# Workshop report
## Measuring the quality and effectiveness of protected and conserved areas – Expert meeting for the development of possible indicators and methods for reporting

**February 2-6, 2020**

International Academy for Nature Conservation, Isle of Vilm, Germany

Organised by
the German Federal Agency for Nature Conservation (BfN)
in cooperation with the IUCN Global Protected Areas Programme

# Imprint

## Published by:

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## Cover photo:

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## Citation:

## Acknowledgement:

Vilm, April 2020

# Objectives of the Meeting

The main objectives of the meeting were to:

a.  examine the elements of a potential post-2020 target that considers the quality of protected and conserved areas (i.e. as opposed to just their extent), and considers how these elements could be expressed as measurable targets. This would not necessarily aim to come to a position on what the actual quantitative targets should be, as this would involve much wider consultation and a political process with Parties to CBD;

b.  review existing data sources that relate to such targets and identify significant gaps in both content and quality of the data sets and their geographic coverage;

c.  consider how gaps could realistically be filled, by supporting and extending existing data collection or developing additional monitoring programmes;

d.  develop possible metrics that could be used to assess progress towards measurable quality targets that could draw on one or more of these datasets.

The workshop was organized jointly by the Global Protected Areas Programme of the International Union for Conservation of Nature (IUCN), the IUCN World Commission on Protected Areas, and the International Academy for Nature Conservation of the German Federal Agency for Nature Conservation (BfN INA) with funding from the German Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU).

The agenda for the workshop and list of attendees are given in Appendix A

# Executive summary

Consultations toward the post-2020 Global Biodiversity Framework are well under way, and Parties to the Convention on Biological Diversity are engaged in understanding what progress has occurred during the United Nations Decade on Biodiversity through the implementation of the Strategic Plan for Biodiversity 2011-2020. It is against this backdrop that this expert workshop was convened to examine the specific role of protected and conserved areas within the emerging framework, and to provide recommendations for consideration by the Parties. While the ultimate framing of global objectives, targets and indicators will be negotiated, there remains a need to take stock of contemporary practice and understanding of what has worked towards target achievement, and what refinements and additions may be necessary to determine a new global pathway for the *in situ* conservation of biodiversity in the years ahead.

The workshop took as its starting point the full scope of the current Aichi Target 11 within the Strategic Plan. Its initial focus was to examine each element of the Target, and to better understand how those elements that are well quantified have more effectively incentivised implementation than those which are described more in terms of quality but lack quantitative measures of progress. A first round of seven working groups discussed the following elements: areas of particular importance for the persistence of biodiversity (and within this the aspects of location, representivity and design); areas of importance for ecosystem services; governance and equity; management effectiveness; connectivity; other effective area-based conservation measures; and, outcomes for biodiversity and society. For each of these, the groups examined what was essential about the element, what was missing and could be strengthened, and how each aspect could be better quantified. This process led to a stronger clustering of the issues to take forward to a more detailed analysis.

A second round of working groups discussed measurable targets and indicators related to the quality of each of the following four elements:
1. Location – Areas of importance for biodiversity, representivity and connectivity;
2. Equitable governance;
3. Effective management (including delivery of outcomes for biodiversity);
4. Delivery of ecosystem services and outcomes for society.

This second round of working groups reported back frequently to the workshop plenary in order to exchange ideas and build consensus. The result is a schedule of proposed quality measures, measurable or assessable targets, associated indicators and sources of data to support measurement.

As the debate continues about how to frame the post-2020 Global Biodiversity Framework, the information flowing from this workshop can apply to any proposed formulation of targets and goals. Although Parties during the preparatory meetings have emphasized that there is a need to keep all of the elements of Aichi Target 11 in the new framework, it is unlikely that all elements will be grouped together, as they could be expressed in several different targets. There is also a need to clarify and deepen each element to render it measurable, wherever it is placed. The workshop proposed that the focus should shift towards ensuring that each element is necessary and sufficient to achieve the desired outcomes, and furthermore, to

ensure that rather than being notional or aspirational, they should be practical, measurable and therefore achievable.

The outcomes of the workshop are therefore offered as a suite of considerations that provide a reference point for Parties and technical advisors to ensure that the formulation of the new Framework is comprehensive of the important elements, and that these can be rendered in a clear, complete and practical way as a benchmark for progress and achievement.

# Introduction

At the Fifteenth meeting of the Conference of Parties to the Convention on Biological Diversity (COP 15), a new strategic plan and accompanying targets will be established to guide conservation of biological diversity over coming decades. Discussions are already underway through CBD consultations and a "zero draft" of the post-2020 Global Biodiversity Framework has been released[1] and will be refined through negotiations during 2020 leading to its adoption at COP15. This will replace the current Strategic Plan for Biodiversity 2011-2020, and its suite of Aichi Targets, including Aichi Target 11 on Protected Areas.

