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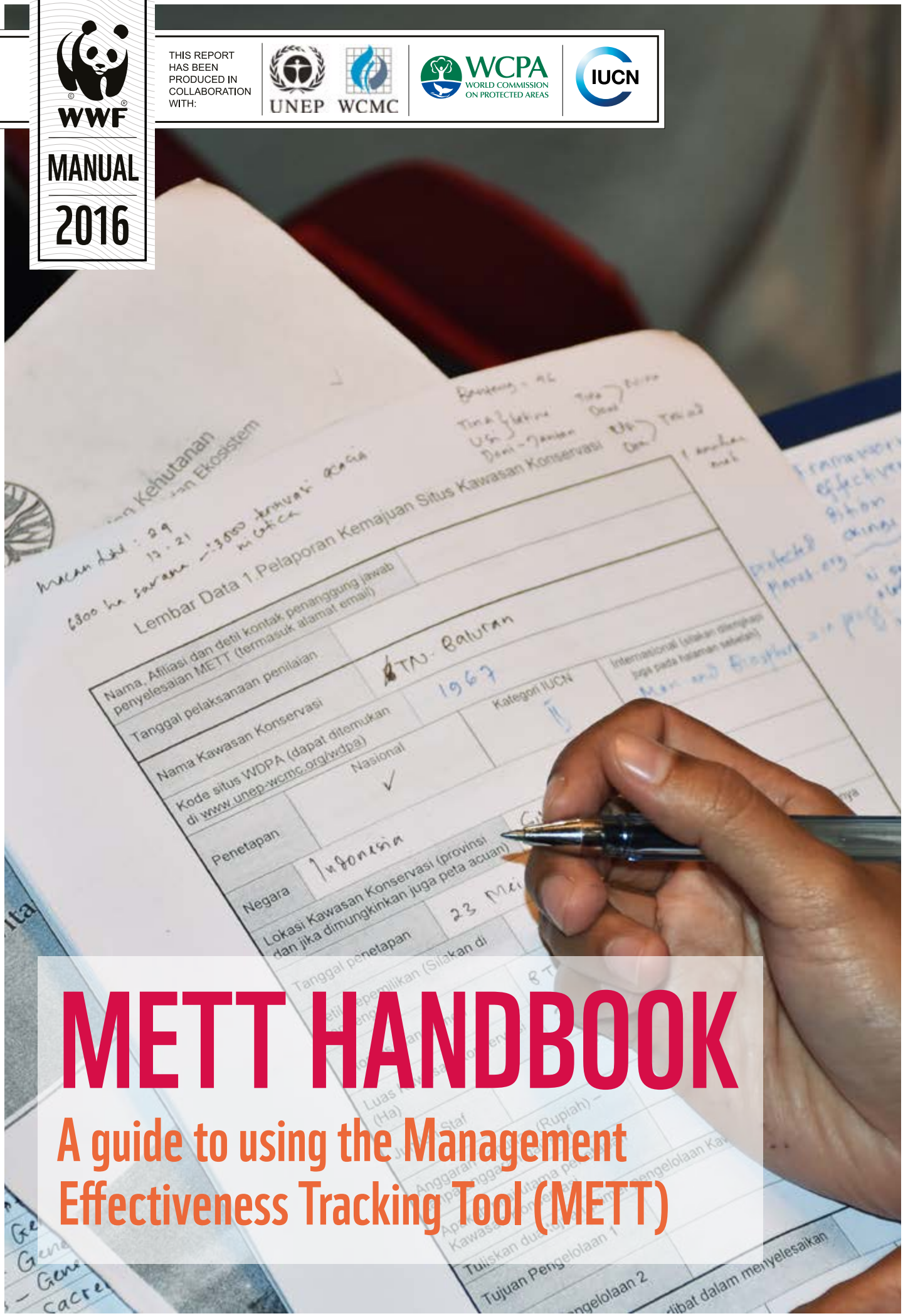

METT HANDBOOK

A guide to using the Management Effectiveness Tracking Tool (METT)

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REFERENCES AND NOTES

Acknowledgements

This handbook draws on the work of WWF and the World Bank regarding the original development of the Management Effectiveness Tracking Tool (METT); on the work of many colleagues in WWF, The World Bank, GEF and other institutions on applying the METT over 20 years, on a wide range of literature and on discussions with a range of friends and experts in identifying lessons learned and next steps.

Specifically we would like to thank: Glyn Davies (WWF UK) for funding this work and for his insights into the first draft. For their detailed comments on various drafts thanks to Neil Burgess (UNEP-World Conservation Monitoring Centre); Marc Hockings (The University of Queensland, Vice-Chair (Science) IUCN World Commission on Protected Areas and Senior Fellow, UNEP-World Conservation Monitoring Centre); Matthew Linkie (Wildlife Conservation Society) and Llewellyn Young (Ramsar Convention Secretariat – Oceania). Thanks also to K Knights for comments on the draft and data analysis from the METT database, Naomi Kingston (UNEP-WCMC) and to Lauren Coad (OUCE, University of Oxford) for additional comments in relation to the data used here; Fiona Leverington ((The University of Queensland) for the contribution and lessons learned from PNG; Dechen Lham (Wildlife Conservation Division, Department of Forests and Park Services, Ministry of Agriculture and Forests, Royal Government of Bhutan) for development and comments on the Bhutan case study; Khalid Pasha (WWF) for comments on the section on CA|TS and Tony Whitten (Flora and Fauna International) for comments and suggestions.

We would also like to acknowledge the developers of the GD-PAME and METT databases and the data they contain, which was gathered together with protected area managers globally. The data was collated under the auspices of the IUCN WCPA Management Effectiveness Task Force, working together with Universities of Queensland, Oxford and Copenhagen, UNEP-WCMC and with financial assistance from various donors, including WWF and the GEF.

FOREWORD

It is a pleasure for WWF-UK to support the development of this Handbook, which builds on the widespread use of the Management Effectiveness Tracking Tool (METT) for protected areas in many countries and different contexts.

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The METT was developed as part of the WWF-World Bank Forest Alliance programme and the first version was field tested in 2001. Since then it has been adopted and adapted by the Global Environment Facility and many other countries, organisations and projects, as outlined in this publication.

As the authors note in this Handbook, the uses to which the METT has been put go far beyond the original intention, which was to have a systematic way of gathering information on whether protected areas (largely terrestrial ones) were being managed effectively. This would allow people to challenge themselves on making improvements over time, and allow some comparison between sites. What it could not do, without considerable additional information, was convincingly show whether effective management was leading to improved ecological and social outcomes. Furthermore, the quality of each METT depends on the knowledge and diligence of the assessors, and the integration of information from a diverse range of stakeholders.

The purpose of this METT Handbook, therefore, is to provide definitive up-to-date guidance on METT implementation. In so doing, it outlines improvements that have been pointed out over the years, and sets a framework within which to understand how to get the best from this tracking tool – without having unrealistic expectations.

This latest review has come about through Sue Stolton and Nigel Dudley's diligent pursuit of ever improving a popular tool to help protected area managers assess their progress and make their management more effective. It emerged through the IUCN-UK Committee, as an extension of a project looking at protected areas in the UK, and as such is a collaborative effort between WWF, IUCN WCPA and UNEP-WCMC. I hope it continues to provide even more support to protected area managers in the years ahead.

Glyn Davies
Living Planet Centre, August 2016

"Protected Areas are a central part of any national biodiversity strategy, and WWF is pleased to support this important Handbook, to help managers of protected areas increase their effectiveness."

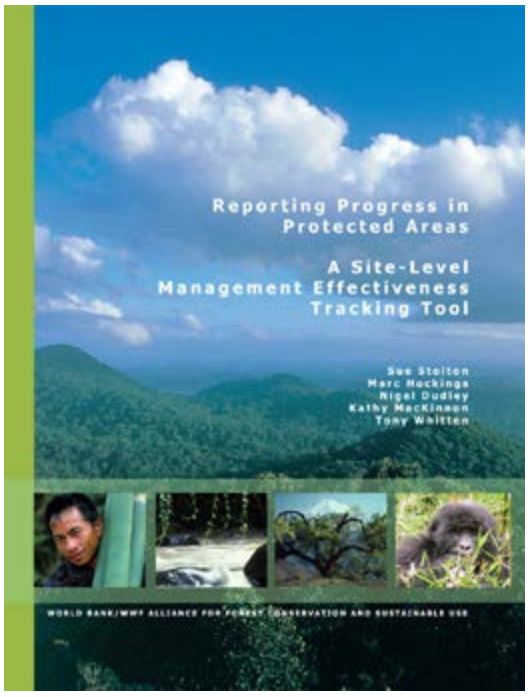
PREFACE

It is now fifteen years since the first edition of the Management Effectiveness Tracking Tool (METT) was published, after lengthy and sometimes passionate discussions about its form and function.

Although originally designed to measure a single time-limited conservation target, the METT has somewhat to our surprise become the most widely used tool to measure protected area management effectiveness, already applied many thousand times around the world. Surprise and consternation: although we are delighted to see so much interest in addressing management effectiveness of protected areas, we are also aware that the METT is sometimes being used in ways that we never envisaged.

The METT was originally designed to measure progress in management effectiveness at particular sites over time. It has a number of clear advantages. It is a simple, cheap and flexible tool that can give a quick overview of the effectiveness of protected area management without requiring expensive consultants or taking up too much time for managers, rangers or others responsible for governance. On the other hand there are clear limitations. The METT is usually run as a qualitative assessment and relies to a large extent on the judgement and honesty of the assessors. It is therefore better at addressing changes over time at a single site than detailed comparison of individual indicators between different sites (although it is often used for the latter). It is much better at providing information about how well management is being carried out (the processes and outputs of management) than in discovering whether that management is ultimately successful (the outcomes in terms of successful nature conservation and other values).

Usefulness is also closely connected to how well the assessment is carried out. A manager can sit in their office and fill out the form in a few minutes, but the results will likely be inaccurate, be lacking justification and will certainly have little buy-in from other stakeholders. Our experience suggests that a good METT process takes up to two or three days and is way better if the assessment is evidence-based and a diverse group of stakeholders have a chance to input into the results.



The first version of the METT published by World Bank/WWF Alliance for Forest Conservation and Sustainable Use.

This review was stimulated by two realisations by the original authors of the METT. First, that quantity was not necessarily being matched by quality in the METT with assessors going through the motions rather than doing a professional job (e.g. when only one person completes the METT with no other protected area staff, stakeholders etc involved). Usefulness is dramatically reduced as a result. Secondly, even when assessors are committed to best practice, if they take the METT seriously they are likely to have a string of questions, and no additional advice was available to them. In spring of 2016 two of us worked with managers from all the national parks in Bhutan, rigorously critiquing the METT from the perspective of its application in that unique and fascinating country: much of that experience is reflected here as well.

The need for greater guidance has been emphasised by other researchers as well. Carbutt and Goodman note (2013): "We have noticed that a clear, emphatic and absolute statement on how to best apply the various assessment tools is lacking, because most publications address best practice methodology only in terms of 'guidelines' or 'recommendations'" Coad et al., also note (2015): "To improve the credibility of protected area management effectiveness scores, we suggest that standardized, robust operating guidelines need to be developed and applied…"

The following review is an attempt to provide such advice, using lessons learned to date drawn from both our own direct experience and from what others have found. This is certainly not the final word on the subject: one thing we have learned is that a couple of dozen simple questions are not actually that simple at all. If you use the METT and have comments, or have made modifications, or find things that do not seem to make sense, please let us know!

Sue Stolton, Nigel Dudley and Marc Hockings
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1. EXECUTIVE SUMMARY

The first version of the Management Effectiveness Tracking Tool (METT) was published by the World Bank/WWF Alliance for Forest Conservation and Sustainable Use ("the Alliance") in 2002, after a year of development. The tool was devised for a very specific purpose; to evaluate progress towards the Alliance's target of securing 50 million hectares of existing but highly threatened forest protected areas under effective management by the year 2005. That the METT would become the world's most frequently used protected area management effectiveness evaluation tool was not envisaged when it was developed. It is because of the tool's continued utility and popularity that WWF commissioned this handbook to review how the METT has been used, provide guidance on how to use the METT appropriately and to chart the METT's history and use.

Photo: The METT has been used all over the world in the last 15 years in both terrestrial and marine protected areas. Monte Leon National Park, Patagonia, Argentina

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1.1 Executive summary

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 of: *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.

The METT consists of two main sections: **datasheets** of key information on the protected area and an **assessment form** containing a questionnaire with four alternative responses to 30 questions, each with an associated score, a data field for notes and a justification for the answers, and a place to list steps to improve management if necessary. Various versions of the METT exist, along with many local modifications. The latest global METT is available here[1].

The METT is strongest at measuring the effectiveness of management and weaker at reflecting overall conservation results. It was designed primarily to track progress over time at a single site and to identify actions to address any management weaknesses; rather than to compare management between different sites. However, the development of a large global database of METT results has encouraged several comparative analyses, to identify those management processes critical to success.

Experience has shown that many users do not apply the METT as effectively as possible, in particular focusing on the score rather than the list of necessary next steps (a checklist of how management needs to change). In addition, there is confusion about interpretation of some of the questions. This handbook aim to improve the efficacy with which the METT is applied. It includes detailed additional guidance on the application of the METT and best practices for developing, implementing and using the results of the METT. Best practices are summarised below.

Carefully plan the METT implementation

1. Plan the implementation process. Review the METT before undertaking the assessment and assess the information available to complete it. Then think about capacity and pre-assessment training needs, adaptation, timing, scope and scale, verification, etc.

2. Allow enough time to complete the assessment in full. A good METT cannot be done in a quick hour; most questions take serious thought. The first METT is likely to take at least a day, probably two. Subsequent repeat METTS may be a little quicker.

Do it properly and do it all

3. Complete all the METT including all questions on the datasheets and narrative sections related to the multiple choice questions. The next steps section is essential as the steps identified create a quick check list of needed actions.

4. Use quantitative data wherever available to support assessment, this is most important of all in the outcomes questions.

Adapt and translate

5. The METT is a generic tool designed for global use; thus it is unlikely to fit one protected area (or system, type etc) of area perfectly. Adaptation is encouraged; ideally by keeping the basic format of the METT the same and adding to, rather than changing, the wording of the METT (e.g. providing additional advice on interpretation for local conditions or by additional questions).

Repeat the assessment

6. The METT is designed to track progress over time. Sites/networks planning to implement the METT should thus aim to repeat the assessments every few years; ideally the METT should be an automatic part of annual planning.

Consultate and get consensus

7. The implementation of the METT should wherever possible include a wide range of rightsholders and stakeholders to aid insight in the assessment results; including people outside the protected area, such as local communities, will bring richer insights.

Build capacity and guidance

8. Although designed as a simple tool, implementing the METT may be the first time protected area staff and other rightsholders and stakeholders have been involved in assessing protected area management effectiveness (PAME). Thus some capacity building is advisable so that all participants understand PAME.

9. As a generic tool the METT questions can be interpreted differently in different situations/jurisdictions. Thus developing a better understanding of the METT and how it can be implemented in a specific jurisdiction will help ensure valid results.

Verify results

10. Although designed as a self-assessment tool, METT implementation can involve verification processes; from simple checking of completed METTs by external assessors to more detailed field verification exercises involving data collection.

Implement recomendations

11. Completing the METT is only the first step of the assessment; the implementation process should include adaptive management (e.g. a plan of action to implement results) and communications process to share results locally and globally.

The first METT is likely to take at least a day, probably two. Subsequent repeat METTS may be a little quicker.

In addition to the best practices outlined above, the following general recommendations are made:

1. **Extra questions:** there are strong arguments for additional questions on climate change, transboundary conservation, social processes and a division of the outcome questions to separate conservation outcomes and cultural/social outcomes.

2. **Clearer wording:** although constant revisions are simply confusing, there are several places where repeated applications have identified some ambiguities remaining in the 2007 version.

3. **Capacity building material:** practical experience with the METT has shown that additional tools can be helpful, such as PowerPoint presentations that can be projected and filled in through discussion and consensus where multiple stakeholders are involved in completing the METT.

4. **A dedicated web site:** there is a need for a METT website, to include the definitive version of the assessment tool, translations, associated capacity building and presentation material and also perhaps a chat room for people to swap experiences.

5. **Outcome assessment:** several users have used the METT with systems for assessing outcomes, to provide a more complete assessment, or have provided advice on how to modify the METT.

6. **Translation:** the METT is already available in multiple languages (e.g., French, Spanish, Chinese, Russian, Romanian and Bahasa Indonesia) but not all of these are the most up to date version; once a revised version is complete, re-translations or updated translations into major languages will be needed, particularly French, Spanish, Chinese and Arabic.

