used when completing this assessment.

4.8 Actions to improve management

Once you have completed the METT-4, a table will show what you have captured in terms of all the “*actions to improve management*” that were identified as needed to increase or maintain your METT scores. The first column of the table will automatically be updated to include the scores you have provided for each question. In the second column you can add previous METT scores for comparison. The third column will take the text from the “*actions to improve management*” sections of each of the multiple-choice questions.

² For more information see: https://www.iucn.org/sites/dev/files/iucn-glossary-of-definitions_march2018_en.pdf and <https://www.eopugetsound.org/articles/indicator-species>

The table then allows you to develop an *action plan* by identifying:

- By when? Providing a timeline for actions
- Who is responsible? Identifying a point person responsible for the action
- Who else needs to be engaged? Identifying other staff/partners who need to be involved
- Budget needs. What funds are needed, which can also include source of budget (i.e. core funds or project support)
- Other comments

This table is the most important part of the METT in that it can serve as the basis of a workplan for the protected area and will make it easier to follow-up on the results of the METT assessment.

We suggest that the table should be used soon after completion of the METT to draw up a workplan for implementation. Actions should be divided between those that are feasible within the current budget and staff members, and those that will require additional money and perhaps extra people or expertise. Then for each, actions should be ordered by priority. Those of high priority and within the current budget can be written into the current or at latest the next year's workplan. Priorities that need additional resources need to be identified in current and future funding proposals.

4.9 Data management

The worksheets in the METT-4 Assessment Excel workbook are locked to prevent inadvertent changes to text and formulas, except for those cells where information needs to be entered as part of the assessment process. An overview of results is accumulated on the worksheet *METT 4 questions and scores*, which can be printed if a hard copy is required. Similarly, the *Actions to improve management* worksheet can be printed once it has been completed. Both are best printed in landscape format.

Data from multiple assessment can be compiled in a separate Excel file *METT4_exported_data.xslm* that is supplied along with the main METT-4 Excel file. This exported data file should not be renamed until data from all individual assessments has been exported to this file. Once data export from all assessed sites has been completed, the file can be re-named with an identifying name if desired. *Changing the filename prior to completing data export to this file will result in an error.* To export data, both the workbook that contains the assessment and the file *METT4_exported_data.xslm* must be open. There are data export buttons at the bottom of the *Protected Area attributes*, *Detailed assessments of threats*, and the *METT4 questions and scores* worksheets in the METT-4 Assessment Workbook. Clicking on these buttons will write the data from that sheet to a corresponding worksheet in the *METT4_exported_data.xslm* file as a single row of data using the name of the protected area specified in cell B6 in the *Protected area attributes* worksheet as a common data field across the three worksheets. Each time a button is clicked it will write a new line of data to the data file so this should only be done once for each worksheet. The data file can then be used with the METT Assessment file from another protected area to accumulate the information from assessment of multiple protected areas, or assessments over time for a single site. Information from the data file can then either be analysed in Excel or moved to a relational database for further analysis.