In developing new targets for biodiversity conservation, we should learn from the experiences in implementing the Aichi Targets over the past decade. Target 11 has been regarded as one of the most successful of the Aichi Targets (Gannon et al., 2019; Woodley et al., 2019). This assessment is based largely on coverage of protected areas rather than their effectiveness in delivering positive biodiversity outcomes (Barnes et al. 2018) with much less information available about the aspects of Target 11 that reflect on the "quality" of protected areas. There is a danger that an increase of area under formal protection, without ensuring the resources and management necessary to ensure their success (Di Minin & Toivonen 2015; Cook et al., 2019; Geldmann et al. 2018), will not deliver the benefits that protected areas promise as a conservation tool (Watson et al., 2014). The quality aspects of Aichi Target 11 are expressed in the words:

> *"especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape"* (CBD, 2010).

Reporting against these quality elements of the target is much less precise than the coverage targets and evidence suggests that achievement against these aspects has been much more modest (Gannon et al., 2019).

There is considerable anecdotal evidence that the percentage coverage targets contained in Aichi Target 11, provided an incentive and focussed actions of governments and others around the world to achieve these coverage targets (in some cases this may have had a perverse outcome if sites were protected just to meet percentage coverage targets without attention to desired outcomes from protection). While evidence from management literature is mixed, there is undoubtedly an influence of what is monitored and reported on the attention given by decision makers to different aspects of management. This has given rise to the oft-quoted statement that "what gets measured, gets managed".

Providing measurable indicators of protected area "quality" may not only focus decision makers and managers attention on these aspects of protected areas, but also deliver significant gains for overall biodiversity conservation. There needs to be a balance between resources devoted to designation and reporting of new protected areas and those allocated to achieve management of sites to appropriate standards (Adams et al., 2019).

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[1] "Zero draft" of the post-2020 Global Biodiversity Framework

*The majority of conservation scientists would agree, we need more of the world set aside for biodiversity. While the exact percentage needed to safeguard habitats and species into the future is unknown, scientists have provided clear recommendations for ways to improve current and future protected areas and management actions to achieve more for habitats and species. These guidelines, and the factors that have been identified as important in these decisions, need to be **explicitly and transparently incorporated into international conservation agreements**[2] post-2020 to ensure better conservation outcomes in the future* (Kuempel et al., 2020).

This workshop aimed to provide a set of realistic, appropriate and meaningful measures that could be used to assess and report on the quality elements of any post-2020 target for protected and conserved areas.

# Workshop discussions

## 1. Zero Draft of the Global Biodiversity Framework[3]

The context and main elements of the Zero Draft of the Global Biodiversity Framework were outlined in the context of discussions at the Thematic Consultation on Area-Based Conservation Measures that was held in Montreal in December 2019, which was attended by a number of the participants who also attended the Vilm workshop.

The framework is built around a theory of change (see figure 1) which recognizes that urgent policy action globally, regionally and nationally is required to transform economic, social and financial models, so that the trends that have exacerbated biodiversity loss will stabilize in the next 10 years (by 2030) and allow for the recovery and restoration of natural ecosystems in the following 20 years, with net improvements by 2050 to achieve the Convention's vision of "living in harmony with nature by 2050".

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[2] emphasis added
[3] Adapted from notes on Zero Draft provided by Trevor Sandwith

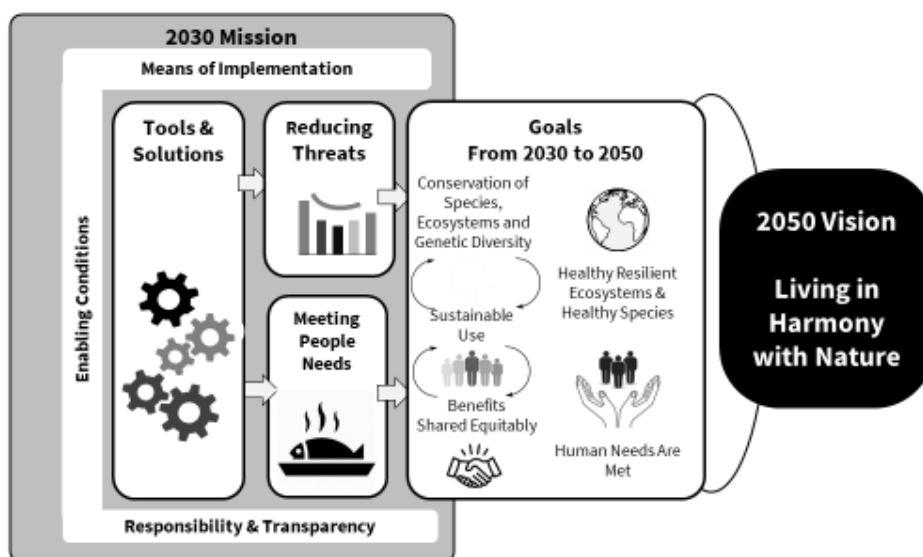## P2020 Overarching Framework: Theory of Change