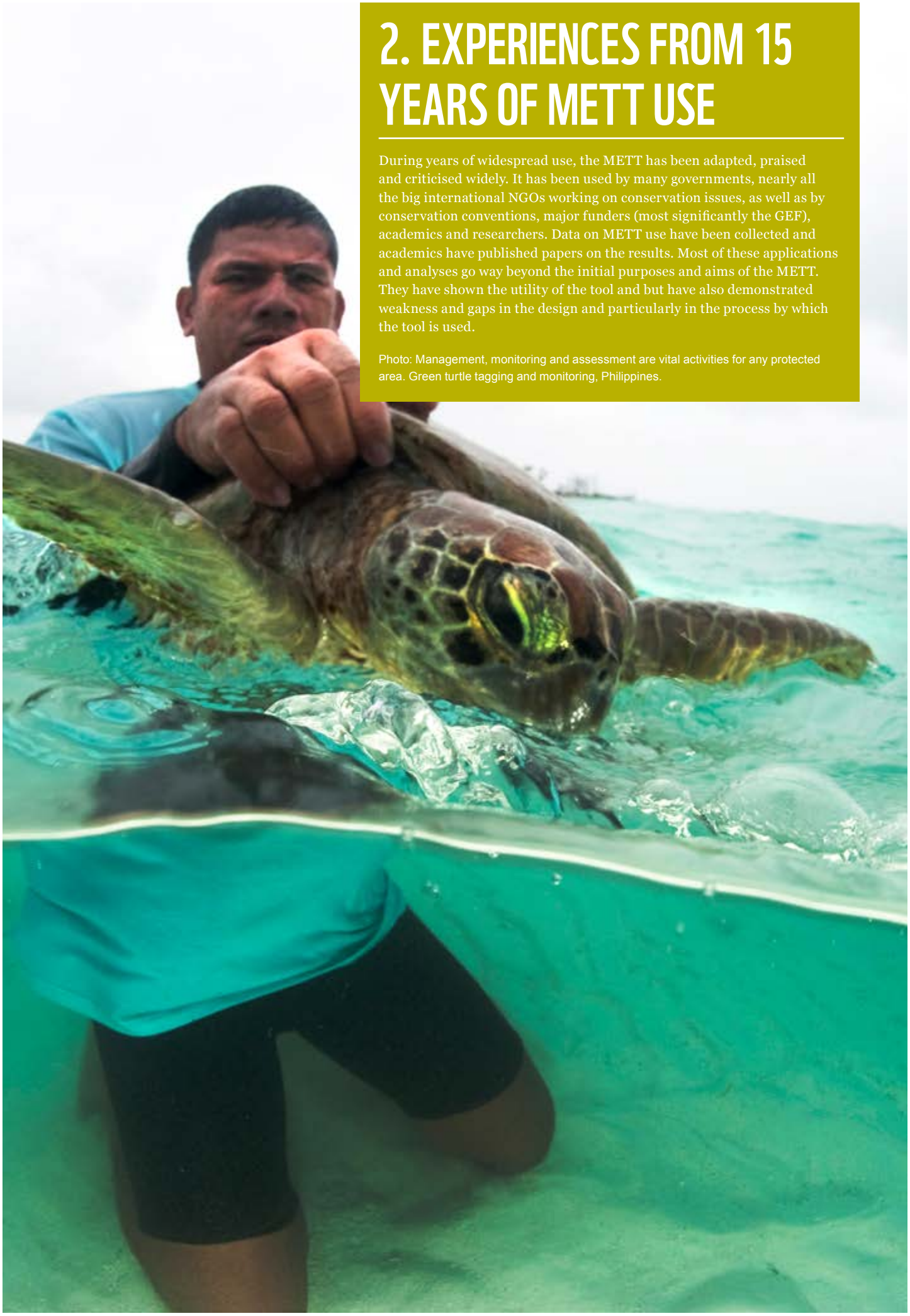
7. **Data control:** a measure of quality control is needed when METTs are completed, particularly when implemented as part of an NGO, donor or government led project.

Finally, whilst PAME gives general management advice, it does not contain standards. Furthermore, PAME assesses management against a site's own goals and objectives and often involve self-assessments; while standards evaluate a site's management against peer reviewed best practices. Two initiatives (Conservation Assured from WWF and the Green List from IUCN) have developed management standards for protected areas and are introduced in the Handbook. Both start from a PAME assessment; then apply standards and an external expert assessment process as to whether those standards have been reached.

2. EXPERIENCES FROM 15 YEARS OF METT USE

During years of widespread use, the METT has been adapted, praised and criticised widely. It has been used by many governments, nearly all the big international NGOs working on conservation issues, as well as by conservation conventions, major funders (most significantly the GEF), academics and researchers. Data on METT use have been collected and academics have published papers on the results. Most of these applications and analyses go way beyond the initial purposes and aims of the METT. They have shown the utility of the tool and but have also demonstrated weakness and gaps in the design and particularly in the process by which the tool is used.

Photo: Management, monitoring and assessment are vital activities for any protected area. Green turtle tagging and monitoring, Philippines.



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2.1. Overview of METT use

Since the initial trial of the "proto-METT" in 16 protected areas in 2001 (see section 7.1) to date the METT has been used in over 2,500 protected areas covering over 4.2 million km² in 127 countries around the world according to data held in the METT database (see Sections 2.4 and 7.4).So in terms of area the METT has been used in over a fifth of the world's terrestrial protected areas. This widespread use of the METT, making it the most used PAME tool globally, is related to several factors including:

1. It is simple and cheap to use (objectives which influenced its initial design and development) and there are few alterative tools with similar objectives.

2. The conservation outreach of the institutional developers of the METT (WWF and the World Bank) and the many organisations which have since used /promoted the METT.

3. Use by the Global Environment Facility (GEF) for monitoring projects in protected areas (see box 1).

At its most basic, implementation can take little more than a few hours by someone (e.g. a manager or project officer) with intimate knowledge of the protected area being assessed and no equipment is required beyond a computer – or even just a pencil and paper if a hard copy is used.

The fact that the METT was the initiative of a major conservation organisation (WWF) and a major conservation funder (the World Bank) has undoubtedly been a factor in its widespread uptake. The World Bank has been using various versions of the METT in monitoring its projects since 2001. The Global Environment Facility (GEF) made the METT mandatory for use in all projects in protected areas funded from GEF-3 (2002-2006) grants onwards. In 2003, WWF started a serious attempt to use the METT in connection with all its projects involving forest protected areas.

Results from the first assessment (Dudley et al., 2004) were presented to the Seventh Meeting of the Conference of the Parties (COP-7) to the Convention on Biological Diversity (CBD) in 2004, and helped to persuade CBD signatories to include the need for assessment of management effectiveness in the CBD's Programme of Work on Protected Areas (see box 1).

Many other institutions have also adopted and/or adapted the METT. Country adaptations have been made for over 20 organisations and governments (see section 7) including Bhutan, Indonesia, Jamaica, Zambia, Namibia, India, Papua New Guinea, South Africa etc. Other conservation NGOs such as Conservation International (Pauquet, 2005), Wilderness Foundation Africa[2] , Global Wildlife Conservation[3] , The Nature Conservancy[4] , Wildlife Conservation Society (see for example Heffernan et al., 2004), IUCN[5] , Zoological Society of London (for example three METTs applied in the Tsavo ecosystem in 2015), USAID (LESTARI project)[6] , Western Hemisphere Shorebird Reserve Network[7] (which uses a modified form of the METT) and Space for Elephants Foundation (SEF, 2012) has also used and adapted the METT as have other funding bodies such as the Critical Ecosystem Partnership fund (CEPF, 2012 and Burgess et al., 2015) and conventions including the Ramsar Convention on Wetlands (Ramsar, 2015). The World Bank developed an equivalent system for marine protected areas based on the METT (Staub and Hatziolos, 2004). The basic structure of the METT has also been used in the development of tools such as the UNDP's Capacity Development Scorecard[8] and Financial Sustainability Scorecard[9].

Box 1: The key players in developing the METT

Take-up of the METT has been driven by several key institutions:

IUCN WCPA: The METT was originally developed from work carried out by the IUCN WCPA task force on management effectiveness (see section 7.1). The task force went on to help develop and promote widely PAME assessments in general and the METT in particular during the early years of its development. Those involved have continued to implement the METT across the globe.

CBD: The Programme of Work on Protected Areas (PoWPA) asked Parties to . . . "expand and institutionalize management effectiveness assessments to work towards assessing 60 per cent of the total area of protected areas by 2015 using various national and regional tools, and report the results into the global database on management effectiveness. . .' (CBD, 2004; also see Hockings et al., 2015 for an overview of PoWPA targets). By 2014, Coad et al. found over 17 per cent of countries had already met this target. The METT was one of the most used tools and the frequency of PAME assessment was highest in the tropical forests, where 45 per cent of protected areas have been assessed, which possibly reflects wide use of the METT in these areas due to its initial purpose and targets to assess PAME in forested protected areas.

GEF: The METT is the first area-based tracking tool to become a requirement for GEF-financed operations. METTs for all protected areas supported by a project are submitted at three stages (i.e. three times) of implementation: (i) at CEO Endorsement for full-sized (FSP), or CEO approval for medium-sized projects (MSP), (ii) at project midterm and (iii) at project completion (Swartzendruber, 2013). At both the project and portfolio level, the GEF is using the METT as a proxy for biodiversity status and condition and as a measure of one key contributing factor towards ensuring the sustainability of a protected area system, i.e., effectively managed individual protected areas must be considered a cornerstone of a sustainable system, notwithstanding key aspects of sustainability such as financing, institutional sustainability and capacity, and ecosystem and species representation that may not be directly assessed at the system level (Zimsky et al., 2010). The GEF thus makes the assumption that project interventions leading to improvements in protected area management will have a positive impact on biodiversity (Coad et al, 2014). The GEF supports this assumption with evidence from studies, such as one carried out in Zambia, which used the adapted METTPAZ, which found that increases in METT scores were correlated with improvements in biodiversity outcomes (Zimsky et al., 2010). The GEF has data from some 2,440 METTs from 1,924 PAs in 104 countries (GEF, 2015). The main adaptations of the latest version (Tracking Tool for GEF-6 Biodiversity Projects[10]) include changes to the datasheets in relation to biodiversity objectives and the threat assessment; and question 30 has been adapted specifically to assess the status of the biodiversity outcomes stated in the tools datasheets. Of note is that the tool only includes comments and next steps narrative fields and does not ask for justification of the assessment response.

World Bank: the Bank used the METT for reporting on all its protected area projects and was a major mover in the wider uptake of protected area assessment by the GEF and CBD.

WWF: WWF used the METT in over 200 forest protected areas in 37 countries during 2003-4 (Dudley et al., 2004), and again in over 100 protected areas in 2005-6 (Dudley et al., 2007). The results of the METT helped WWF to identify minimum management standards for application in its protected area projects and also helped to shape the work programme and targets for WWF's global programme (Dudley et al., 2007). More recently, the METT has been used extensively by WWF and partners as the first stage in the Conservation Assured | Tiger Standards (CA|TS) development (see section 5.2).

2.2. Studies using the METT to understand management effectiveness

The METT is designed primarily to track progress in PAME over time and to identify actions to rectify any weaknesses in management; it was not designed as a way of comparing management between different sites. Nonetheless, the existence of a growing database of METT results (see section 2.4) has encouraged researchers to use the METT as a way of identifying more general information on protected area strengths, weaknesses, regional variations and progress over time. Whilst noting the limitations of using METT data in this way (section 7) these studies nonetheless provide some useful pointers for management and show an additional use of the METT.

Soon after the METT was first developed, during 2003-2004, WWF carried out two analyses of METT data, drawing on successive applications in forest protected areas (Dudley et al, 2004; Dudley et al, 2004a). Analysis of around 200 forest protected areas suggested that management effectiveness tended to increase with length of establishment and pinpointed important regional differences, with management at that stage being particularly weak in Latin America. Key threats were from poaching and illegal timber extraction, encroachment and over-collection of non-timber forest products. Strengths and weaknesses of management were highlighted, along with those aspects of management which correlated with success, as outlined in table 1 below.

Table 1: Results from early analyses of METT application in forest protected areas

Management strengths	Management weaknesses	Correlations with management success
Achieving legal status	Social relations	Enforcement capacity
Design	Budget management	Staff numbers and funding
Boundary demarcation	Monitoring and evaluation	Education and awareness-raising
Resource inventory	Law enforcement	Monitoring and evaluation
Objective setting		IUCN category – stricter categories better

Enforcement capacity emerged as the strongest indicator of success (which may reflect the sites that WWF was working in at the time), but also an area where many protected areas were failing. Monitoring and evaluation was similarly important but often under-developed. Although the management objectives (i.e. IUCN protected area management category) correlated strongly with success, with stricter categories generally being considered more effective at meeting management goals, this was based on a small sample of the less strict categories (V and VI). Presence of other designations (World Heritage, UNESCO Man and the Biosphere or Ramsar) conversely had no statistical links with performance.

In 2007, another METT analysis was carried out by WWF, drawing on results from over 330 protected areas in 51 countries, and from assessments carried out in 2004 and 2006 (Dudley et al, 2007). Results closely matched the earlier two studies. As before, the strongest association between effectiveness and management related to law enforcement, control of access, resource management, monitoring and evaluation, maintenance of equipment, budget management and existence of annual work plans; all elements of a well-regulated and managed reserve. A stricter IUCN category was again associated with a more effective result while international designations such as recognition as a natural World Heritage site conversely had little apparent influence on success. Consumptive biotic use, predominantly poaching, was identified as the most significant pressure. And once more, results seemed to indicate an increasing trend towards effectiveness over time.

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Analysis of METT results shows that well trained staff are vital for effective management. *SMART Patrol Rangers Training, Mae Wong and Klong Lan National Park, Thailand.*

Following this, there was a gap before the METT was assessed again at a global level. In between there were a number of important overall assessments of PAME data, with a substantial proportion coming from METT. Most significantly, a global study by Leverington et al. (2010), with over 20 per cent of the results coming from METT assessments, found that the strongest management factors related to legal establishment, design, legislation and boundary marking and to effectiveness of governance; while the weakest aspects of management included community benefit programmes, resourcing (funding reliability and adequacy, staff numbers and facility and equipment maintenance) and management effectiveness evaluation. Factors most closely correlated with positive outcomes for conservation included staff skills, constraint or support by the external civil and political environment, achievements of outputs and adequacy of law enforcement. This assessment, which covered all protected area biomes, identified greater importance for overall policy context and governance quality but otherwise closely mirrored the earlier and much smaller forest METT samples.

A later global study focused on the number and distribution of applications of PAME, and the utility of PAME in relation to the achievement of Aichi Biodiversity Targets (CBD, 2010), with less emphasis on the results (Coad et al., 2013). More recently, a major analysis of METT data was undertaken, principally looking at changes in management effectiveness over time (Geldmann et al, 2015). By the time of this assessment, some 1,934 METT results were available, including 722 with repeat data from the same protected area. Analysis confirmed the earlier suggestion that protected area management effectiveness tends to improve over time, with 69.5 per cent of those analysed showing an increased overall score over time. Larger and more threatened protected areas tended to show the greatest improvement, and those with initially low scores also tended to improve. The authors conclude that the commonsense assumption that additional effort and resources can lead to improved management effectiveness is frequently correct.

The GEF also carried out an assessment of METT use in 2015 (GEF, 2015). A total of 2,440 METTs were reviewed from 1,924 protected areas in 104 countries; of these a subset of 275 protected areas in 75 countries with at least two METT assessments were used to assess changes in PAME over time. The reliability of the METT as a monitoring tool was also considered and field assessments were undertaken in seven

countries across three regions. The assessment of results (using only those METTs more than 50 per cent complete) found the highest individual mean scores were legal status, protected area boundaries, and protected area design. The lowest mean scores were linked to the contributions of commercial tourism to protected area management and involvement of local communities and indigenous people in protected area decision-making. When looking at changes over time, the greatest improvements were observed in the adequacy of management plans, law enforcement, protected area regulations, resource inventory and protected area objectives; all which reflect the substantial inputs of GEF into protected area management.

Finally, in 2015 WWF updated and reviewed the METT assessment results of PAME in their priority places (a series of areas identified by WWF as having exceptional ecosystems and habitats). Average PAME scores (where 3 is the highest level of effectiveness) in WWF priority places ranged from 1.29 to 2.28 with only four places out of 27 having scores over 2, suggesting most protected areas in their portfolio still needed to improve management (Stephenson et al., 2015).

In addition to these studies many studies of national or jurisdictional groups of METT results have been carried out (see section 7).

Global METT data are not evenly distributed (see section 7.4). The METT was initially designed, and has been primarily used, to measure conservation funding impact, so that it has probably been biased towards underperforming protected areas, identified as requiring additional support (Nolte and Agrawal, 2012; Coad et al., 2014; Stephenson et al., 2015). As such, claims about the relative effectiveness of protected areas using METT results must include information on and analysis of factors such as the sample size and location of the areas being assessed to ensure the context of the results are correctly understood.

2.3. Using the METT to increase effective management

In addition to reviews of the results of the METT the two most fundamental questions related to 15 years use of the tool are:

1. Does using the METT help increase the management effectiveness of protected areas?
2. Do the METT results correlate with other indicators of protected area effectiveness in terms of outcomes?

In relation to the first question, a clear strength of the METT is that it allows for progress to be measured over time in relation to specific management issues (Higgins-Zogib and MacKinnon, 2006). If the METT is to have a role in increasing PAME and helping countries reach the Aichi Biodiversity Targets (see Stephenson et al., 2015), specifically target 11 which call for "through effectively and equitably managed, ecologically representative and well-connected systems of protected areas" (CBD, 2010), this implies that the METT findings are reflected in subsequent management decisions (e.g. through adaptation, funding or action plans). This positive relationship is most evident in regional/jurisdictional use of the METT, with examples provided in a range of reports (see section 7.3).

The second question relates to the validity of the METT results and the relationship of those results to conservation actions. As noted, the METT does not focus on outcome assessments but rather whether the core components of effective management are in place to achieve conservation. As Coad et al. (2015) note: "It is important to understand the causes of success or failure of management: without such an analysis, attempts to improve performance may be ineffective. The rationale for PAME, while focused on facilitating effective management rather than building a scientific evidence base, is therefore, in part, to understand the impacts of protected area management". The METT

can thus be a useful contributor to a range of datasets, rather than providing the sole dataset, to help practitioners assess conservation outcomes (see for example Forrest et al., 2011 and Henschel et al., 2014).