**Figure 1.** Theory of change diagram from the Zero Draft of the Global Biodiversity Framework.

The framework's theory of change assumes that transformative actions are taken to (a) put in place tools and solutions for implementation and mainstreaming, (b) reduce the threats to biodiversity, and (c) ensure that biodiversity is maintained and used sustainably in order to meet people's needs and that these actions are supported by (i) enabling conditions, and (ii) adequate means of implementation, including financial resources, capacity and technology. It also assumes that progress is monitored in a transparent and accountable manner with adequate stocktaking to ensure that, by 2030, the world is on a path to reach the 2050 Vision for Biodiversity. The outputs from this Vilm workshop are intended to help develop such transparent and accountable measures that could be used in assessing progress with protected and conserved area establishment, management and governance.

The Zero Draft includes a number of action targets to be achieved by 2030. Two in particular were regarded as particularly relevant to our discussions. These are:

*Reducing threats to biodiversity*
*1. Retain and restore freshwater, marine and terrestrial ecosystems, increasing by at least [50%] the land and sea area under comprehensive spatial planning addressing land/sea use change, achieving by 2030 a net increase in area, connectivity and integrity and retaining existing intact areas and wilderness.*

*2. Protect sites of particular importance for biodiversity through protected areas and other effective area-based conservation measures, by 2030 covering at least [60%] of such sites and at least [30%] of land and sea areas with at least [10%] under strict protection.*

Action Target 2 could be considered the equivalent of Aichi Target 11 in the current CBD Strategic Plan. Unlike Target 11, Action Target 2 only considers the question of extent of protected and conserved areas. Issues of quality are contained instead in the Appendix of the Zero Draft that sets out elements of the target to be considered for monitoring and suggested indicators (Table 1).

**Table 1.** Suggested indicators for protected and conserved areas from Zero Draft.

| Draft 2050 Goals | Suggested elements of the goals for monitoring | Suggested indicators |
|---|---|---|
| Protect sites of particular importance for biodiversity through protected areas and other effective area-based conservation measures, by 2030 covering at least [60%] of such sites and at least [30%] of land and sea areas with at least [10%] under strict protection. | Change in extent of protected areas and other area-based conservation measures. | Protected area coverage. OECM coverage. |
| | Coverage and representivity of protected areas and other area-based conservation measures (ecosystems, and key areas). | Protected Area Coverage of Key Biodiversity Areas. Protected area coverage of ecoregions. Protected Area Representativeness Index. Species Protection Index. |
| | Connectivity of protected areas | Protected Area Connectedness Index (PARC-Connectedness). |
| | Protected area management | Protected Areas Management Effectiveness Governance of protected areas and OECMs (public, private, community, IPLC |

It was not the intent or focus of this Vilm workshop to critique the Zero Draft, but three elements that could be strengthened were noted during discussions. Firstly, there was considerable disquiet in relation to the idea that a target be set for areas under strict protection, especially in terms of the low level of protection (1/3 of protected areas) relative to current situation in many parts of the world. Secondly, the relatively poorly developed and vague nature of the suggested indicators for assessing the protected and conserved area target was noted. Some of the existing operational CBD / BIP indicators (such as ProtConn for connectivity) have been omitted from the Zero Draft. The outputs of this current Vilm workshop will be particularly relevant in this regard. Thirdly, the shifting of quality-related aspects of the target form the main text for Action Target 2 to the Appendix may reduce attention to these aspects. Simply re-inserting words such as "through effectively and equitably managed, well-designed and well-connected PAs and OECMs" could make a huge difference.

## 2. Defining quality of protected and conserved areas

Working groups considered the question of how to define "quality" in relation to seven aspects of protected and conserved areas. These are outlined below noting key points that arose during discussions in the working groups.

## Areas of importance for persistence of biodiversity

Issues of quality in relation to the placement of protected and conserved areas were seen to involve three aspects – species coverage, ecosystem representativeness and site design.

a. Location of PA/CAs is a critical aspect of quality – Biodiversity is unevenly distributed on Earth and focussing protected areas (PAs) on places that are important for biodiversity is the logical strategy for conservation, but we have not done so – PAs are often not in the best places. Key Biodiversity Areas (KBAs) represent the global standard for identifying areas of importance for biodiversity and are thus critical inputs when deciding on priority areas for new PAs. While KBAs are unequalled as a science-based standard, there are some challenges to using them. These challenges include (i) a perception that they are too prescriptive and demand too much work to identify and record, (ii) the inventory is currently very incomplete (particularly in the ocean), (iii) a perception that KBA data access is rather restricted and difficult, and (iv) that other national or regional site prioritisation schemes already exist.

b. Representivity: The aim is to protect representative systems of land, sea and freshwater by ecological region through networks of PAs and OECMs. If ecosystem-based approaches are used for representation, then the addition of any areas selected for "areas of importance" criteria will therefore also count for representivity. Assuming logical planning, the selection of sites of importance for biodiversity might be done first, then representivity could be completed for any gaps.