The most detailed paper on impact evaluation in protected areas was published by Coad et al. in 2015. This looked at the impact of protected area management on biodiversity outcomes. It used the whole dataset of PAME results held in the Global Database for Protected Area Management Effectiveness (see section 2.4), which at the time held almost 18,000 PAME assessments and in addition assessed the peer-reviewed literature on how PAME data had been used in impact evaluation. The authors found that the paucity of data from appropriate counterfactuals (i.e. a "counter-to-fact conditional" such as the status of an area if had not been declared a protected area, or certain management activities had not happened) means that the PAME data are not ideally suited to the needs of scientific impact assessment. However they concluded that: "When suitably combined with independent measures of PA impact that have employed appropriate counterfactual methodologies, PAME data can help increase our understanding of the impact of aspects of PA management on conservation outcomes" (Coad et al., 2015).

Overriding both the above questions is the need to be confident that the METT score does indeed provide a useful reflection of management realities. In the research carried out by Geldmann et al (2015), which focused on 722 sites that had completed at least two METT assessments, the authors specifically addressed the criticism that METT scores are not an accurate reflection of reality on the ground. They note that in general most repeated METT assessments produce scores that suggest improvement in management over time, as would be expected if increased METT scores were indicative of real improvements, but some 30 per cent experienced no change, or even declines, in overall scores. They conclude that this "is a considerable proportion had there been systematic manipulation of scores". The authors noted that although this: "does not represent definitive causal evidence that scores are not manipulated, it does suggest that at least some of the observed changes can be attributable to actual changes in management effectiveness on the ground".

There is little evidence that protected area staff routinely inflate scores to make themselves look better although trends can be observed. Carbutt and Goodman (2013) assessed use of the METT in South Africa. They noted that field staff members tend to be so closely involved with day-to-day activities that they lose objectivity, and tend to be too negative and score low. Senior management come with a more strategic viewpoint and, in the absence of the day-to-day realities, tend to score too high. Hence they stress the need to encourage a range of viewpoints and opinions and to facilitate dialogue until a consensus score is reached. Similarly Zimsky et al. (2010) found that when completed using a rigorous process in Zambia, the METT was assessed as a suitable performance metric for PAME, backing up the findings of WWF's analysis of METT results in 2004 and 2006 (Dudley et al, 2007).

2.4. Global database of METT results

PAME assessments are recorded in the Global Database on Protected Area Management Effectiveness (GD-PAME) developed by the University of Queensland and now managed by UNEP WCMC (UNEP WCMC and IUCN WCPA, 2016). Countries are encouraged to provide information to this database in the CBD's decision COP X/31 (2010) which "... invites Parties, taking into account the target for goal 1.4 of the programme of work, which calls for all protected areas to have effective management in existence by 2012 using participatory and science-based site planning processes with full and effective participation of stakeholders, and noting that to assess the effectiveness of the management, specific indicators may also be needed to: (a) Continue to expand and institutionalize management effectiveness assessments to work towards assessing 60 per cent of the total area of protected areas by 2015 using various national and regional

tools and report the results into the global database on management effectiveness maintained by the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP WCMC)"[11].

There is also a specific METT database which contains most of the known METT assessments conducted by the major users (GEF, WWF, CEPF) and assorted other contributors, which is currently managed in a temporary capacity by a core group of researchers connected to UNEP-WCMC, the University of Oxford, the University of Copenhagen and the consultancy Protected Area Solutions. The data and structure of the database are in the process of being error checked, made user-friendly and more intuitive. Many organisations have provided METT data and funds for data entry over a period of years, mainly in the form of short-term projects. At present, there is no long-term funding in place to maintain the database, although UNEP-WCMC have committed to host the METT and GD-PAME datasets and to link them to the World Database on Protected Areas (WDPA) so that they have an institutional home, and will endeavour to make the data available through the online portal protectedplanet.net, providing that the data providers have given consent.

The centralised database is the most efficient way to maximise the utility of the compiled METT data for the widest audience. The crucial next step to ensure that data from METT assessments are compiled, checked and available for management and research purposes is to solidify the long-term plan with the consent of data providers and secure long-term funding.

Contributors wishing to add their data to the database must be aware that the current hosting and management context is not permanent and is highly likely to change in the near future. Further to this, the paucity of continued funding for the upkeep and development of the database has meant that the procedure for adding data is not fixed and needs to be adapted for individual project circumstances. Initial contact for a data entry and/or analysis project should be made to the Protected Areas Programme at UNEP-WCMC

To enable a cost-effective, swift and efficient data entry process the following suggestions should be taken on board once the project has been agreed:

1. Provide an "assessment list" including the protected area name, country, date of assessment and WDPA ID. A checklist such as this is a basic safeguard for ensuring that all the data has been provided, and that all data will be entered correctly.

2. Organise data into protected areas folders and country folders, count how many assessments there are and identify what version of the METT has been used (e.g. 2002 version (METT 1) or 2007 version (METT 3), variations or modifications, etc), and include this information in the "assessment list". Also check carefully for duplicate files and remove them. If the data entry team has to trawl through hundreds of files just to work out what is there this will add days or weeks to the project, increasing the cost immensely.

3. Be aware that translations will add time to the data entry process. Assessments in English are straightforward, and it may be worth considering translating into English before passing over the data, depending on the language. Non-Roman script and non-Romanized languages are the most difficult to process as the requisite skills are less likely to be present within the team (e.g. Russian, Vietnamese, Greek, Chinese).

4. There is a standard process developed for adding results from the 2002 version (METT 1) and 2007 version (METT 3), and the database has a limited capacity for modified versions and variations. If the standard questions have been modified or additional questions have been added, only the scores for questions that match the standard METT 1 and METT 3 will be entered.

Case study 1

R-METT: Ramsar Convention on Wetlands

Llewellyn Young

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Corrubedo National Park in Spain.
A Ramsar wetlands site

The Convention on Wetlands, the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. One of the key obligations of Contracting Parties is to identify priority wetlands in their territory, to designate them as Wetlands of International Importance ('Ramsar Site'), and to ensure their conservation and wise use. Worldwide, there are presently more than 2,240 such Ramsar Sites. For wise use to be ensured, site managers must be able to anticipate new issues and to respond to them rapidly and effectively. The need for regular and open assessments of the effectiveness of management, allowing sites to learn from both successes and failures, has thus been recognised as an important component of Ramsar Site management.

After a period of discussion, review and field testing by the Ramsar Convention, the Ramsar Site Management Effectiveness Tracking Tool (R-METT) was adopted at the 12th Meeting of the Conference of the Parties to the Convention in 2015 (Ramsar COP12 Resolution XII.15). The decision encourages Contracting Parties that do not already have effective mechanisms in place to consider using the R-METT.

The R-METT is based on the 2007 version of the METT with some adaptations specific to the needs of the Convention and wetlands. The adaptations are:

- **Data Sheet 1b: Identifying and describing values from the Ecological Character Description and the Ramsar Information Sheet.** This provides information on the ecological character of the site including the ecosystem services that it provides, and the criteria under which the site qualifies as a Wetland of International Importance.
- **Additional multiple choice questions.** Three additional questions have been added on ecological character description, development of a cross sector management committee and the effectiveness of communication mechanisms with the Ramsar administration.
- **Data Sheet 5: Trends in Ramsar Ecological Character (including ecosystem services and community benefits).** A new section which provides information on trends over the past five years in the ecological character of the site including the ecosystem services that it provides, and the criteria under which the site qualifies as a Ramsar Site.

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3. BEST PRACTICE WHEN IMPLEMENTING THE METT

Over the last 15 years the METT has been used in protected areas in over 120 countries worldwide. Many of the results have been recorded and analysed, and much of the data gathered has been used to review results and draw out recommendations on the aims, content and process of the METT. Furthermore other PAME assessments have taken place worldwide, using a multitude of tools. As such PAME has proven to be a valuable management tool where the process is robustly implemented and information is interpreted within the context of local decision-making (Coad et al., 2014). This third section of the handbook looks at a range issues related to the process of carrying out the METT. It identifies a number of best practices to ensure valid and useful results.

Photo: Implementing the Bhutan METT +

3.1. Types of implementation

The use of the METT can be divided into three main types:

i. Part of a jurisdictional (e.g. protected area system, category or biome type) approach to PAME usually instituted by the protected area agency (e.g. Bhutan, Indonesia, Jamaica, Namibia, South Africa, Zambia etc) or type of protected area (e.g. Ramsar, marine protected areas)

ii. Part of an NGO-led project (e.g. WWF and a range of other NGOs, see section 7.1)

iii. For monitoring large-scale funding impacts (e.g. GEF, World Bank, CEPF).

Ideally, PAME should be seen as a normal part of the process of management, with management actions being regularly reviewed and adapted to fit changing circumstances, as outlined in the first type given above. The art of protected areas management is still quite new and there is much to be learned; adaptive management is thus particularly important. PAME can help provide managers with two vital pieces of information to guide their adaptive management:

i. Highlighting management practices that are failing to achieve desired results and the solutions to adequately address these.

ii. Providing renewed confidence in practices that are working effectively.

Put simply, adaptive management describes the process by which information concerning past activities can be fed back into management to improve performance in the future (see for example Biggs et al., 2011) – the METT has been specifically designed for such a process.

The second and third types of use are often as a result of the METT being used as a performance indicator by conservation organisations and donors. This may encourage funding recipients to deliver overly positive self-assessments at the end of a project (Coad et al., 2014). As Carbutt and Goodman, 2013 note: "Management effectiveness assessments should not be seen merely as a 'paper exercise' to meet reporting obligations. Rather, they should be undertaken objectively and with sober judgement and diligence to ensure that the effectiveness score achieved represents a realistic picture of management practices and processes, in the absence of hard quantitative data". Thus where assessments are conducted as part of donor funding requirements, donors should insist on procedural standards being met and provide specific funding for assessments within project budgets (Coad et al., 2014), making the use of the METT a useful tool rather than just a reporting task (Zimsky et al., 2011).

3.2. Lessons learned and best practices

A rapid self-assessment tool is always likely to attract criticism that its implementation could be biased, with results being primarily qualitative and of limited use in understanding PAME (Cook and Hockings, 2011). One way to ensure better data collection when using the METT is to conduct the assessment under strict and consistent operating conditions, facilitated by capacity building of those undertaking the assessment, to ensure that implementation is robust, objective and reputable (Carbutt and Goodman, 2013, Coad et al., 2014). Many protected area managers and staff have noted that the major benefits of PAME have come during the assessment process rather than from any formal report produced as a result, so getting the process right is critical to success (Hockings et al., 2015).

The WCPA has reviewed the different processes to undertake PAME, and assessed their pros and cons (Hockings et al., 2006 and Hockings et al., 2015). Best practices specific to the METT are outlined (in the boxes) and discussed below.

3.2.1. Carefully plan the METT implementation

Best practices:

1. **Plan the implementation process. Review the METT before undertaking the assessment and assess the information available to complete it. Then think about capacity and pre-assessment training needs, adaptation, timing, scope and scale, verification, etc.**

2. **Allow enough time to complete the assessment in full. A good METT cannot be done in a quick hour; most questions take serious thought. The first METT is likely to take at least a day, probably two. Subsequent repeat METTs may be a little quicker.**

The METT is only useful if done properly, and the quality and objectivity of the assessment process should be considered if the results are to be used in site, national or international reporting (Knights et al., 2014). A little time spent collating evidence and planning implementation can ensure the validity of results.

Before even starting to plan implementation, managers and others should review the content of the METT, work out what evidence is available relevant to each indicator and then assemble this evidence to have it available during the assessment discussions.

What follows here are a range of process orientated practices which should be considered before completing the assessment. Although intended to be a rapid and cost-effective tool the time allotted to undertake the assessment should allow for thorough deliberation of the results (Coad et al., 2014).

3.2.2. Do it properly and do it all

Best practices:

3. **Complete all the METT including all questions on the datasheets and narrative sections related to the multiple choice questions. The next steps section is essential as the steps identified create a quick check list of needed actions.**

4. **Use quantitative data wherever available to support assessment, this is most important of all in the outcomes questions.**

The current version of the METT used by WWF (Stolton et al, 2007) is a relatively short document with a minimum of essential guidance. Those in charge of implementation should read and ensure this simple guidance is followed (as noted above pre-assessment training may be needed to explain how to implement the METT) and, where a project manager exists, a few simple checks can be made to assess quality of completed results including:

- Number of people involved (data sheet 1), where possible assessments should be carried out with a range of stakeholders and rightsholders, including protected area managers, local government, partner NGOs, local community representatives etc

- Quality of completion of the two narrative boxes accompanying each question in the multiple choice questionnaire

- Evidence of use of the results to develop a plan of action to address areas of weakness in management

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It is very important that monitoring activities and results are noted in the comments/ justification column of the METT to explain how METT questions are scored. *Mangrove monitoring, Mafia Island, Tanzania.*

There is a misconception (e.g. Mascia et al, 2014) that only the multiple choice questions are part of the formal METT assessment process. This is erroneous and all parts of the METT are an important contribution to the assessment of PAME, especially in providing metadata. However a trend towards incomplete METTs does appear to be developing; Burgess et al. (2014) note that an analysis of 3,600 METT data sheets found that the "additional" questions (those marked a, b, c in the multiple choice section of the METT) are generally not answered, a review by the GEF of the use of 2,440 METT also noted that many METTs were incomplete (GEF, 2015). It should also be stressed that whilst the whole METT is important the guidance notes state that: "Questions that are not relevant to a particular protected area should be omitted" (Stolton et al., 2007). Such an approach is clearly common sense for a tool which has been developed for global use in the very diverse world of protected areas. However this simple guidance is clearly not always being followed with the 2015 analysis of the GEF's implementation of the METT noting: "on the measure related to indigenous people, the structure of the METT does not allow evaluators to distinguish between PAs where no indigenous people were present, and PAs where indigenous people issues were relevant but not addressed. In both instances, this measure would receive a score of '0'." (GEF, 2015).

In particular the space provided for the narrative (comments/justification and next steps) is a vital component of the METT; although it is one that is often missed. Because of the dominance of input and process questions in the METT, if the outcome question and additional points are completed without sufficient detail to back-up the claims made, then the ability for the METT to serve as a tool to assess biodiversity outcomes is even more seriously limited. Zimsky et al. (2010) note that: "the METT fails to require those who fill out the form to justify outcome scores with concrete data of biodiversity status, threat reduction"; however the failure here is perhaps more to do with the lack of oversight in completing the METT and lack of guidance (e.g. training of those undertaking or overseeing the assessment) to complete the METT properly.

PAME tools are increasingly being implemented using web-based questionnaires (e.g. UNESCO's periodic reporting format for World Heritage sites); if such as tool is developed for METT implementation one simple way to help ensure all elements are completed is not to let users continue or submit an assessment unless all fields have been completed.

PAME systems, such as the METT, which focus on collecting qualitative rather than quantitative data can be subject to criticism. However, the reality is that in many cases, expert-based knowledge is the only source for making such assessments. A study in Australia, which has one of the world's better developed and researched protected area networks, found that in 25 per cent of management effectiveness assessments, practitioners had insufficient evidence to assess their management performance and even where sufficient information was available 60 per cent of assessments relied solely on experience to judge the success of management approaches (Cook et al., 2009). Thus although quantitative data should be used wherever possible to justify the assessments made in the METT, qualitative data will in many cases inevitably form the basis for much of the reporting. In these cases additional steps related to who undertakes the assessment (see 3.2.5) and processes of verification (see 3.2.7) are particularly important to ensure that an accurate and valid assessment is made.

3.2.3: Adapt and translate

Best practices:

5. **The METT is a generic tool designed for global use; thus it is unlikely to fit one protected area (or system, type etc) of area perfectly. Adaptation is encouraged; ideally by keeping the basic format of the METT the same and adding to, rather than changing, the wording of the METT (e.g. providing additional advice on interpretation for local conditions or by additional questions).**

Because the METT is used globally there are advantages in ensuring that the core questions of the METT are always included in an assessment, to help facilitate comparison between assessments made in different parts of the world, or different protected areas within a single network. Adaptation is still possible however and can take two forms:

i. Adding questions to cover issues missed by the original tool;

ii. Adding detailed instructions to the existing questionnaire, in order to relate the METT better to local circumstances.

Hockings et al., 2015 state that: "The more clearly the categories [i.e. responses to PAME questions] are defined for local circumstances, the more accurate and consistent will be the responses". They go on to discuss how the use of subjective terms – such as 'adequate', 'sufficient' and 'appropriate' – have been deliberately chosen in tools such as the METT use to ensure that assessment categories can be applied to protected areas in very different contexts. It is therefore important to ensure that definitions of what is meant by general terms such as 'adequate', 'sufficient', 'appropriate' etc in a specific country, portfolio or jurisdictional context are clear to all assessors, to avoid errors derived from using poorly defined language.

The 2015 evaluation of the impact of GEF investments recommended that the GEF supports countries in adapting the METT to make it more appropriate to their capacities and information needs, noting this: "will help build country capacities in monitoring parameters that they find useful for improving biodiversity conservation management within their specific context, while still providing key information that can be compared and analyzed at a global level" (GEF, 2015).

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Marc Hockings presenting at the training session for METT implantation in Indonesia.

The development of the Bhutan METT +, for example, included a fairly substantial refinement of the threat assessment and the addition of notes where specific multiple choice questions needed more detail, along with addition of a number of extra questions (Dudley et al., 2016). The adaptation process was managed in two workshops with managers and staff of protected areas, staff and experts from the ministry which oversees protected areas and facilitated by two of the original developers of the METT (Wildlife Conservation Division and Equilibrium Research, 2015). Other versions of the METT which have been adapted with guidance for local implementation include the Carpathian Countries Protected Areas Management Effectiveness Tracking Tool (CCPAMETT), see for example the version from Poland (Pap, 2012); the Management Effectiveness Tracking Tool for Protected Areas managed by the Zambia Wildlife Authority (METTPAZ) (Mwima, 2007); South Africa (Cowan et al., 2010) and Indonesia (Kementerian Lingkungan Hidup dan Kehutanan, 2015)

The first version of the METT was translated into multiple languages (at least seven and probably many more) however as there is no central repository of METT versions, reports or advice most countries have a new translation made when using the METT.