Representation-based approaches ensure that a full suite of ecosystem / habitat types are included in the PA system, also because there is currently more complete data available in many countries than for KBAs. At the global level, several datasets are available now, including the original and updated ecoregions (Dinerstein et al., 2019) plus the more recent ecotypes (Sayer et al. 2019). Different regions (e.g. EU) and countries have developed their own ecosystem / habitat classifications that can be used for spatial planning, gap analyses, and measuring and reporting progress.

The group therefore agreed that both approaches are important and complementary, and that ecosystem-based representation approaches should complement the approaches focused on areas of importance for biodiversity. However, wherever possible, species data should be considered to inform the siting and design of PAs within underrepresented ecosystem / habitat types in order to maximize species representation and biodiversity conservation outcomes.

c. Design: Ecological design was seen as a complementary component of protected areas and, in some cases OECMs. Ecological design considerations are part of the IUCN Green List Standard and include protected areas size, connectivity, population viability and inclusion of seasonal needs for species. Increasingly, ecological design should include climate change projections, including elevational gradients and refugia. It was proposed to develop a target that encourages that PAs and OECMs are designed to optimise their conservation value and ecosystem service benefits for the long term. Additionally, it was noted that assessment of PA design was a useful element of assessing this aspect of PA quality.

## Areas of importance for ecosystem services

Role of PA/CAs in delivering ecosystem services (ES) to people – need to know where, what and how much ES are delivered, noting that ES consist of both currently realised and potential ES. Focusing on PA/CAs as provider of ES directly addresses climate mitigation agenda and SDGs. Many, but not all, ES are able to be estimated through remote sensing and *in situ*/crowd-sourced data. Highest ES delivery tends to be from sites closest to people rather than from remote sites. This is not the case with carbon, which does exhibit a high overlap with biodiversity. PA/CAs in different regions deliver different mixes of ES such as carbon, water and hazard mitigation often with little overlap.

One aspect of quality of ES is the extent of delivery of benefits to people, especially vulnerable people. Provisioning services can be critical for people living in poverty. Protecting sources of potential ES will also protect biodiversity in these sites.
Putting bigger emphasis on ES delivery by PAs will give greater attention to PAs (CAs close to bigger settlements and to PAs/CAs with greater contribution to poverty alleviation).
There was a risk identified that maximising ES delivery could be at the expense of biodiversity conservation. Such potential trade-offs need to be identified and measures taken to put biodiversity first.

## Governance and equity

Equitable management in Aichi Target 11 has been primarily and most visibly reported in terms of the number and percentage of the four different PA governance types (as recorded in the World Database on Protected Areas). There is logic in retaining governance diversity as a key indicator, however understanding governance diversity does not give information or data on the quality of governance. We now use the term equitable governance rather than equitable management and this is reflected in CBD Decision 14/8.

Addressing governance and equity leads to better outcomes for biodiversity. It addresses issues of justice and human rights. It leads to better collaboration, builds trust amongst actors, draws on a wide knowledge base, all of which leads to better informed decisions. It helps to increase social outcomes, reduces transaction costs, helps to reduce or avoid conflict, and can help to reduce threats to the protected or conserved area. It also provides an on the ground "reality check" of the social and ecological situation, including any threats that are ongoing or anticipated.

There are several, though not insurmountable, challenges associated with addressing governance and equity. Some of the terms and concepts are complex and often need unpacking, and there is a lack of clarity and understanding on what governance and equity mean in practice. There are challenges relating to both language and culture. Many protected and conserved areas have little or no available data on governance. If there are data, it may range from subjective to objective. There can also be a wide range of perspectives and perceptions of governance, particularly across the four governance types. The quality and accuracy of governance assessments can range depending on participants' understanding of the concepts but also on how self-critical and reflective they are.

The principles of good governance are universal and global concepts, but which may not always translate to the local level. It is important to fully understand the context of the place,

whether it is a protected area, a conserved area or place carrying out other effective area-based conservation measures.

While recognising the complexity of assessing equitable governance, the equity framework, accepted as part of voluntary guidelines by the CBD, provides a basis for establishing quality measures based on the three dimensions of:
- **Recognition** (recognition and respect for rights, stakeholders, rightsholders and their knowledge)
- **Procedure** (participation, transparency and accountability, access to justice and dispute resolution, fair and effective law enforcement)
- **Distribution** (mitigation of negative impacts, sharing of benefits).

## Management effectiveness

Management Effectiveness (ME) is an essential element of PAs and OECMs, but it has not been covered / implemented sufficiently in Target 11. Effectiveness is ultimately about achieving outcomes which covers:
- Improving/maintaining/restoring nature
- Reducing threats
- Provision of ecosystem services (e.g. carbon, water, health, livelihoods).

The quality of management, adequacy of resources and accountability for decisions and actions are also important elements of ME.

While the understanding of how to define quality in relation to ME is well-developed, a key challenge is to maintain flexibility for how countries assess ME while enabling reporting on ME through an agreed global reporting system. Effectiveness is relevant both at national and site level, and this will be important to address in targets and indicators. Involvement of local communities is important in terms of legitimacy and through integrating Local Ecological Knowledge. For aspects of management, resource adequacy and accountability, data needs to come from the Parties, but for outcomes remote-sensed data could be integrated with site-based data on species and ecosystem condition. A consolidated infrastructure is needed to house these data and current systems are not fit-for-purpose.

The IUCN Green List framework could be a way to operationalize the key elements involved in achieving effectiveness:
- Good governance
- Sound design and planning
- Effective management
- Successful conservation outcomes.

## Connectivity

The Convention on Migratory Species definition of connectivity as "the *unimpeded movement of species* and the *flow of natural processes that sustain life on Earth*" captures two key aspects of connectivity. It was noted that connectivity is critical but is also highly species-, habitat– and context– (or condition) specific, therefore difficult to measure and monitor, and it is difficult to design meaningful targets. But one could still refer to the need for 'appropriate' or 'adequate' connectivity, considering both current and future conditions. In some cases, it may also be easier to target, measure and monitor fragmentation.

Connectivity requirements and measurements differ greatly between terrestrial, marine and freshwater habitats. Free-flowing rivers were noted as important in the freshwater realm. Many current metrics of terrestrial and marine PA connectivity are distance-based, measuring structural connectivity but not functional connectivity (e.g. movement of species or genes). One of the currently available operational indicators (Protected Connected or ProtConn) for structural connectivity has been omitted from the suggested indicators in the Zero Draft (see Table 1 above). It was noted that, depending on the current situation, connectivity would have to be not only maintained but also restored. The question was raised how one can identify the areas that are most critical for connectivity. Any connectivity planning should also consider future scenarios of climate change and consider critical areas such as climate refugia.

Good connectivity is important because it:
- Enables movement of species, individuals and genes (migration routes)
- Ensures ecosystem connectivity (habitats / ecological processes)
- Improves rural livelihoods through coordinated management and planning (including income generation)
- Is a key component for effective / successful land-use planning
- Reduces human wildlife conflicts and enhance co-existence
- Increases resilience at both site and system levels to ensure positive conservation outcomes.

Connectivity conservation should therefore be a key component in effective spatial planning and adaptive management. It would enable the development of coherent spatial plans for PA/CAs and associated land use including migration corridors, integrate connectivity into the management of sites/networks, recognise each PA/CA as part of a wider landscape/seascape system and help to harmonise relevant policies and strategies at different levels (site/regional/national) including trans-boundary considerations.

## Other effective area-based conservation measures

OECMs, by their definition, should deliver the long-term *in situ* conservation of biodiversity and be characterised by sustained and equitable governance and management. Areas that do not meet these criteria have either been mis-recognised or are areas that were correctly recognised as OECMs, but whose conditions have changed over time. Addressing *bona fide* OECMs, the quality of these areas will in many instances have arisen from a unique set of local relationships where a diversity of governance types together with a variety of management regimes combine to produce effective *in-situ* conservation on biodiversity.

Important aspects of quality relevant to OECMs are:
- The condition of biodiversity and ecosystems in the OECM and the relationship between the governance, management and delivery of positive conservation outcomes;
- The means by which the OECM is recognised – with a focus on the notion of 'appropriate recognition' being contingent on the unique circumstances within the OECM – by relevant local, regional and national authorities;

- Appropriate reporting of OECMs to national, regional and international bodies and the accompanying recognition that this provides for the contribution of OECMs to international targets and programmes; and
- The level of support, again with a focus on 'appropriateness', including legal, political, scientific, financial, capacity or non-interference by external actors.

Beyond the internal condition of individual OECMs, their quality for broader conservation networks emerges from their location, including whether they overlap KBAs, enhance representivity, or provide ecological connectivity between other protected and conserved areas. Their quality can also be measured by the additional outputs, such as ecosystem functions and services (including food and natural resources) and the values that they sustain, which may include cultural, spiritual and socio-economic values.

## Outcomes for biodiversity and society

This working group adopted a basic model of a conservation project to define outcomes as shown in the following diagram (see figure 2).