3.2.4: Repeat the assessment

Best practices:

6. **The METT is designed to track progress over time. Sites/networks planning to implement the METT should thus aim to repeat the assessments every few years; ideally the METT should be an automatic part of annual planning.**

Given the central role that protected areas play in conservation strategies, assessment of their effectiveness should not be restricted to time-limited projects but rather considered to be an integral part of everyday management. The relative simplicity of the METT means that it can easily be used annually and the results integrated into management and/or project planning. The METT was designed for repeated use to show progress and users (e.g. Heffernan et al., 2004; Knights et al., 2014) have noted the true benefit of the METT will largely be realized when future reviews are conducted and can report on significant changes in management practices or local conditions.

From the data collected in the METT database, 90 countries have used the METT more than once in at least one protected area (see section 7.2). Thus nearly half (almost 2 million km^2) of the area where the METT has been implemented has seen more than one assessment. However given the use of the METT by the GEF in large scale projects in protected areas this is not particularly surprising.

3.2.5: Consult and get consensus

Best practices:

7. **The implementation of the METT should wherever possible include a wide range of rightsholders and stakeholders to aid insight in the assessment results; including people outside the protected area, such as local communities, will bring richer insights.**

Although designed to be a self-assessment tool, the intent of the METT was to involve a range of stakeholders in the assessment process. Although datasheet 1 of the METT includes details of who has been involved in the assessment this information is often not completed and thus few of the METTs collected on the METT database include this information. The METT guidance notes state that implementation is best achieve through discussion and consensus building with protected area, project or other agency/expert staff and "where possible additional external experts, local community leaders or others with knowledge and interest in the area and its management should also be involved" (Stolton et al., 2007, pg 6). However this wide-ranging consultation process has not always been a feature of implementation and as Coad et al. (2014) note "where funding for PAME assessments is not ring-fenced within project budgets, PAME assessments may be conducted rapidly with the minimum number of participants, reducing their robustness".

The protected area manager/s should be actively involved in the assessment. As Cook and Hockings (2011) state: "involving protected area managers in the evaluation process demonstrates the importance of setting clear objectives, which will ultimately benefit the day-to-day management of the protected area" and by being involved in the assessment "the evaluation data are more likely to be used to improve management". Research has shown however that protected area managers on the whole are well placed to accurately assess key management issues (Cook et al., 2014) and bias in METT responses, even when linked to large-scale funding such as that provided by the GEF, is not a major issue when completed as part of a participatory process (Zimsky et al., 2010).

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Involving a wide range of stakeholders ensures more accurate and representative METT results. *Local women from Mwanachingwala Conservation Area, Zambia.*

Carbutt and Goodman (2013) also note that the accuracy of the METT score is dependent on identifying the right staff members to be involved. They note that the METT comprises a broad range of assessment criteria, with no single individual best placed to answer all of the questions with 100 per cent certainty. It is therefore essential to encourage the participation of a range of relevant staff members, to bring a wide range of expertise to the assessment table. They also stress the need for implementation planning to include practical steps such as informing staff about their requested involvement in the assessment in a timely fashion and allowing participants the time and space to debate each question to help eliminate any bias, false perceptions or prejudice inherent in such assessments.

Group discussions have been shown to result in better PAME results because discussion can stimulate additional recollections from other members of the group (Cook et al., 2014). In Zambia, where the METT was completed with peer review and full stakeholder participation – including protected area managers, private sector in the form of tour and lodge operations, and local communities living in the Game Management Areas (GMAs) – the scores had more buy-in and were more accurate as more debate and discussion had been undertaken before a score was decided upon. The METT thus serves not only as a performance metric but also as a means to foster communication and participation in the management of the protected area or GMA (Zimsky et al., 2010). A review of METT use by the GEF found that higher mean METT scores were correlated with the presence of protected area managers and staff; whereas scores were found to be lower by as much as 0.1 (on a scale of 0 to 1) when community members, NGOs and external experts were present (GEF, 2015). As a result of this, the GEF database on METT results now collects data on the number of people involved. Data from over 800 assessments shows that although some assessments are still only completed by one person, one site assessment involved 70 people and the average number of people involved is five.

The METT datasheets allows for the type of stakeholders to be recorded (e.g. protected area staff, local stakeholders, NGO staff etc). But again these simple check boxes are rarely completed. As such it is hard to know who has been involved in implementing the METT. But from the results from the 800 or so assessments collected by the GEF it is clear that wider stakeholder participation in the METT is very rare, which must certainly impact on the rigour of the results collected globally.

3.2.6: Build capacity and guidance

Best practices:

8. **Although designed as a simple tool, implementing the METT may be the first time protected area staff and other rightsholders and stakeholders have been involved in assessing PAME. Thus some capacity building is advisable so that all participants understand PAME.**

9. **As a generic tool the METT questions can be interpreted differently in different situations/jurisdictions. Thus developing a better understanding of the METT and how it can be implemented in a specific jurisdiction will help ensure valid results.**

A common criticism of self-assessment is that differences in the interpretation of the answers will create bias in the results. The multiple choice nature of the METT was chosen as a contribution towards eliminating bias (many PAME questionnaires ask for assessments to made on the basis of, for example, low, medium or high ratings, without explanation of the rating systems). The possibility of bias is further minimized through the standardization of the possible results through capacity building of those undertaking the METT (Cook and Hockings, 2011) and training assessors to standardized interpretation of indicators (Coad et al., 2014). For example, in Bhutan where there are only 10 large protected area across the whole country, two or more management staff per area were trained in workshops to understand and complete the METT and protected area staff were able to discuss draft results together and develop guidance for specific questions where needed (Dudley et al., 2016). In the Philippines, on the other hand, team members met several times to discuss and build common perception of the scores based on possible results prior to the field visits to review the METT results (Inciong et al., 2013); similar processes were developed in Zambia (Mwima, 2007).

Another critical element in building capacity before undertaking an assessment is to ensure a complete understanding of the WCPA Framework. For each of the multiple choice questions in the METT the element (or in some cases elements) of the framework are provided. This helps those completing the METT to understand the focus of the question (i.e. whether the question is about inputs or outputs; context or outcomes etc). One review of the METT (Zimsky et al., 2010) noted that the classification used to categorize the questions (inputs, process, etc.) was not useful and did not contribute or add value to the process of completing a METT. However, when training participants in using the METT dividing the questions into the elements of the WCPA Framework not only helps with the understanding of the METT questions but ensures the WCPA Framework is better explained.

One challenge with capacity building Cook et al (2014) noted, when reviewing PAME assessments (not using the METT) in Australia, is that workshops, training sessions and written guidelines were not sufficient to prevent discrepancies when eliciting expert knowledge. As this is the only research that has been carried out to specifically assess the quality of PAME inputs from protected area managers it is hard to know if this is a country/PAME tool specific problem (although it is likely that similar issues will apply more broadly across the suite of PAME assessment systems), and thus more research on this issue would be useful.

Specific capacity building material may also be useful, such as provision of PowerPoint slides of each question, which can be projected and filled in collaboratively if several different stakeholders are involved.

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Meetings with park staff and local community representatives during a verification field visit to Jigme Singye Wangchuck National Park, Tingtibi Range Office as part of the Bhutan METT + implementation

3.2.7: Verify results

Best practices:

10. Although designed as a self-assessment tool METT implementation can involve verification processes; from simple checking of completed METTs to more detailed field verification exercises.

As noted above, repeat assessments are intended to show change in management over time. However reporting change may also be influenced by the desire of staff to show that their sites and management have improved; this may particularly be the case when METT results are linked to funding – as is the case with the GEF. One of the main criticisms of the METT is that it relies on purely subjective responses by the management agency and partners to questions, with no field verification (e.g. Johns, 2012) and scoring system can be subject to one-sided opinions and perspectives in the absence of peer review, thereby introducing subjectivity and bias (e.g. Carbutt and Goodman, 2013). Projects to build capacity might be tempted to score themselves low to start with and progressively higher over time: such manipulation definitely does sometimes occur. Employing external experts to participate in the evaluation process is increasingly being used, and recommended, in a range of PAME processes (Cook and Hockings, 2011). Some independent auditing can therefore be valuable when implementing METT projects.

There are many different options for verifying METT results, including:

- **Verification as part of the assessment process:** The implementation plan for the METT can include a detailed discussion and presentation process to develop, elaborate, clarify and/or present the METT assessment findings, using interviews and discussions groups to discuss the results. Such processes were noted in implementations in the Philippines (Guiang and Braganza, 2014) and Zambia (Zimsky et al., 2010).

- **Desk study verification:** Either getting experts who are familiar with the site to peer review the results, or undertaking a short desk study to validate the assessment results, can be a relatively quick and cheap verification process. The 2007 analysis by WWF included the use of the METT in repeat assessments where management

improvements were recorded. Detailed comparison of two assessments from an individual site in Cameroon was carried out through a short desktop study and development of a case study. The study demonstrated a richer picture of the changing status and effectiveness at the site (Boumba Bek and Nki protected area) following management interventions and support (Dudley et al., 2007).

- **Field study verification:** In Bhutan, field visits involving a selection of sites which had completed the METT were carried out prior to finalising results (Wildlife Conservation Division and Equilibrium Research, 2016). The field visits included the opportunity to talk to protected area managers, staff and community leaders and visit offices and staff outpost, which provided useful insights and context into the management of the site.
- **Detailed verification process.** Although not used in the METT assessment, verification processes that provide thorough checks of protected areas data are being developed for the Conservation Assured and Green List processes (see section 5.3).

3.2.8: Implement recomendations

Best practices:

11. Completing the METT is only the first step of the assessment; the implementation process should include adaptive management (e.g. a plan of action to implement results) and communications process to share results locally and globally.

The METT should not be viewed as an academic exercise but rather as an aid to good conservation planning and management. Thus the METT score should not be seen as a "pass" or "fail" but as an indication of the level of effective management. Many METT studies (see section 7.2) report on the assessment in terms of the six elements of the WCPA Framework as recommended in the METT (e.g. see Inciong et al., 2013; Mwima, 2007, etc), helping highlight specific areas of management weakness, and thus providing a better indicator of effectiveness than an overall score. However, very few include specific action plans, let alone with details such as clarity about timeline of action, responsibility, budget etc, which will ensure the results of the METT are implemented The most likely reason for this is that the next steps section of the METT has not be adequately filled in (see 3.2.2.) and thus turning the METT into an adaptive management planning tool is difficult. One effective use of the score used in some countries (e.g. Indonesia) is to translate the scores in actionable outputs, i.e. identify activities to improve low scoring questions and set targets for improvement.

Communicating the results of the METT is also important – to all those involved as well as to protected area management authorities, funders etc. Section 7.2 details several of the reports and papers that have been developed about the implementation of the METT. Many of these have been project reports and analyses by users and most have remained in the grey literature, although METT results have been included in peer-reviewed studies of global data sets. Communication is important for those who have been involved in the assessment, so they can see if and how results have been used; to managers of protected areas so they can react to the proposals and more generally to politicians and civil society, to show how protected areas are performing.

Case study 2

Bhutan METT+

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Jigme Dorji National Park, Bhutan.

Bhutan is a land-locked, mountainous country with a small population and a strong commitment to sustainable development. It has set aside over half the country into protected areas, mainly but not exclusively in the high mountain areas. Bhutan has rich wildlife, including viable populations of tigers and many endemic species.

The METT was applied to all ten protected areas in Bhutan and the Royal Botanic Park, as a key stage in developing a *State of the Parks* report for the country and as part of an awareness raising programme on the Conservation Assured | Tiger Standards (CA|TS, see section 5.2). While the METT was used as the core of the assessment, considerable modifications were made in association with the Bhutan government and protected area managers and staff. The **Bhutan Management Effectiveness Tracking Tool Plus** (**Bhutan METT +**) was developed at training workshops organized by the Bhutan Wildlife Conservation Department (WCD), in Lobesa, Punakha in 2015 and at the Royal Botanic Park Lamperi in 2016. Representatives from the WCD, 10 protected areas and the Royal Botanic Park and core team of the Department of Forest and Parks Services worked with Equilibrium Research to develop the recommendations that led to the design of the Bhutan METT + in 2016.

The basic structure of the METT was not changed, to allow the results to feed into the global database. Adaptations took four forms:

1. Adaptation of the threats assessment to allow for current and potential threats and issues (which could become threats if not effectively managed) to be identified.

2. New tools added to the METT to provide a more detailed assessment of: (i) threats, looking at spatial and temporal issues of threats considered of medium or high

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Developing and implementing the Bhutan METT +

significance (current or potential) and suggested management actions to mitigate threats; (ii) an assessment sheet of national context looking at the extent to which current policy supported protected area management; and (iii) outcomes, baseline data will be collated to develop a set of headline indicators for monitoring biodiversity in Bhutan; once these are agreed work will start on developing detailed indicators and monitoring systems and protocols for the headline indicators.

3. Guidance notes on the interpretation of the METT in Bhutan, particularly with respect to the threats assessment and some of the multiple choice questions.

4. Additional questions added to the METT relating to e.g., climate change and transboundary influences along with some modifications to existing METT questions and to the background data sheet.

A "Rosetta Stone" version of the Bhutan METT + was produced which shows clearly the changes and additions to the METT. This version has been edited and revised to produce final version of the Bhutan METT+ 2016.

The METT was filled in for five sites in a workshop situation in 2015; and for all the sites in 2016, when field verification also took place for three of the protected areas, including interviews with local stakeholders conducted by external specialists. Data from all the METTs has been reviewed by WCD and external specialists and has been collated and analysed to show relative strengths and weaknesses and to identify important next steps for both individual protected areas and for the national protected area system as a whole. The *State of the Parks* report will be published in late 2016.

4. METT QUESTION-BY-QUESTION GUIDANCE

The METT was designed to be a simple tool which could be picked up and used with minimal training. However, experience has shown that this may be over-optimistic, and that most users need some help to get the best possible use out of the assessment. Over the years since its first publication and use, various training courses have been developed around using the METT. The section below reviews each part of the METT and, drawing on the experience of using and training users, provides more detailed guidance, with particular emphasis on the multiple choice questions.

Photo: Implementing the METT in Indonesia

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4.1. METT guidance

The third edition of the METT (Stolton et al., 2007) includes basic guidance on how to complete the assessment. This should be carefully read before any assessment begins. The additional explanatory notes given below can help explain specific elements of the METT.

4.2. Explanatory Notes: Data Sheet

Most of the information needed to fill out the datasheets should be readily available; either in documentation on site or easily accessible via websites (see links given below). However some sections, such as identification of management objectives, will take longer if these have not previously been identified and recorded.

Data sheet 1

Name of protected area: this should be the full name; and the same as that included on any official list (from the government, World Database of Protected Areas 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 Code: Each protected area has a code, which is listed on the World Database of Protected Areas and is a unique identifier. Nowadays this can be found most easily on the Protected Planet website[12]. Type the name of the protected area into the "Start Exploring" box, open the record for the site and the **WDPA ID** is listed on the top left of the page.

Designations: National: this refers to the national category – such as national park, wilderness reserve, nature reserve, etc. Identification is important because in most countries particular designations will have their own policies, rules and sometimes legislation.

Designation: IUCN 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 also listed on the WDPA. The UNEP World Conservation Monitoring Centre, which manages the WDPA, only lists the IUCN category if it is proposed by the government, so if none exists, this section should be left blank. Further information: *Guidelines for Applying Protected Area Management Categories* (Dudley, 2008).

Designation: international: explained in more detail on the second page of the data sheet. This collects information on regional or global designations, such as UNESCO World Heritage or ASEAN Heritage.

Date of establishment: this is sometimes complicated, depending on the type of protected area and the legal process involved. In the case of state protected areas it would usually be date of legal establishment, but sometimes government-run protected areas operate for years before the legal process of establishment is completed and in this case a common-sense approach is needed, listing the date when the protected area was agreed by the government. In sites where the designation has changed over time (for instance if a nature reserve has been changed to a national park) list both dates: first establishment of a protected area and later change in national designation. For privately protected areas this is generally easier: usually the date of purchase or the date when an area of land or water was announced as a protected area.

What are the main values for which the area is designated: this may sometimes be written down formally (for instance in application for World Heritage status or in the protected area management plan), or it may be implicit. It is important to note whether the protected area is designated primarily to protect a whole habitat (such as a coral reef or rainforest) or whether it is to protect a certain species or group (like a seabird colony or a rare plant).

List two primary protected area management objectives: objectives should be in the management plan, although there will often be more than two. In this case, or if objectives are not formally written down, people compiling the METT will need to agree the two most important management objectives. These should be conservation objectives rather than, for instance, tourism management or supply of ecosystem services, although these will also be important for many protected areas. Identifying the management objectives of the site being assessed is important as the assessment of management then made in the rest of the METT should be made against these objectives.

Number of people involved in completing the 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 (see section 4.2.5). Use this section to identify who is involved.

Please note if assessment was carried out in association with a particular project, on behalf of an organisation or donor: for example as a condition of getting a GEF grant, or because it is standard government policy.