The ultimate outcomes are linked to the oval factors: biodiversity (species, ecosystem, genetic) found in PAs and OECMs and the human benefits / well-being that they provide through ecosystem services at local to global scales. The group explicitly said that other elements of human well-being that are not derived directly or indirectly from biodiversity (e.g. stopping smoking, primary education) are outside the remit of this work.

The group was also interested in tracking intermediate outcomes that are linked to threats and opportunities and the drivers of those factors as well as the actions that we are collectively taking to influence this system.
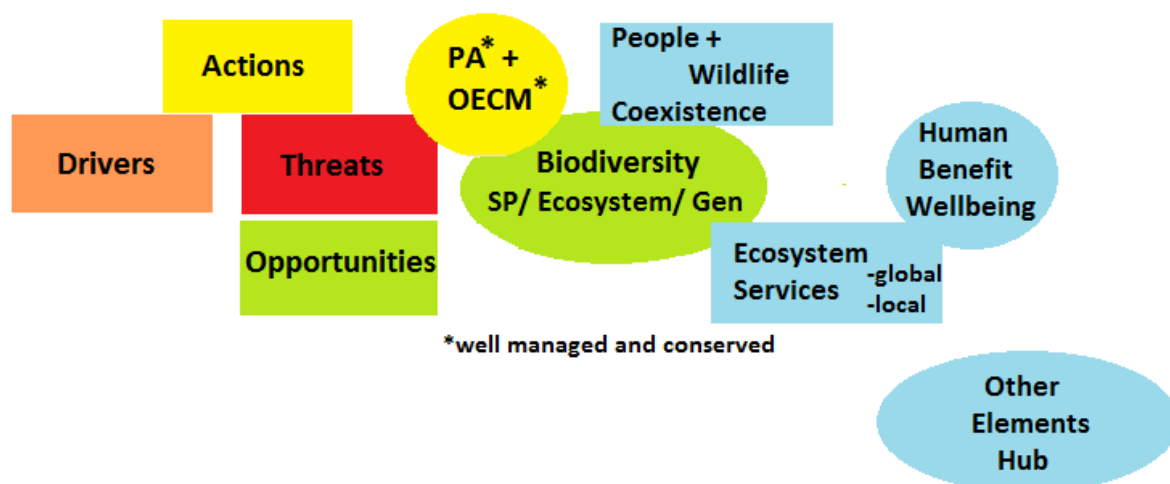


**Figure 2.** Framework used to define outcomes – adapted from a basic model of a conservation project.

Within this framework, the group identified a number of examples of how good outcome measurements might contribute to effective policy and management decisions:

•       Economic valuation of PA benefits to humans that are appropriately fed to decision makers could help make the case for PAs and resources to manage them well. These data would help up mobilize / tap into long-term resources that are not available right now. These data could potentially be collected with a sample of case studies rather than an exhaustive census.

•       Contribution of PA ecosystem to humans could help make the case for the green economy transition and nature-based solutions. If captured, these data could make the case for green solutions and inform payments for ecosystem services (e.g. carbon and water).

•       Management effectiveness outcome measurements could inform PA managers to see if they are on the right track. Ideally these data would be collected using common metrics across a network.

•       Integrated landscape planning could be used to decide where to put new PAs. This would include transboundary work and gap analysis.

•       Inventory and monitoring of OECMs could be used to determine where and under what these conditions these approaches are effective and find the balance between sustainable use and PAs.

•       Documentation of successes AND failures could be used for learning purposes and to show what happens when PAs are not in place or managed well. This work needs to tie into existing initiatives and tools (e.g. IUCN Red List, IUCN Green List).

•       Quantify local benefits to make the case to local people could show how it contributes to their livelihoods. Also used by managers to inform how they do their work / make improvements.

All of the above data could be used to inform 30 x 30 – would be the measure of quality to create pressure among parties to meet obligations, including. Also contribution to carbon obligations. They could also help with communications and help us understand trends and estimate future conditions.

Biodiversity outcomes were further discussed by the group that worked on areas important for the persistence of biodiversity.

# 3. Setting measurable targets for protected area quality

Discussion of what constitutes quality in relation to each theme revealed areas of overlap between some of the seven aspects so the consideration of quality measures proceeded around four consolidated themes:

1. Location – Areas of importance for biodiversity, representivity and connectivity;
2. Equitable governance;
3. Effective management (including delivery of outcomes for biodiversity);
4. Delivery of ecosystem services and outcomes for society.

Results of the workshop in relation to proposals for measurable aspects of quality and associated indicators are summarised under these four themes.