Information on international designations: UNESCO World Heritage site: most of the information needed should be on the UNESCO World Heritage list[13] , which is in alphabetical order of country. Each site entry includes key information on date listed (the date when the World Heritage Committee recognised the site as belonging to the WH List), the name, which may be different from the name used in the country, and area. It will also include the criterion or criteria for which the site were listed, which can just be identified by their number in the METT, and the statement of Outstanding Universal Value (what makes the site unique), which should be pasted into the relevant space in the METT form. Further information: Outstanding universal value: *Standards for natural world heritage* (Badman et al, 2008).

Information on international designations: Ramsar site: all information needed is available on the Ramsar site in the section Ramsar Sites Information Service[14].

Information on international designations: Man and the Biosphere Reserves: again key data should be on the website. However, identification of the three main functions of MAB may be more difficult because most MAB reserves have not been formally assessed (nor is there a system for doing so within UNESCO). The website[15] will give basic data on establishment, size etc but criteria for designation and fulfilment of the three main aims of the biosphere reserve will need to be worked out by protected area staff and other stakeholders.

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Understanding the full impact of threats to protected areas is an important part of the METT. The assessment includes threats both inside protected areas and threats, such as dams, which are outside the boundaries but can have major impacts on hydrology in a protected area. *Hydro-electric dam under construction in Honduras.*

Data sheet 2

Threats data sheet: this should be fairly self-evident. Threats are ranked as of **high** significance if they are seriously degrading values; **medium** if they are having some negative impact and **low** if they are present but not seriously impacting values. Not applicable (N/A) is selected when the threat is either not present or **not applicable** in the protected area. In most cases threats refer to activities within the protected area in a few activities beside or near the protected area might also be important (for example a mine on the edge of a protected area would bring new people into the area and might increase pressure within the protected area itself, or mine tailings could pollute otherwise protected watercourses). The data sheet is limited as it does not look at either the spatial impact (e.g. does the threat impact the whole area or just a small part) or temporal impact (e.g. is the impact all the time or only during certain parts of the year), nor does it suggest management actions. As the title implies, this element of the METT is intended to record data already known and protected areas really should have a more detailed threat assessment/monitoring system to aid management planning and implementation. Other more detailed threat assessments exists (see for example Hockings et al., 2008), and adaptations of the METT have developed more detailed assessments, based on this datasheet but providing more detailed information for management.

Additional points follow:

- Threat 2.1a Medicinal plant cultivation: Note that the collection of species from the wild is covered in threat 5.2
- Threat 3.3 Energy generation including HEP: This question looks specifically at threats within protected areas. Hydropower developments outside protected areas can still impact on the protected area, the impact of such threats is covered in threat 7.2.
- Threat 4.3 Flight paths: It should be stressed that this threat is considering flight paths of aeroplanes, hot air balloons, gliders etc, not the flight paths of birds
- Threat 6.2 War, civil unrest and military exercises: this can include intrusion of political insurgency from across national borders

- Threat 7. Natural system modification: Whereas threat 3 looked at impacts of infrastructure development in protected areas, threat 7 looks at impacts which may occur from developments far away from the protected area. Threat 7.2 should record impacts on habitat or changes in the way the ecosystem functions, such as changing water flow patterns.

4.3. Explanatory Notes: Assessment Form

The following notes provide specific guidance on individual multiple choice questions, which make up the main assessment element of the METT, and where necessary further sources of information. The questions are dealt with in the order they appear on the METT. For each topic noted below an overarching question is provided and four possible answers. As well as ticking the appropriate answer to the questions the notes and justification narrative section should be used to provide details of why the specific answer was given. If the METT has not been adapted then notes may also be needed on why a specific answer has been given, particularly if the situation described in the by the answer/score does not totally fit the realities of the protected area. The narrative section detailing next steps should be used to outline adaptive management actions if the response to the assessment reveals management weaknesses.

1. Legal status: this usually only refers to state-managed protected areas. In the case of many private reserves and indigenous and community conserved areas (ICCAs) legal status is not an option and this question is not applicable. Where such protected areas do have some formal status (e.g. a covenant or legal recognition of Indigenous Protected Areas) this should be listed. Further information: *Guidelines for Protected Area Legislation* (Lausche, 2011).

2. Protected area regulations: the term "regulation" can refer to both legal 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.

3. Law enforcement: here "staff" relates to both those formally employed and those responsible for management in other governance types. The question refers to both personal capacity (training, skills) and sufficiency of equipment and infrastructure (vehicles, routes to access remote areas, etc.) *The next steps section* should identify needs if the score is low.

4. Protected area objectives: this question refers back in part to the key management objectives already identified in the datasheet. Were these obvious or did the assessment group have to work them out? If the latter, this probably means that overall management has not considered the objectives of the protected area in sufficient detail. 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. Lack of clear objectives probably means that management is itself undirected and likely inefficient: a process for firming up objectives (for instance a stakeholder workshop) should if necessary be noted in *next steps*.

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 staff, stakeholders and rightsholders recognise the boundary and that people know if they are encroaching the protected area. Note that a few boundaries will by their nature be unstable: if the boundary is a river bank or a shoreline the precise location can change quite markedly over time. Such changes may become more marked under climate change: for example the coastline may retreat inland.

7. Management plan: in most cases this will be a formal management plan, written down and in the case of government protected areas 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 less formal arrangements. The aim of this question is to see whether or not management is following a set and logical course. Further information: *Guidelines for Management Planning of Protected Areas* (Thomas and Middleton, 2003).

There are a number of additional questions in the METT (7a,b,c; 21a,b,c; 24a,b,c; and 30a,b,c), which go beyond the basic assessment and identify whether particular best practices are in place. All of these additional questions should be considered during the assessment (as with the other METT questions, the extra best practice questions add up to a total score of 3 and therefore fit the scoring framework). However it is common for assessors to answer only one of the 3 additional points possibly because assessors do not understand that they can score any or all of the additional points. If any further additions of the METT are produced it should be made clear that they should give 1 or 0 as an answer to ALL the additional questions.

7a. Planning process: opportunities for key stakeholders to influence planning: "key 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 have been no such involvement the next steps column should identify those people who should in future be involved.

7b. Planning process: periodic review: many formal management plans cover 5-10 year periods. But many things can change over this length of time; such as new pressures, changing weather patterns, new opportunities. This question captures whether there is a way to make sure such changes are integrated into management, and lessons learned as management proceeds.

7b. Planning process: monitoring results: 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 next steps column should include concrete, time-bound proposals to address the lack. Further information: *Enhancing our Heritage Toolkit: Assessing management effectiveness of natural World Heritage sites* (Hockings et al., 2008).

8. Regular work plan: this will usually refer to an annual plan, aimed at implementing the next stage of the management plan.

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 next steps it is important to identify knowledge gaps and suggestions for future surveys.

10. 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 in itself can be judged "largely or wholly effective". This is less about capacity and resources

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The relationship between research and protected area management is vital, so it is important to document research activities when completing the METT. *Leatherback turtle nest count in Panama*

for enforcement (already addressed in question (3) and more aimed at whether this capacity is being used effectively enough. Highly trained and well-resourced rangers are being out-manoeuvred by poaching gangs with even better resources; this question aims to determine whether current enforcement activities are sufficient for the pressures being faced.

11. Research: this could include both research work carried out by the protected area itself but more usually by associates, volunteers, students 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 is addressed in another question (26); 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.

12. Resource management: Management here refers to activities in addition to enforcement, such as various forms of restoration and habitat creation, monitoring of population numbers, fencing where necessary and the control of invasive species. 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.

13. Staff numbers: answering this question might be slightly more difficult for community-managed sites; here the issue will be more generally one of having sufficient number 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: in this case the answer would fall somewhere between the second and fourth of the answers.

14. Staff training: again this question can refer to both formal staff members and/or others involved in management. Training needs to be in relevant disciplines; it is not uncommon for protected area staff to be seconded from other institution, such as forestry; although these people have received training it is largely irrelevant to the job in hand. *Next steps* should list any important training gaps.

15. Current budget: this question relates to the total amount of budget, rather than to budget security, addressed in question (16). Virtually every protected area rates 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 and to implement a realistic management plan.

16. 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 trust, or has low costs and strong volunteer support. Further information: *Sustainable Financing of Protected Areas* (Emerton et al., 2006).

17. Management of budget: is budget expenditure properly planned and monitored through the year or is there usually a serious overspend or under spend? Are accounts published annually? If the answer reveals serious weaknesses the *next steps* column should suggest concrete ways forward, such as drawing up an annual budget, hiring a qualified accountant or bringing in a permanent or temporary business manager.

18. Equipment: this could include, for example, vehicles, communication systems, tools, uniforms, shows; but also contributory materials like fuel.

19. Equipment maintenance: large amounts of money are wasted in protected areas because equipment is broken and never repaired; either because there is no-one available with the skills to carry out simple maintenance or because a culture develops where replacement becomes the norm. If this question scores low next steps should suggest practical ways of addressing this, either by identifying or employing a maintenance officer (for instance from the local community) or introducing training to ensure that protected area staff have the requisite skills themselves.

20. Education and awareness: this question covers education both for learning establishments, such as schools programmes, and the provision of more general educational opportunities for local communities or recreational visitors.

21. Planning for land and water use: note that this question relates to planning processes outside the protected area. Protected area effectiveness can be seriously undermined by actions that take place beyond its boundaries, such as pollution, alterations to hydrology, and development of infrastructure such as roads and rail links. Does the protected area have any influence on surrounding decisions? Do managers or communities managing protected areas engage in wider planning discussions? Does the government take account of the protected area when undertaking broader planning exercises?

21a. Land and water planning for habitat conservation: this additional question narrows down the focus of question (21) by focusing on surrounding environmental conditions, such as pollution levels, hydrology etc. Relatively few protected areas will be able to score this additional point.

21b: Land and water planning for connectivity: is the protected area connected to other similar habitats or is it isolated? Particular issues here is the potential for animal migration or animal movement to prevent species becoming inbred, opportunities for fish migration along rivers, and the presence of buffer zones around protected areas to prevent edge effects and encroachment. If not, is there anything that can be done to improve the situation?

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Caption: When completing the METT questions on local and indigenous people it is important to include local people in the assessment process. *Fishing community in Amazonas State, Brazil.*

21c: Land and water planning for ecosystem services: this is a complicated question because it could involve two different issues: managing ecosystems to protect particular species (e.g. use of fire to maintain savannah habitat) or management for ecosystem services beneficial to human society, such as managing cloud forest habitat to maintain downstream water supplies. The *comments* section should stipulate what ecosystem services are being considered here.

22. State and commercial neighbours: this is particularly aimed at land and water users that either benefit from or directly impact ecosystems within the protected area: for instance water users (mineral water suppliers, municipal water supplies, hydroelectric projects); but also ranchers, forest companies and those involved in extractive industries. Note that tourism operators are the subject of their own question (28). Question 22 is aimed at pinpointing the extent to which a protected area either cooperates or remains isolated from the wider community that influences it: if it scores zero, *next steps* could list key neighbours that should be contacted.

23. 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. 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)

24. Local communities: to score 2 or 3 in this question the communities should also have a reasonable amount of influence on the overall decision: mere consultation is not sufficient.

24a. Impact on communities – open communication and trust: some explanatory comment is particularly important if this score is given, justifying why. Further information: *Indigenous and Local Communities and Protected Areas: Towards Equity and Enhanced Conservation* (Borrini-Feyerabend et al., 2004)

24b. Impact on communities – programmes of community welfare: 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.

24c. Impact on communities – active support: again evidence is needed if this additional score is given; examples could include voluntary patrolling, help with surveys, provide political support amongst local government etc.

25. Economic benefit: this question is aimed explicitly at local communities rather than outside businesses, such as tourism companies; the latter might be included if they employ a significant number of local people. Economic benefits include direct jobs, Payment for Ecosystem Service schemes, indirect benefits from increased tourism or sales to visitors, and other options such as guiding.

26. Monitoring and evaluation: most monitoring will be directly by protected area staff; in some cases volunteers or local communities will also be involved. In the comments section list what is monitored and how often. In n*ext steps* identify any important gaps in monitoring that need to be filled.

27. Visitor facilities: not all protected areas need visitor facilities; this question is judging against the perceived need.

28. Commercial tourism operators: tourism can either be a help or a hindrance to protected areas; in addition the presence of a protected area is a draw to tourists and thus a boost to trade. Tourism operators should be natural partners but this doesn't always happen. If this question generates a low score next steps could identify in very concrete terms some of the key people it would be important to talk to and develop cooperation with.

29. 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 generating resource.

30. Condition of values: the METT really measures management and outputs and does not consider outcomes in detail; this one question covers both biological and cultural values and is simply an indication of whether staff and other stakeholders believe that the fundamental objectives are being met. The comments section can give further details, including data if this is available, and also can distinguish between the relative success of conserving biological and cultural values if there are differences between the two.

30a. Condition of values: monitoring: if scoring yes for this question, details of type of monitoring should be given in the *comments section*.

30b. Condition of values: management programmes: again, if yes, list the programmes in the c*omments section*.

30c. Condition of values: routine part of management: in a growing number of the most popular protected areas, most staff are assigned to visitor management or possibly enforcement, and actual conservation management gets sidelined. This question is aimed at identifying where such management is lacking and *next steps* should list any identified needs.

4.4. Filling the gaps: guidance on additional METT questions

As discussed above the nature of the METT, which aims to be easy and relatively quick to use, means that there are some management issues usually associated with PAME assessments which are only minimally covered in the METT. Over the years of use several adaptations have been developed to fill these gaps. Some of these are discussed below. Many of the adaptations are also listed in section 7.3 and can be reviewed for further guidance and ideas when planning to implement the METT.

4.4.1. Outcome assessment

WWF's versions of the METT (Stolton et al., 2002a and 2007) are explicit about the strengths and weakness of the tool. From the initial development of the METT in 2002, the authors noted that the scorecard approach which forms much of the METT has limitations (see section 7.1). Specifically, although all six elements of the WCPA Framework are represented in the METT, most of the questions relate to *planning, inputs* and *process* (reflecting the tools "source" document, Appendix II in the WCPA Framework document). The METT was always acknowledged as being too limited to allow for a detailed evaluation of outcomes (see section 7.1 and 4.4). "Clearly, however good management is, if biodiversity continues to decline, the protected area objectives are not being met." (Stolton et al., 2007, pg 5). The fact that the METT is explicit about its limitations in terms of assessing outcomes has however not stopped researchers criticizing the tool for its lack of ability to measure outcomes (e.g. Nolte and Agrawal, 2012).

Various adaptations of the METT have included an additional section on outcomes (see case studies from PNG, Ramsar and Bhutan all of which have added section on outcomes). The latest GEF adaptation of the METT (see box 1) includes an additional worksheet, which asks for a set of indicators and records the data sources and methods used to assess the overall condition of biodiversity in the protected area. This provides a more detailed justification of the answer given to question 30 of the METT, which assesses outcomes.

Perhaps the best way to assess the relationship between METT scores and conservation outcomes is to use a variety of independent datasets (Knights et al., 2014). Suitable data could come from analysis of forest cover changes over time, or species population trends, within and outside protected areas as is being suggested in the Bhutan METT + (Dudley et al., 2016). Some commentators have suggested additional questions on outcomes and their causes (e.g. Coad et al., 2015), however to cover outcomes in the METT comprehensively would require such a fundamental change to the tool that many of its overriding objectives as an entry-level, cost effective and simple tool to apply could be lost. Conversely, the review of GEF usage of the METT suggested streamlining to focus on information that can be used in conjunction with existing global datasets and geospatial data, to perform meaningful analyses on management effectiveness and biodiversity impacts at a global level (GEF, 2015). One option is to include more guidance on using the tool as part of a site level assessment system as is being proposed in Bhutan.

As Nolte and Agrawal (2012) suggest, more effort in understanding the relation between protected area management, protected area effectiveness, and the indicators used to measure both is needed. They also note that to understand why some areas are effective and what type of support makes them effective, "future analyses will need to examine causation rather than correlation".

4.4.2. Spatial and temporal issues

Research into the use of a range of self-assessment PAME tools found widespread misconceptions amongst protected areas managers about the scope, scale and/or timeframe of evaluation. This is a particular problem when managers alter the scope of the assessment depending on the attributes of the reserves (e.g., assessing the whole of small reserves but only frequently-visited areas of large reserves). Failing to standardize the scale, timeframe and scope for the evaluation could therefore introduce a systematic bias into the evaluations (Cook et al., 2014).

The impacts of spatial differences across protected areas are not covered in the METT and thus those completing the METT can face difficulties in assessing the questions, as there can be a lot of variation in management effectiveness, especially across large

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Managing for the impacts if climate change has become a far more urgent task for protected area managers over the last few years. *For example, almost all of the 47 large glaciers in Patagonia's Los Glaciares National Park have retreated over the past 50 years.*

protected areas. Zimsky et al. (2010) suggests that larger protected areas may benefit from applying the METT to sub-areas of the protected area, rather than the entire protected area. In Bhutan, where several of the protected areas cover vast areas and where much of the management is devolved the Bhutan METT + was completed for individual range offices.

4.4.3. Climate change

When the METT was developed, knowledge of the role of protected areas in mitigating climate change and the impacts of climate change on protected areas was still developing. Over the last 15 years the evidence of impacts and understanding about how protected areas can help in mitigating these impacts has increased rapidly. The addition of new METT questions to track the effects of climate change on protected areas 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). One set of suggestions is given below.

Issue	Criteria	Score	Comment/ explanation	Next steps
a. Is the protected area being consciously managed to adapt to climate change?	There have been no efforts to consider adaptation to climate change in management	0		
	Some initial thought has taken place about likely impacts of climate change, but this has yet to be translated into management plans	1		
	Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management.	2		
	Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented	3		
b. Is the protected area being consciously managed to prevent carbon loss and to encourage further carbon capture?	Carbon storage and carbon dioxide capture have not been considered in management of the protected area	0		
	Carbon storage and carbon dioxide capture have been considered in general terms, but has not yet been significantly reflected in management	1		
	There are active measures in place to reduce carbon loss from the protected area, but no conscious measures to increase carbon dioxide capture	2		
	There are active measures in place both to reduce carbon loss from the protected area and to increase carbon dioxide capture	3		

However to date these questions have not been added to the METT, although they have been included in METT adaptations (e.g. the Bhutan METT +, see Dudley et al., 2016).

4.4.4. Social dimensions

Although there has been much work on developing tools to assess social and governance issues of protected areas management, there remains no equivalent tool such as the METT for measuring progress towards the CBDs goal of equitable protected area management. A review of the synergies between PAME and social or governance assessment (Burgess et al., 2014) suggested that: “one of the logical ways to enhance the collection of governance and (especially) social data would be to augment the METT”. WWF Tanzania has already developed a METT+ Social (unpublished) including a range of questions which are provided here. Unlike the rest of the METT not all these questions are relevant globally (specifically questions regarding livelihood outcomes may not be relevant in protected areas with no residents in developed countries) they nonetheless provide a useful starting place to developing a METT adaptation which focus more on the important issue of equity in protected area management.

Issue	Criteria	Score		Comment/ explanation	Next steps
a. What are the improvements in livelihood outcomes as a result of conservation efforts? (e.g. income, employment, payment for environmental services?)	Livelihood outcomes have been reduced	0			
	There is no change (better or worse) in livelihood outcomes	1			
	There are some limited improvements in livelihood outcomes	2			
	There is significant improvement in livelihood outcomes	3			
b. Is there equal opportunities involvement in management?	Only one gender participates in the management of the protected area	0			
	Management is mainly by one gender, with marginal participation of the other gender	1			
	Management is mainly by one gender, with marginal participation of the other gender but there are active efforts by the management to encourage more equal participation	2			
	There is equal participation in management	3			

4.4.5. Transboundary issues

Some countries face particular challenges from cross-border issues, often poaching but also increasingly human migration, pollution, and the impacts of armed conflict or insurgency. There is therefore an argument for including a question specifically on transboundary issues:

Issue	Criteria	Score		Comment/ explanation	Next steps
Neighbouring protected areas Is there co-operation with adjoining protected areas (national and international)? *Process*	There is no contact between managers of adjoining protected areas on issues which impact protected area management effectiveness	0			
	There is limited contact between managers of adjoining protected areas but little cooperation on issues which impact protected area management effectiveness	1			
	There is contact between managers of adjoining protected areas and some cooperation on protected area management effectiveness	2			
	There is regular contact between managers of adjoining protected areas and full cooperation on ensuring management effectiveness	3			

Case study 3

Papua New Guinea: Protected Areas Assessment Project

Authors: Fiona Leverington, Ann Peterson and Greg Peterson

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Participants from Varirata National Park start the METT process by drawing images of the main values of their protected areas, this helps easy translation into a more formal statement of values and benefits and then completion of the adapted METT

In 2016 the Government of Papua New Guinea (PNG), through its Conservation and Environmental Protection Agency (CEPA) and with the support of United Nations Development Program (UNDP) and the Secretariat of the Pacific Regional Environment Program (SPREP), organised an evaluation of its protected areas, as part of the process to improve management effectiveness.

The need to undertake PAME assessments is enshrined in PNG's Policy on Protected Areas, which commits to regular evaluation and to taking remedial action to improve effectiveness over time (Independent State of Papua New Guinea, 2014). The development of a PAME system for PNG therefore needed to be practical and economic to apply and CEPA staff and other partners needed to understand the methodology and how to best apply it in the field. Therefore a relatively simple and straightforward methodology was developed based on the 2007 METT.

As most protected areas in PNG are on land owned and managed by the customary landowners, and have no government employees, the METT needed to be adapted to local circumstances. Many of the METT questions have been worded for people very familiar with protected area issues, and in the PNG context this would have caused some level of confusion or ambiguity, particularly for those unfamiliar with protected area management jargon. Rather than relying only on facilitators to clarify questions, explanatory notes were added to the questionnaire for most questions. This helped improve its reliability and to increase consistency when the questions are applied at different times and by different people. However, it is also essential that the questionnaire is applied in workshops with trained facilitators who have a more in-depth understanding of the questions and the logic behind them. In some cases, the questionnaire part of the METT was duplicated so respondents could choose between

the traditional METT question (for the few government–owned protected areas) and a new version (for community areas). Other adaptations included keeping the standard threat classification (Salafsky et al., 2008) used in the METT but altering the wording to make it clearer within the classification's meaning.

A recognised weakness of the standard METT questionnaire is the lack of information gathered about protected area values and outcomes. If the METT complements other information or assessments this is not a problem, but given the serious paucity of even basic information about most of the protected areas in PNG, it was considered essential to boost the data collected about these aspects of effectiveness. The PNG METT therefore added a section where people were asked to discuss and nominate the primary values of their protected area, and then to use words or pictures to describe these values or benefits. This is similar to questions asked in the METT modified for use by the Ramsar Secretariat. Secondly, a checklist was added to help the participants to consider all the possible benefits provided by the protected area. The assessment of protected area outcomes was enhanced through the evaluation of the condition and trend of the protected area values. Participants are asked to use the key values that they listed in the first part of the workshop. The condition of these is then rated as poor to very good, using the condition criteria developed by The Nature Conservancy and the Conservation Measures Partnership (Parrish et al., 2003). The trend is then described as improving, stable or deteriorating. Information sources and explanations are recorded for any information provided. A final question was added to help begin the process of strengthening management of the protected areas: 'As the final task, I would like you to think about all the values, threats and issues that have been raised and to list three things that would help you to make your protected area better in the future.'

The PNG METT was developed through a staged process. A draft methodology was devised and shared with staff of CEPA, UNDP and some civil society representatives at a workshop in Port Moresby in April 2016. The methodology was then trialled and adjusted in the field before being finalised. Although this iteration of PAME was undertaken with external funding and with the assistance of consultants, PNG has an excellent opportunity to ensure that regular PAME studies are undertaken to show the changes and hopefully improvements in management over time. In the delivery of the PNG METT, CEPA staff and UNDP staff were involved in training that incorporated both facilitating and recording information. In this process they were mentored by the project facilitators. This will enable CEPA staff to continue with the assessments in the future and thus ensure the consistency, reliability and validity of the recorded information.

As PNG is still beginning the journey of developing an effective protected area system, the PAME assessment is providing important baseline information and guiding future developments across the protected area network.

This case study has been sourced from Leverington et al., 2016

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5. METT: PREPARING THE GROUNDWORK FOR PROTECTED AREA STANDARDS

Until recently management effectiveness evaluations have provided the main source of information available about the management of protected areas. Tools like the METT provide valuable information on management and, when used well, can help to plan adaptive management. However, relying solely on these tools to ensure that a large percentage of the world is well managed for conservation could be misleading. There is increasing pressure for protected area standards and means of verification. In this context, specific and detailed tools are needed which set the baseline standard for effective management.

Photo: Site and species based standards are now being developed to further assess protected area effectiveness

5.1. The move towards development of standards

Management effectiveness assessments identify a site's management objectives and assess strengths and weaknesses in management in terms of these objectives. While they sometimes give generalised advice on best practice, they do not on the whole set down firm standards against which management can be measured. Indeed, there was for some time reluctance to do so, because of the huge variety of circumstances and needs within protected areas. It was feared that quantitative standards would create a straitjacket that would be difficult to apply in practice and could create unnecessary expectations from those protected areas that did not fit standard approaches to management.

IUCN started to investigate options for introducing some kind of certification system for protected areas, which itself implied a set of standards (Dudley et al., 2003; Dudley et al, 2004b), and this possibility was also addressed by the IUCN Environmental Law Centre (Dudley, 2004). These ideas were initially rejected by IUCN as impractical.

The ASEAN Regional Centre in the Philippines had commissioned competence standards for protected area managers in the region (Appleton et al, 2003). Aimed mainly at training centres, this did not set management standards for protected areas but instead identified what managers would need to know to do their job effectively.

Pressure grew steadily to introduce some form of standards as a logical next step to management effectiveness assessment and was included in the 2004 *Programme of Work on Protected Areas* from the UN Convention on Biological Diversity: *Activity 4.1.1 Collaborate with other Parties and relevant organizations, particularly IUCN, on the development, testing, review and promotion of voluntary protected areas standards and best practices on planning and management, governance and participation* (CBD, 2004).

WWF responded in 2005 by commissioning a guidance note on minimum requirements for protected area management, drawing on the earlier METT results (Dudley and Stolton, 2005). This identified a series of key steps as minimum requirements needed for effective management and committed to implementing these in key protected areas:

- Legal designation
- Demarcation of protected area boundaries
- Clear management objectives
- Operational plan
- Operational budget
- Monitoring plan

Whilst falling far short of standards in terms of defining what was required for each of these steps, this guidance recognised the general need for minimum components of good management to ensure success.

More recently, two initiatives (Conservation Assured and the Green List of Protected and Conserved Areas) have developed and started to apply the idea of something approaching a certification scheme for protected areas, although both approaches have been wary of using this particular term (see sections 5.2 and 5.3). Both standards start from an assessment (usually a self-assessment by park staff) of management effectiveness; they then build on this through application of specific standards developed through a peer-review process and an external assessment by local or international experts.

Box 2: PAME and standards

The key differences between PAME and standards are:

Assessment focus

- PAME assesses management against a site's individual goals and objectives
- Standards evaluate a site's management against peer reviewed best practices

Verification process

- Although processes vary, most PAME systems are self-assessments; where they exist verification processes tend to be project based and do not involve accreditation or certification
- Standards usually involve some kind of formal accreditation/certification process with multiple steps to ensure compliance to the standards. Processes are encouraged to be based on international best practices such as ISEAL's Principles for Credible and Effective Sustainability Standards Systems[16]

5.2. Conservation Assured

The Conservation Assured | Tiger Standards (CA|TS) project was launched by WWF in 2011, in response to recognition that wild tigers were facing such a severe crisis that unless secure populations could be secured in protected areas there was a real risk of them becoming extinct in the wild (Walston et al, 2013), and that most protected areas were not well enough managed to provide this security (Damania et al, 2008; Forrest et al., 2011). CA|TS focuses on all actual or potential tiger reserves within the tiger range countries with the intention of building capacity to manage tigers. Areas are first *CA|TS Registered*, basically a sign of commitment, and if they eventually meet the CA|TS standards become *CA|TS Assured*. Standards were first agreed in late 2013 and have been reissued with minor changes on two occasions since (Conservation Assured, 2016). Whilst WWF has driven this process forward, and provided most of the initial funding, CA|TS is seen as a cooperative project with partners including the Global Tiger Forum, Wildlife Institute of India and all the Tiger Range countries. Two protected areas have been CA|TS approved (as of early 2016), an international executive committee exists, a technical support group in partnership with key tiger conservation agencies is being formalised and commitments to develop CA|TS have been made by 11 out of 13 tiger range states (National Parks, Wildlife and Conservation Department, Thailand and CA|TS, 2016).

The CA|TS concept is also being developed for other species. CA|TS standards consist of seven sections or "pillars"; five relate to species protection in any protected area, with an emphasis on high value species likely to attract poachers (Conservation Assured) and two relate specifically to tigers and their prey (Tiger Standards). CA|TS is therefore a modular system that can be applied to other species and for wider conservation impact (Pasha et al., 2014), and the Zoological Society of London is already doing this for rhinos as part of an initiative to build impact bonds as a way of drawing private finance into conservation.

One of the Standards in CA|TS is to undertake PAME assessments on a regular basis; the METT is usually the system applied, although in India this has been largely replaced by a modified form of the METT designed explicitly for tiger reserves, known as the MEETR (Mathur et al., 2014). The complementarity between the two systems is reviewed in table 2.

Table 2: Attributes of CA|TS and METT

	CA|TS	METT
Scope	Individual protected areas and conserved areas which have a focus on tiger conservation	Individual protected areas
Who assesses?	Manager, independent reviewer and jurisdictional /national experts and International independent team (Peer review process)	Manager and ideally protected areas staff, and other stakeholders and rightsholders
Form of assessment	Standards and associated criteria for which proof of compliance is required	Questionnaire
Objective	Ensure standards for effective tiger protection are in place at site and country level	Assess state of single protected area
Evidence base	Records, expert opinion and multi-stakeholder linkage / consultation	Records, expert opinion

5.3. Green List of Conserved and Protected Areas

The Green List of Protected and Conserved Areas (Green List) is an initiative of IUCN, which aims to improve the effectiveness of protected areas through development of a global standard for management. The Green List Standard has been developed by IUCN with technical support from WCPA and a coalition of conservation professionals from around the world with expertise in relevant thematic areas.

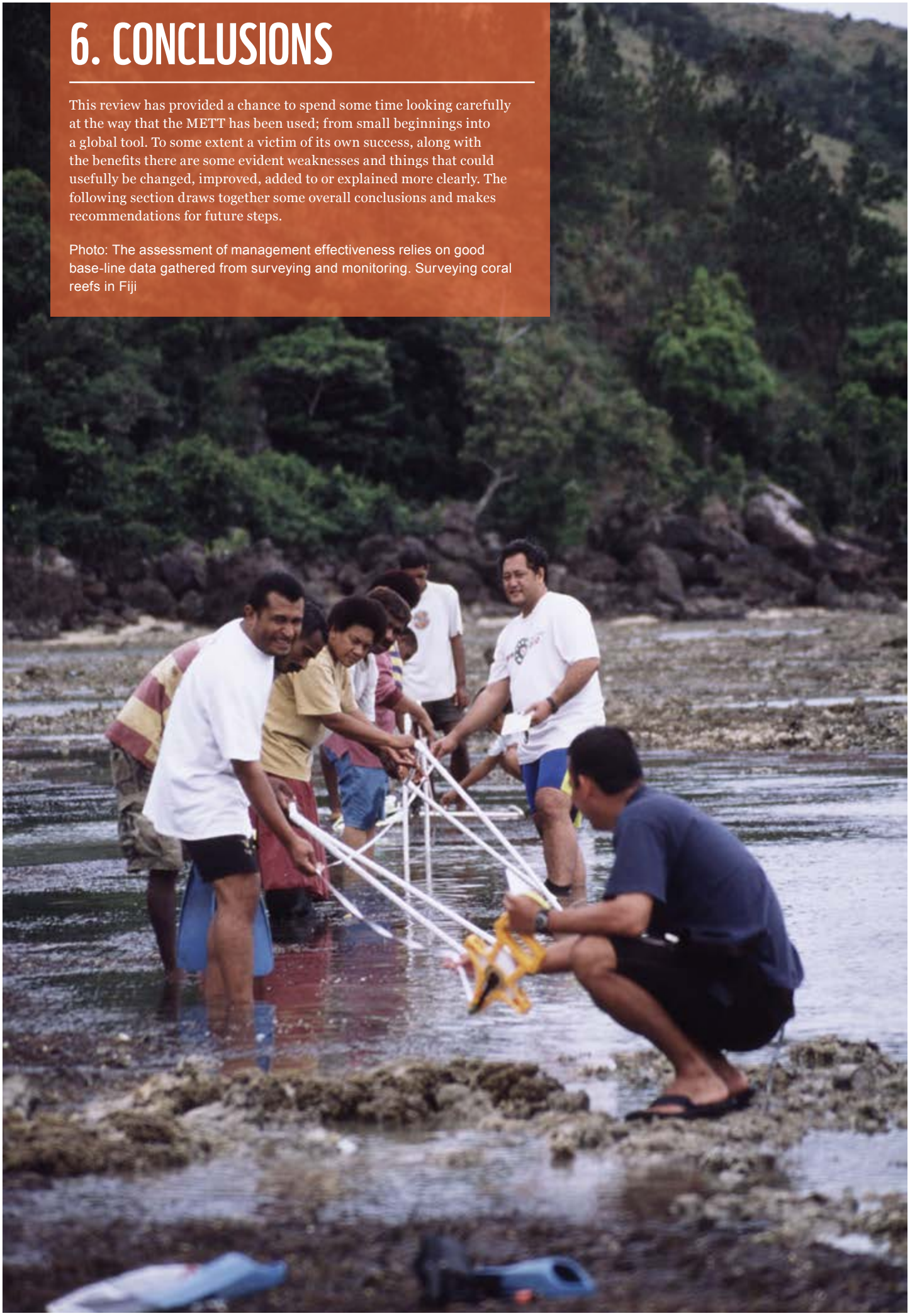
The Green List standard consists of four main components – 1) achieving conservation outcomes through good governance, 2) sound planning and 3) design, and 4) effective management. Each component has a number of criteria and indicators which emphasise the importance of managing equitably, maintaining natural values and associated cultural and spiritual values and achieving positive socio-economic outcomes. PAME assessments are a major component of the Green List, both as providing an important entry point for taking part in the initiative and as an indicator of good management. Performance levels that represent sound management of protected and conserved areas have been defined and candidate protected areas must meet these levels in order to achieve “Green List” status.

The IUCN has established a strong governance framework for the Green List initiative and a comprehensive assurance procedure to ensure transparency, rigor and credibility.

6. CONCLUSIONS

This review has provided a chance to spend some time looking carefully at the way that the METT has been used; from small beginnings into a global tool. To some extent a victim of its own success, along with the benefits there are some evident weaknesses and things that could usefully be changed, improved, added to or explained more clearly. The following section draws together some overall conclusions and makes recommendations for future steps.