## Location – Areas of importance for biodiversity, representivity and connectivity

| Quality measure | Measurable or assessable target | Indicator | Data Sources | Notes |
|---|---|---|---|---|
| 1 **Areas of importance for the persistence of biodiversity:** Identify and conserve areas of importance for biodiversity in land, freshwater and marine, as determined by:<br>• Endangered species and ecosystems<br>• Geographically restricted species and ecosystems<br>• Ecological Integrity<br>• Biological processes<br>• High irreplaceability | By 2030, [90%] of all known areas important for the persistence of biodiversity are conserved as PAs or OECMs.<br><br>*By [2025], completion of the identification of areas of importance for the persistence of biodiversity.* | Proportion of important sites for terrestrial, freshwater and marine biodiversity that are conserved by PAs or OECMs. [National and global level] [using best possible data]<br>[see also SDG indicators 14.5.1 & 15.1.2]<br><br>*Completion of the identification of global and national areas of importance for all ecosystems and taxa, where data is available /using best possible data.* | WDPA<br>WD-OECM<br>WDKBA<br>+<br>National /Regional equivalents.<br><br><br>Y/N | Under Target 2<br><br>Coarse filter / fine filter approaches are complementary.<br><br>Also complementary to representivity. |
| 2: **Representivity**: Protect representative systems of land, sea and freshwater by ecological region through networks of PAs and OECMs | By 2030, adequate representative areas of all land, sea and freshwater ecological regions are conserved by PAs or OECMs. | Proportion of terrestrial, freshwater and marine ecological regions [or national equivalents] which are conserved by PAs or OECMs. | Terrestrial Ecoregions (Dinerstein et al.)<br>Marine Ecoregions (Spalding et al.)<br>Freshwater ecoregions (Abell et al.)<br>Terrestrial ecosystems (Sayre et al.)<br>National/Regional equivalents.<br>WDPA | Under Target 2<br><br>Proportion covered will vary depending on the ecological condition of the ecological region. |

| Quality measure | Measurable or assessable target | Indicator | Data Sources | Notes |
|---|---|---|---|---|
| | | | WD-OECM + National /Regional equivalents. | |
| 3: **Connectivity:** By 2030, maintain, enhance, or restore, the ecological connectivity of terrestrial, freshwater and marine networks of PAs and OECMs, to ensure unimpeded movement of species and the flow of natural processes that sustain life on Earth. | By 2030, 70% of the area of the terrestrial, freshwater and marine networks of PAs and OECMs will be structurally connected. | Proportion of terrestrial, freshwater and marine areas that are covered by a connected network of PAs and OECMs. ProtConn, PARC | WDPA WD-OECM<br><br>Primary vegetation | Mainstream connectivity in other targets?<br><br>Or new target or sub-target under 1 or 2 [structural and functional]?<br><br><br>Indicators for marine connectivity still missing |
| | By 2030, functional connectivity among PAs and OECMs will be sufficient to ensure the persistence of focal species, especially CMS species. | Proportion of focal species that have adequate connectivity between PAs and OECMs within their range. | WDPA WD-OECM IUCN Red List Species surveys Tracking data Movebank National equivalents | |
| | By 2030, countries will cooperate on the conservation of biodiversity across their borders through networks of PAs and OECMs.<br><br>Freshwater sub target under **Action Target 1** | Proportion of country borders which are conserved on both sides by a network of PAs and OECMs | WDPA WD-OECM | Transboundary models, Peace Parks |

| Quality measure | Measurable or assessable target | Indicator | Data Sources | Notes |
|---|---|---|---|---|
| | By 2030, maintain existing and restore by 20% the connectivity of rivers. | Connectivity Status Index Length of river connectivity maintained or restored (based on CSI measure of >95%) | | See Grill et al. 2019: Mapping the world's free-flowing rivers |
| 4: **Design adequacy:** PAs and OECMs are designed to optimise their conservation value and ecosystem service benefits for the long term. | By 2030, all additional PAs and OECMs will meet best practise design so their ecological values can be maintained in the long term.<br><br>By 2030, ecological **networks** of PAs and OECMs meet scientifically based design standards so their ecological values can be maintained, including climate change scenarios. | Proportion of PAs and OECMs designed based upon best practise guidance. [to be developed]<br><br>Proportion of ecological network of PAs and OECMs designed based upon best practise guidance. [to be developed]<br><br>[**definition** needed] | NBSAPs | [Link to target 1] Apply comprehensive spatial landscape/ seascape/ freshwater plans that take into account scenarios of climate change and enhance, maintain, and restore the integrity *of well-designed conservation* networks of PAs and OECMs. (that conserve biodiversity and ensure ecosystem services for people) |