Photo: The assessment of management effectiveness relies on good base-line data gathered from surveying and monitoring. Surveying coral reefs in Fiji



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6.1. Core findings and conclusions

The METT works well as a quick and simple way of collecting information about the status and trends of management in protected areas, and it provides information that can help drive improvements in management. For increasingly cash-strapped protected area agencies, the METT is a cost-effective option that in addition does not make unreasonable demands on staff time. But it is also open to deliberately distorting the results and, much more commonly, to poor application (e.g. not reviewing the METT to assess training/adaptation requirements before starting implementation, not completing the narrative sections so reducing its ability to drive adaptive management or not including a range of staff and stakeholders in the process etc) that reduces accuracy. This handbook aims to improve the way in which the METT is applied and hence the usefulness of the results to protected area management.

Given the qualitative approach and the reliance on individual judgement, the METT is likely to be best at comparing performance in one site over time than at comparing between different sites. But analysis of the global database shows that it can also provide useful information about the general status of management effectiveness of protected areas, as long as data are treated with the necessary caution. Overall usefulness of the METT for institutions such as WWF is likely to increase as the total number of assessments, and particularly the number of repeat assessments, continues to grow.

METT results have already helped to identify those management processes critical to success, and in turn to set best practice standards for protected areas that reflect the real experience of many thousand managers and rangers around the world, rather than being based on a few case studies. The focus of protected area capacity building is now moving beyond assessments towards the establishment of globally-accepted standards and, increasingly, third-party verification that these standards are being met. Conservation Assured | Tiger Standards (CA|TS) and the IUCN Green List of Protected and Conserved Areas are two concrete examples. However, these standards are predicated on the assumption that management effectiveness assessments are being carried out as an essential first part of the assessment. As the favoured “first assessment” system, use of the METT will spread further as these systems develop.

Many variations on the METT have also emerged over the last 15 years, as people have modified the original questions and format to fit different biomes, management approaches and national priorities. Along with modifications for freshwater and marine protected areas, variations have been developed for community forest areas and some countries wish to change the questions the better to fit national conditions. Some users appear to need to make some modifications as part of the socialisation process of getting used to and excited about application. Whether or not such changes are to be welcomed depends to a large extent on whether the priority is for a comparable global dataset, or for a plethora of systems that best fit national priorities. Attempts to reconcile these two objectives include development of a global list of core indicators, which allow many different PAME systems to be compiled with respect to all their critical data. As the METT continues to be modified (even the GEF has made changes to the original) use of the core indicators may be increasingly relevant for METT results as well.

6.2. Moving forward

The world is continuously changing; efforts to track progress in protected areas must be aware of and reflect changes that influence management. Experience also shows that further advice and capacity building could help improve the overall performance of the METT. The following are some suggestions for a improving both the content and application of the METT.

1. **Extra questions:** it is increasingly clear that the METT does not cover some areas that are increasingly seen as critical for protected area performance. Whilst recognising that the strength of the METT is largely in its brevity, there are strong arguments for additional questions on climate change (including carbon sequestration), transboundary conservation, social processes within and around the site and a division of the outcome questions to separate conservation outcomes and cultural/social outcomes (see section 4.3).

2. **Clearer wording:** there is always a temptation to revise constantly and this has consciously been avoided with the METT in favour of constancy. But repeated applications have identified some important ambiguities remaining in the 2007 version, which make it difficult for users to decide between some of the multiple choice questions. The guidance offered in this handbook aims to help provided clearer interpretation of the METT questions (see section 4).

3. **Capacity building material:** practical experience with the METT has shown that additional tools can be helpful, such as PowerPoint presentations that can be projected and filled in through discussion and consensus where multiple stakeholders are involved in completing the METT. Making these materials more generally available could help others in making the best use of the assessment. Spending time training assessors, so that they fully understand the METT, will also help to ensure better results; one efficient way of doing this is to have future assessors take part in a METT assessment conducted by someone with experience (see section 4.2.6).

4. **A dedicated web site:** with this in mind, there is a need for a METT website, to include the definitive version of the assessment tool (different versions circulate), translations, associated capacity building and presentation material, relevant publications and also perhaps a chat room for people to swap experiences, ask questions and make suggestions. The tool has grown considerably beyond the original concept of those who developed it, and now needs back up resources to function as effectively as possible.

5. **Outcome assessment:** the METT is not designed to be a comprehensive system for assessing protected area outcomes (i.e., usually whether or not conservation targets are being met). However, several users have matched the METT with other systems for assessing outcomes, to provide a more complete overall assessment, or have provided detailed advice on how to modify the METT (usually by adding an additional section with measurable indicators) to address outcomes (see section 4.3.2). Specific advice on these approaches could widen the use, particularly when linked with application of standards such as CA|TS.

6. **Translation:** the METT is already available in multiple languages (e.g., French, Spanish, Chinese, Russian, Romanian and Bahasa Indonesian) but not all of these are the most up to date version of the tracking tool, it is not clear if there has been any verification or peer review of these translations to ensure their accuracy, and there are probably slightly different versions being applied. Once a revised version is complete, re-translations or updated translations into major languages will be needed, particularly French, Spanish, Chinese and Arabic.

7. **Data control:** a measure of quality control is needed when METTs are completed, particularly when implemented as part of an NGO, donor or government led project. It is clear that many METTs are not being completed accurately and many are only being partially completed. The better the process to implement the METT (see section 4.2) the more accurate large datasets will be and the insights they can give to PAME particularly when these data are being used in global studies.

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7. ADDENDUM: METT ORIGINS, DIFFERENT VERSIONS AND IMPLEMENTATION

This final section provides a history of the development and use of the METT. Section 7. 1 outlines the METT's origins and evolution and section 7.2 provides details of a range of reports of the METT's implementation from individual countries to portfolios of protected areas. The METT has also been adapted and used as the basis for a range of similar assessment tools, as shown in 7.3. Finally, section 7.4 provides a list of countries which have undertaken the METT as recorded on the METT database, including those countries who have undertaken repeat assessments.

Photo: Thimpu River, Bhutan

7.1. A short history of the METT

The METT was developed in line with best practice guidance on PAME developed by IUCN. Its history and development is outlined in the section below.

7.1.1. Management effectiveness of protected areas

Protected area managers have always been aware that they need to assess the results of their management activities and judge whether they are achieving their objectives. Until recently there was very little guidance available on how to do this. At the IVth IUCN World Parks Congress in Caracas in 1992 the protected area community recommended that IUCN develop a system for assessing protected area management effectiveness (PAME). In response, IUCN created an international Task Force with broad regional representation within its World Commission on Protected Areas (WCPA). After research, field testing and consultation, in 2000 the Task Force published *Evaluating Effectiveness: A Framework for Assessing Management of Protected Areas* (Hockings et al., 2000). Rather than suggesting one PAME system, the WCPA Framework provided guidance to protected area specialists on both the structure of and process for developing an evaluation, together with a checklist of issues that need to be measured. It also includes guidance on indicators that should be considered in an evaluation, and encouraged basic standards for assessment and reporting.

The WCPA Framework is made up of a range of elements and processes that can usefully form the basis of any PAME system. It is based on the idea that an evaluation should reflect three main assessment themes:

i. protected area/s design and planning issues;

ii. adequacy and appropriateness of management systems and processes; and

iii. delivery of protected area objectives including conservation of values

From these three themes the WCPA Framework identifies six key elements of protected area management, which together provide the basis of a PAME assessment (see Figure 1). These six elements reflect the way protected areas are established and managed, i.e. the management cycle.

The WCPA Framework suggests that systems for PAME should include all six elements as they are complementary rather than alternative approaches to assessing management effectiveness. Thus the assessment needs to be made in the **context** of the protected

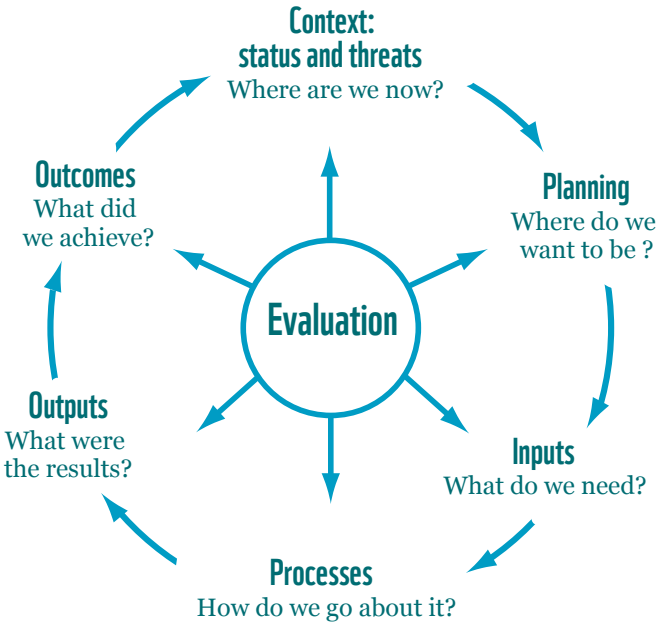

Figure 1: The WCPA Framework for assessing management effectiveness of protected areas

area, so assessments first need to gather data on issues relating to the area's values, threats and opportunities, stakeholders, and the management and political context. Management starts with **planning** of strategies needed to fulfil the vision, goals and objectives of protection and to reduce threats. To put these plans in place and meet management objectives, managers need **inputs** (resources) of staff, money and equipment. Management activities are implemented according to accepted **processes** (i.e. best practices); which produce **outputs** by completing activities outlined in work plans. The end result of management is the achievement of **outcomes**, i.e. reaching the goals and objectives set for the biological conservation, economic development, social sustainability or cultural heritage of the protected area.

7.1.2. World Bank Alliance

The World Bank/WWF Alliance for Forest Conservation and Sustainable Use ('the Alliance') was formed in April 1998, in response to the continued depletion of the world's forest biodiversity and of forest-based goods and services essential for sustainable development. As part of its programme of work the Alliance set a target relating to PAME: *50 million hectares of existing but highly threatened forest protected areas to be secured under effective management by the year 2005* (Dudley and Stolton. 1999). To evaluate progress towards this target the Alliance sought to develop a site-level Tracking Tool to facilitate reporting on PAME within WWF and World Bank projects; the METT was developed from this concept of a PAME Tracking Tool.

7.1.3. Inspiration behind the METT

In November 2000 the Alliance elected to trial the "Scoring system for process and output indicators", Appendix II of the *Evaluating Effectiveness: A Framework for Assessing Management of Protected Areas*. This appendix was based on several years work carried out on Fraser Island World Heritage site, Australia (Hockings and Hobson, 2000). Although the "scorecard" only addressed the WCPA Framework categories of process and output, it was felt that its 10 basic questions offered a simple option for protected area managers to consider issues related to management effectiveness without performing additional research. It was also thought to be broad and inclusive enough to provide an adequate picture of the management status of a broad spectrum of protected areas, and thus help the Alliance measure progress towards its target. The scorecard was sent out to selected World Bank task managers who were requested to complete it for protected areas over 20,000 ha in size. This exercise resulted in field tests in over 2,000,000 ha of forested protected areas in 16 sites at India, Indonesia, Philippines, Romania and Vietnam.

Following the field testing phase the Alliance contracted the authors of the WCPA Framework to provide two outputs:

i. A review on how the scorecard can be improved, with guidance on its scope and limitations.
ii. Recommendations on how the WCPA Framework can be developed to:
   a) Track progress on the Alliance's target
   b) Provide reliable information to field managers to enhance management of biodiversity.

The review of the scorecard in the pilot sites, highlighted issues related to the trade-off between the brevity of the 10 question scorecard and the greater detail which would provide more complete basis for both the assessment and adaptation of protected area management. WWF felt that the existing Appendix II scorecard did not go far enough in assessing site performance and proposed the development of a more detailed alternative, which was presented to the Alliance in 2002. However, World Bank staff argued strongly that the proposal was too time-consuming to be used by their project

executants. A compromise was agreed whereby the format of the original scorecard was maintained with a few extra questions and a data section added to reflect other elements in the framework (Stolton et al, 2002b).

As a result the publication *Reporting Progress on Management Effectiveness in Protected Areas. A simple site-level tracking tool developed for the World Bank and WWF* (Stolton et al, 2002a) was published; the tool which subsequently became known as the METT.

As the title implies, the primary aim of the METT is to supply consistent data about the progress of protected area management over time. The purposes of the tool are detailed in the introduction of the 2002 and 2007 publications (Stolton et al, 2002a), which states that the METT was developed as a response to eight requirements:

i. Capable of providing a harmonised reporting system for protected area assessment within both the World Bank and WWF
ii. Suitable for replication
iii. Able to supply consistent data to allow tracking of progress over time
iv. Relatively quick and easy to complete by protected area staff
v. Capable of providing a "score" if required
vi. Based around a system that provides four alternative text answers to each question, thereby strengthening the scoring system
vii. Easily understood by non-specialists
viii. Nested within existing reporting systems to avoid duplication of effort.

The METT is ideally an "entry tool" into the whole concept and practice of PAME. There are now a multitude of tools (both generic and those developed for specific protected area systems or categories) (Leverington et al., 2010b) and the revised WCPA PAME Framework (Hockings et al, 2006) provides detailed guidance on how to carry out PAME evaluation and reviews many of the tools available.

Box 3: The METT in brief

The METT consists of two main sections.

Datasheets that collect key information on the protected area, its characteristics, threats and management objectives and details of who carried out the assessment

Assessment form that provides a composite measurement across 30 parameters, integrating all six components of the WCPA Framework and is designed around a questionnaire with four alternative responses, each with an associated score ranging between 0 (poor) to 3 (excellent). Each question also has data fields to include notes about the answers (with justification if possible) and steps to be taken to improve management if necessary.

Click here to download the 2007 version of the METT[17]

7.1.4. 2005 and 2007 Revision

The wide uptake of the 2002 version of the METT (known as METT 1) and analysis of the results from implementation by WWF (e.g. Dudley et al., 2004 – see section 7.2) led to some suggestions for improvement. The 2005 version (known as METT 2) included a standardised list of threats based on an early iteration of the "unified classifications of threats" developed by the Conservation Measures Partnership (CMP) (Salafsky et al., 2008). From this assessors were asked to choose the two most important threats facing the management of the protected area. A list of management activities was also included, again from which assessors were asked to choose the two most important; this later innovation was only included in this version of the METT (although has been used in other adaptations, e.g. in Bhutan).

WWF funded a more detailed review and revision of the METT in 2007 based on implementation experience, best practices and the need to reflect the growing interest and implementation of the METT beyond the original aims of the Alliance's protected forest targets. This version, known as METT 3, was published in 2007 (Stolton et al., 2007).

The revisions in the 2007 version included:

- **Addition of a standardised threat assessment:** In the 2002 version of the METT respondents were simply asked to list threats, which meant that slight changes of wording made analysis difficult and that some important threats (e.g. invasive species, fire and human-wildlife conflict) were often not mentioned (Dudley et al., 2004 and 2007). The 2005 edition used the typology of threats developed by CMP, which helped to standardise responses (and re-categorised the 2004 data using this system) but restricted responses to two major threats. Drawing on both these experiences, the CMP list was modified and revised and a more detailed assessment system was introduced, where all threats were assessed.

- **Scoring disclaimer:** The review of results between 2002 and 2006 found that the concerns about using the METT to calculate an overall PAME score were slightly allayed and although a note remained in subsequent version of the METT concerning the development of an overall score due to the lack of weighting of questions (see box 4 for further discussion of scoring), the disclaimer against scoring was removed. This was due to results showing that most individual questions correlated fairly highly with the total score, the exceptions being those relating to legal status, protected area design, local communities and indigenous people. This meant that the total score apparently correlated reasonably well with most individual scores and thus could serve as a reasonably good indicator of overall management effectiveness (Dudley et al., 2004 and 2007). However, as noted before, in the METT guidance reporting scores for individual elements of the WCPA Framework is likely to provide a much better indication of effectiveness than an overall score. (This view was supported in a paper by Nolte and Agrawal (2012) where although composite METT scores were not significantly related to the effectiveness of protected areas in reducing fire occurrence – which was used as a proxy for effectiveness – several individual indicators in the METT were related. These indicators included cooperation with neighbouring official and commercial land; research activities; and access control, all of which would seem to have a direct impact on fire. They suggest that links between METT scores and outcomes may be stronger than the researchers of the paper suggest, but this depends on the other indicators chosen to indicate effectiveness).

- **Explanation:** A seemingly very simple revision was the change of the column heading of "comments" to "comments/explanation" in the first of two narrative columns in the multiple choice element of the METT. This change was however the first step toward the type of evidence based verification approach currently being developed in protected area management standards such as Conservation Assured | Tiger Standards and the Green List of Protected and Conserved Areas (see sections 5.2 and 5.3). As the guidance notes to the METT explain, this box "*allows for*

qualitative judgements to be explained in more detail. This could range from local staff knowledge (in many cases, staff knowledge will be the most informed and reliable source of knowledge), a reference document, monitoring results or external studies and assessments – the point being to give anyone reading the report an idea of why the assessment was made".

- **Wider focus:** The revision made the METT less narrowly orientated towards forest protected areas and thus suitable for use in all protected areas including wetlands and marine. This wider focus also allowed for the tool to be used beyond government protected areas, for example, in village forest reserves in Tanzania (Malugu et al., 2008; Knights et al., 2014).

Box 4: The METT score

Guidance on the METT use has always noted that overall scores obtained from the tool should be treated with caution as the scoring system is not weighted, and clearly some questions are more crucial to the effectiveness of a protected area than others. Other concerns about scoring included:

- That the assessment be seen by protected area staff as a judgement rather than a management tool
- Recognition of the difficulty in comparing between protected areas when reporting is done by different people (who may have very different attitudes to and responses toward self-assessment for instance) and from different protected area management types, countries, governance, area etc where perceptions of the baseline of success and failure may be very different.

Thus the ability for data from simple PAME systems like the METT, which focus on the practice of management, to indicate or correlate with overall biodiversity outcomes is limited (Carranza et al., 2014) and using the overall METT score to infer conservation outcomes is likely misleading, considering only one of the questions actually address conservation outcomes (Zimsky et al., 2010). Ideally, only where the METT is used as part of a fully planned PAME implementation system and has been explained, adapted and results verified (see section 3.2), should the results be used to infer conservation outcomes.

7.2. Examples of studies of METT results

Many projects have written up the results of METT implementation. These reports have been used throughout this report and provide a rich vien of information for those planning to use or study the METT. A sample of these reports is provided below.

Organisation/ country	Comments	Source (in date order)
WWF	The first comprehensive analysis of METT results in 200 forest protected areas in 37 countries (see section 7.2).	Dudley et al., 2004
WCS	Assessment of 10 protected areas in the Eastern Steppe of Mongolia in 2004.	Heffernan et al, 2005
WWF	Second assessment in 331 protected areas in 51 countries, including 79 repeat assessments (see section 7.2 for details).	Dudley et al., 2007
Zambia	Report of use in 19 National Parks.	Mwima, 2007
IUCN Programme on African Protected Areas and Conservation (PAPACO)	A multi-year PAME implementation including METTs in: Bissau Guinea (1); Burkina Faso (1); Burundi (7); Cameroon (8); Central African Republic (2); Chad (2); DRC (19); Equatorial Guinea (1); Gabon (3); Ghana (5); Guinea (10); Mali (1); Mauritania (2); Niger (6); Republic of Congo (10); Togo (2).	2007 – 2011 (see: papaco.org/286-2/)
China	Assessment of 535 nature reserves .	Quan et al., 2009
Armenia	Used in Forest Sanctuaries as part of the improving Forest Law Enforcement and Governance in the European Neighbourhood Policy East Countries and Russia – ENPI FLEG Program.	Gevorgyan and Abovyan, 2010
WWF	Assessment as part of the Rwenzori Mountains Conservation and Environmental Management Project (RMCEMP).	Johns, 2012
GEF	Fifth Overall Performance Study (OPS-5) reviewed 1,865 protected areas across 251 projects, of which 1,209 (65%) submitted METT assessments.	Swartzendruber, 2013
Philippines	Used in 7 marine protected areas.	Dizon et al., 2013
ASEAN Heritage Parks (AHPs)	Used in 17 AHPs.	Inciong et al., 2013
Birdlife	Assessment 397 forest sites within the Eastern Arc Mountains and Coastal Forests (EACF) between 2004 and 2012.	Gereau, et al., 2014
Kenya, Tanzania and Mozambique	Analysis of 473 sites which had used the METT in this region coastal areas of Kenya, Tanzania and Mozambique.	Knights et al., 2014 (see also Burgess et al., 2015)
Bhutan	Use in all protected areas which cover just over 50% of the country.	Wildlife Conservation Division and Equilibrium Research, 2015 and 2016
Indonesia	The METT has been adopted as the national assessment system for protected areas and is being widely applied. Training is being given to managers and a national target has been adopted to lift 250 protected areas to effective management (i.e. with a score of at least 70%) by 2020. The METT has been translated into Indonesian and extensive guidance on application and scoring has been provided.	Kementerian Lingkungan Hidup dan Kehutanan, 2015
GEF	Review of GEF use in nearly 2,000 protected areas including field visits to 47 sites.	GEF, 2015

7.3. METT Adaptations

Many governments and organisations have adapted the METT for their own use. Again these adaptations can provide inspiration and insights for future implementions of the tool.

Organisation/ country	Comments	Source
GEF	The GEF has developed several version of the METT for tracking its biodiversity investments (see box 1).	www.thegef.org/gef/BD_tracking_tool
Critical Ecosystem Partnership Fund (CEPF)	Based on the structure of the METT, the CEPF tracking tool aims to monitor civil society organisations' capacity to effectively plan, implement and evaluate actions for biodiversity conservation.	www.cepf.net/resources/publications/Pages/monitoring_and_evaluation.aspx
Carpathian Countries Protected Areas Management Effectiveness Tracking Tool (CCPAMETT)	The CCPAMETT was an online tool developed to be used on an annual basis. The tool was an output of the Protected Areas for a Living Planet Project carried out by WWF Danube-Carpathian Programme together with partners from the regional and local level and supported by the Swiss MAVA Foundation (2007-2011). Versions were available in English, Czech, Hungarian, Polish, Romanian, Serbian, Slovakian, Ukrainian, but all weblinks to the CCPAMETT seem to be broken.	www.ccibis.org/carpathian-values/97-protected-areas-in-the-carpathians
	The METT was adapted for use in 230 protected areas in South Africa. The questions relating to the indicators have been rephrased to better reflect South African circumstances and legislation.	Cowan et al., 2010; www.sanparks.org/about/news/?id=56647; SEF. 2012; Hockings et al., 2015
	The METT was adapted for use in 230 protected areas in South Africa. The questions relating to the indicators have been rephrased to better reflect South African circumstances and legislation.	Cowan et al., 2010; www.sanparks.org/about/news/?id=56647; SEF. 2012; Hockings et al., 2015
METT – South Africa (METT-SA)	The METT was adapted for use in 230 protected areas in South Africa. The questions relating to the indicators have been rephrased to better reflect South African circumstances and legislation.	Cowan et al., 2010; www.sanparks.org/about/news/?id=56647; SEF. 2012; Hockings et al., 2015
NAMETT	The METT adapted for use in Namibia was implemented in 20 protected areas in 2004, 2009 and 2011.	MET, 2014
WB/WWF Biofuels Environmental Sustainability Scorecard	Developed to provide an indication of whether a proposed biofuel project is likely to have a (net) positive or negative impact on the environment. There is no evidence that the tool has been used.	World Bank/World Wildlife Fund, 2008; McLaughlin, 2008; Ismail, et al. 2011.
Ramsar Site Management Effectiveness Tracking Tool (R-METT)	Resolution XII.15 of the 12th Conference of Parties (COP12) to the Ramsar Convention formally approved the R-METT for evaluating and ensuring the effective management and conservation of Ramsar Sites.	Ramsar, 2015.
Indian MEETR	The National Tiger Conservation Authority (NTCA), a statutory body under the Indian Ministry of Environment, Forests and Climate Change, and the Wildlife Institute of India have been carrying out assessment of Tiger Reserves in India since 2006. From 2011 an assessment system which shares many elements with the METT has been used.	Mathur et al., 2014
	The National Tiger Conservation Authority (NTCA), a statutory body under the Indian Ministry of Environment, Forests and Climate Change, and the Wildlife Institute of India have been carrying out assessment of Tiger Reserves in India since 2006. From 2011 an assessment system which shares many elements with the METT has been used.	Mathur et al., 2014
Bhutan METT +	The basic METT with additional guidance and questions including a more detailed threat assessment. Used in all protected areas in Bhutan in 2015 and 2016.	Dudley et al., 2016
Conservation International (CI) CI-METT	A slight adaptation of WWF's original METT, prepared by CI staff in charge of developing a site-monitoring methodology within the organization's Monitoring Outcomes framework.	Pauquet, 2005.
Arabian Peninsula	An adaptation was used in 7 protected areas in the peninsula.	Anon, 2009.

Organisation/ country	Comments	Source
Score Card to Assess Progress in Achieving Management Effectiveness Goals for Marine Protected Areas	Multiple use, for example in 172 MPAs in the Persian or Arabian Gulf, the Gulf of Oman and the south eastern coasts of Oman located in the Arabian Sea (Van Lavieren and Klaus, 2013).	Staub and Hatziolos, 2004
	A version adapted for use on marine protected areas.	Day and Laffoley, 2006
Self-assessment checklist for building networks of MPAs	A version adapted for use on marine protected areas.	Day and Laffoley, 2006
Scorecard for management capacity and effectiveness assessment for forest reserves in China	A Chinese version of the METT.	Authors have version but current status unclear
Reflective Co-assessment Scorecard	An adaptation which focuses on cooperative behaviour as an essential precondition for effective management and that encourages reflective co-assessment of cooperative relationships.	Roux et al. 2011.
ASEAN Heritage Parks	An adaption for Asia, which included additional output indicators related to the success of the protected area in reducing or combating illegal activities and success in providing ecosystem services. A selection of protected areas were visited as part of a verification process. The scoring system was also adapted.	Inciong et al., 2013
Enhanced METT	Used in 61 protected areas in the Philippines. The enhanced METT focussed primarily on process, introducing key informant interviews, focus group discussions, validation meetings, and feedback discussions with local stakeholders, summary and analyses by regional cluster groups followed by validation and consultation with the Department of Environment and Natural Resources, local government units, and civil society organizations.	Guiang and Braganza, 2014
Papua New Guinea (PNG METT)	An adaptation to suit PNG (see case study).	Leverington et al., 2016
METTPAZ: Management Effectiveness Tracking Tool for Protected Areas managed by the Zambia Wildlife Authority	Adaptations include a score for the threat assessment. The results of the assessments using the METTPAZ were studied by the GEF to assess whether improved METT scores correlated with improvements in biodiversity outcomes (Zimsky et al., 2010).	Mwima, 2007

7.4. Countries which have implemented the METT

The list below contains the sites for which METT data has been entered into the METT database (see section 2.4) and which are listed in the WDPA, it is therefore not an exhaustive list. The information on area is based on the reported area in the assessments, and can thus vary from that on the WDPA. The GD-PAME and METT database and the data they contain were gathered together with protected area managers globally and collated under the auspices of the IUCN Management Effectiveness Task Force, working together with Universities of Queensland, Oxford and Copenhagen, UNEP-WCMC and with financial assistance from various donors, including WWF and the GEF.

Table 3: All sites (most recent assessment only)

Country	No. of sites	Area (ha)
Albania	4	33,042
Algeria	7	28,085,550
Angola	4	3,364,000
Argentina	47	6,107,648
Armenia	35	169,780
Azerbaijan	7	218,390
Bahamas	26	256,152
Belarus	11	344,940
Belize	29	562,469
Benin	13	6,239,105
Bhutan[1]	8	4,008,229
Bolivia	6	5,183,300
Bosnia and Herzegovina	6	51,747
Botswana	5	2,254,539
Brazil	110	41,920,122
Bulgaria	4	104,386
Burkina Faso	7	978,145
Burundi	3	93,401
Cambodia	13	1,274,342
Cameroon	20	3,327,333
Cape Verde	12	135,342
Central African Republic	5	2,530,200
Chile	54	4,418,618
China	116	32,633,300
Colombia	20	8,661,598
Congo, Dem. Rep.	21	12,916,550
Congo, Rep.	7	4,141,676
Costa Rica	36	1,597,068
Cote d'Ivoire	9	1,706,040
Czech Republic	3	256,500
Djibouti	2	12,500
Dominican Republic	16	533,977
Ecuador	19	1,650,248

Country	No. of sites	Area (ha)
Egypt	8	1,855,700
El Salvador	16	124,170
Estonia	26	209,180
Ethiopia	14	963,700
Federated States of Micronesia	2	
Fiji	5	46,702
Finland	1	27,000
French Guyana	1	2,464
French Polynesia	2	
Gabon	12	4,836,064
Gambia	2	12,138
Georgia	8	328,235
Ghana	8	399,562
Greece	2	63,700
Grenada	3	160
Guatemala	16	2,132,848
Guinea	4	260,201
Guinea-Bissau	10	801,502
Haiti	3	34,000
Honduras	15	2,114,575
India	14	710,940
Indonesia[2]	22	9,719,348
Iran, Islamic Rep.	4	584,380
Italy	14	82,352
Jamaica	34	530,514
Jordan	8	376,969
Kazakhstan	19	6,526,202
Kenya	54	755,748
Kyrgyzstan	2	336,118
Lao PDR	8	1,438,743
Latvia	6	524,192
Lebanon	5	103,390
Lesotho	3	14,047

Country	No. of sites	Area (ha)
Liberia	4	1,638,942
Libya	2	83
Lithuania	8	138,507
Macedonia FYR	6	124,934
Madagascar	31	3,083,804
Malawi	10	2,209,500
Malaysia	17	2,000,217
Mali	5	215,619
Mauritania	1	16,000
Mauritius	25	12,206
Mexico	22	4,667,166
Moldova	13	225,348
Mongolia	23	11,971,084
Montenegro	5	125,695
Morocco	5	283,801
Mozambique	19	9,978,648
Namibia	24	7,539,684
Nepal	13	9,337,970
Nicaragua	33	2,480,520
Niger	8	9,525,885
Nigeria	3	410,100
Niue	3	6,329
Pakistan	4	1,835,245
Palau	1	
Panama	20	1,970,431
Papua New Guinea	7	2,425,599
Paraguay	6	181,392
peru	27	9,814,704
Philippines	26	1,118,662
Poland	2	39,704
Romania	23	1,025,422
Russian Federation	125	53,613,257
Rwanda	2	117,300
Samoa	1	45,692
Senegal	8	184,107
Serbia	23	335,856
Seychelles	4	44,157
Sierra Leone	6	497,373
Slovakia	5	106,853
Solomon Islands	2	270,000
South Africa	248	1,530,573
Sudan	4	14,000,000
Suriname	16	2,221,400
Sweden	1	38,483
Syria	6	75,516
Tajikistan	3	25,139
Tanzania	430	40,157,200
Thailand	10	1,073,995
Togo	7	423,170
Tunisia	8	216,168
Turkey	15	1,337,680
Turkmenistan	9	1,902,320
Uganda	14	596,759
Ukraine	5	114,750
Uruguay	23	283,974
Uzbekistan	10	266,458
Vanuatu	7	35,161
Venezuela	14	4,103,882
Vietnam	50	552,262
Zambia	17	7,113,200
Zimbabwe	1	
Grand Total	**2506**	**427,370,966**

1. All protected areas in Bhutan have now completed the Bhutan METT+, but the data has not been loaded onto the METT database yet.
2. In 2015 Indonesa assessed 283 terrestrial and marine protected areas, but this data has not been added to the database yet.

Table 4: Sites assessed more than once

Country	No. of sites	Area (ha)	No of Assessments (including repeats)
Albania	2	7,900	4
Argentina	12	229,065	25
Armenia	32	169,662	75
Bahamas	3	78,229	8
Belarus	4	135,503	12
Belize	29	562,469	70
Benin	4	5,755,586	9
Bhutan[1]	1	135,129	2
Bolivia	1	747,000	2
Bosnia and Herzegovina	5	31,947	10
Botswana	1		2
Brazil	43	20,364,494	93
Bulgaria	2	31,856	4
Burkina Faso	1	818,046	2
Cambodia	9	872,401	25
Cameroon	14	3,023,833	66
Cape Verde	8	119,478	18
Central African Republic	1	464,400	3
Chile	46	4,227,327	105
China	24	1,738,660	69
Colombia	1	1,100	3
Congo, Dem. Rep.	5	6,250,000	16
Congo, Rep.	4	3,640,950	12
Costa Rica	27	1,166,779	62
Cote d'Ivoire	1	454,000	2
Czech Republic	2	187,500	6
Dominican Republic	7	262,722	16
Ecuador	4	323,850	8
Egypt	1	435,000	2
Ethiopia	2	222,000	4
Federated States of Micronesia	2		4
Fiji	2		4
French Polynesia	2		4
Gabon	7	2,502,060	28
Gambia	2	12,138	5
Georgia	5	308,788	13
Grenada	2	90	4
Guatemala	2	1,145	4
Guinea	1	145,200	2
Guinea-Bissau	5	482,502	20
Honduras	15	2,114,575	40
India	8	477,900	38
Indonesia	17	6,838,937	38
Iran, Islamic Rep.	4	584,380	10
Jamaica	2	194,564	7
Jordan	6	256,789	18
Kazakhstan	8	1,498,337	28
Kenya	47	547,221	116
Lao PDR	5	701,163	11
Latvia	1	457,000	3
Lebanon	3	59,328	6
Liberia	1	180,400	2
Libya	1		2
Lithuania	5	92,216	15
Macedonia FYR	2	8,172	5
Madagascar	10	631,797	32
Malaysia	9	174,513	27
Mauritius	1	4,300	2
Mexico	3	1,287,309	6
Moldova	5	78,542	10
Mongolia	12	8,044,680	25
Montenegro	3	45,695	6
Mozambique	4	2,134,300	11
Namibia	14	6,699,553	42
Nepal	9	8,646,548	25
Nicaragua	21	2,480,006	43
Pakistan	1	1,800,000	3
Palau	1		2
Panama	6	711,642	21
Paraguay	3	42,000	6
Peru	12	4,543,749	29
Poland	1	10,502	2
Romania	22	1,016,266	51
Russian Federation	107	47,612,667	265
Serbia	18	281,142	36
Sierra Leone	2	75,000	4
Slovakia	3	309	10
South Africa	39	1,103,396	112

Country	No. of sites	Area (ha)	No of Assessments (including repeats)
Syria	2	33,994	4
Tajikistan	3	25,139	8
Tanzania	107	37,111,066	322
Togo	2	317,980	4
Tunisia	2	25,200	4
Turkey	2	83,899	4
Turkmenistan	7	976,117	22
Uganda	2	49,700	8
Ukraine	3	110,623	8
Uruguay	20	224,232	60
Uzbekistan	9	266,458	29
Vietnam	31	359,615	91
Zambia	14	2,770,200	70
Grand Total	**961**	**199,697,930**	**2566**

* Where area information has not been recorded no data was been provided.

1. Four sites have now undertaken repeat assessments using the Bhutan METT+ but the data has not been uploaded to the METT database.

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