# Equitable governance

| Quality measure | Measurable or assessable target | Indicator | Data, including sources and availability | Notes |
|---|---|---|---|---|
| **Equitable governance** (cross-cutting) | By 2030 20% of PA/CAs by area are reporting non-state governance types | • Number and area of PA/CAs in each of the four governance types with community governance subdivided into self-proclaimed ICCAs and other | WDPA and ICCA registry | |
| | By 2030 25% of PA/CAs and OECMs by number have done a governance assessment (including equity)<br><br>**TOP PRIORITY** | • Number and areas of PA/CA and OECMs that have conducted a governance assessment and have a governance and equity action plan, ideally as part of an overall management plan<br><br>• Number of PA/CA and OECMs implementing and reporting governance and equity measures. | Global Database on PA Governance and Equity (GD-PAGE) being developed by WCMC<br><br>Annual reports of the PA/CAs and OECMs to the headquarters (e.g. agencies) | CBD decision 14/8 |
| **Recognition** (recognition and respect of stakeholders and their knowledge and rights) | By 2030, all entities responsible for management of PAs/CAs and OECMs have, and are implementing, policies and procedures that recognize and | • Percentage (%) of PA/CA and OECMs actively implementing effective measures to recognise and respect the knowledge and | National Biodiversity Strategy and | Supported by the references to the CBD equity framework and UNFCCC Cancun safeguards |

| Quality measure | Measurable or assessable target | Indicator | Data, including sources and availability | Notes |
|---|---|---|---|---|
| | respect the knowledge, rights and interest of all stakeholders, particularly indigenous people and local communities | rights of indigenous and local communities | Action Plan (NBSAP) | |
| **Procedure** (transparency, accountability and decision making) | By 2030, all entities responsible for management PAs/CAs and OECMs are engaging stakeholders in inclusive, participatory and representative decision making at all levels and implementing effective procedures for accountability and transparency | • Percentage of people in PA/CA and OECMs decision making positions who are women, youth<br><br>• Existence of an accessible and appropriate national level dispute/conflict resolution mechanism. | Annual report of the PA/CA and OECMs to the headquarters (e.g. agencies)<br><br>Documents describing the mechanism | SDG 16.7. 1 "ensure responsive, inclusive, participatory and representative decision making at all levels |
| **Distribution** (mitigation of negative impacts/ burdens and access and sharing of benefits) | By 2030, equitable sharing of the costs and benefits arising from the establishment and management of PAs/CAs and OECMs | • Percentage of PA/CA and OECMs having an effective mechanism to compensate indigenous people and local communities for negative impacts caused by wildlife<br><br>• Number of PA/CA and OECMs that have made publically available, and shared with indigenous people and local | Annual reports of the PA/CAs and OECMs to the headquarters (e.g. agencies)<br><br>Annual reports of the PA/CAs and OECMs to the headquarters (e.g. agencies) | Referenced in the CBD programme of work on protected areas (PoWPA) goal 2.1 and extending the scope of SDG 15.6 indicator beyond genetic resources |

| Quality measure | Measurable or assessable target | Indicator | Data, including sources and availability | Notes |
|---|---|---|---|---|
| | | communities, information on the volume and distribution of financial and other important benefits | | |

## Effective management including biodiversity outcomes

| Quality measure | Measurable or assessable target | Indicators | Data sources (existing and required) | Notes |
|---|---|---|---|---|
| **Effective planning** | By 2030, X% of PAs/CAs by area have set objectives, based on identified natural values | % of PAs/CAs by area with documented objectives | PAME assessments/ Planning documents | Have strong proof of concept for how database would look, but database doesn't yet exist |
| | By 2030, X% of PAs/CAs by area have identified threats to natural values and appropriate responses/actions | % of PAs/CAs by area with documented threats to natural values | PAME assessments/ Planning documents | Have strong proof of concept for how DB would look, but DB doesn't yet exist. See taxonomy of threats |
| **Appropriate implementation of management** | By 2030, X% of PAs/CAs by area implementing comprehensive management to deliver biodiversity outcomes | % of PAs/CAs by area, which have (comprehensive / partial / minimal / don't know) implemented management | PAME assessments/ Planning documents/ Operations plan | Need guidance<br><br>Aggregate of a few PAME indicators<br><br>Sampling question: area target or random sample? Ask to report % of PAs on which based?<br><br>Worked example for one country would be useful |
| | | National-level funding for PAs/CAs | ? | Needs guidance<br><br>But OECMs? Comes later? |

| Quality measure | Measurable or assessable target | Indicators | Data sources (existing and required) | Notes |
|---|---|---|---|---|
| | | | | But non-government sources? |
| **Demonstration of achievement of biodiversity outcomes** | By 2030, X% of PAs/CAs demonstrate that the majority of biodiversity values are in good condition, and X% of the remainder demonstrate that biodiversity values are improving. | Four categories (e.g.): Good/ Fair/ Poor/ Don't know<br><br>Trends: Declining/ Static/ Improving/ Don't know | Monitoring data<br><br>Remote sensing (SRS, land cover, camera traps etc.)<br><br>Citizen science<br><br>Law enforcement/ survey data<br><br>PAME | Need to define 'good' and 'improving'<br><br>E.g. Good = good and being maintained<br>Fair =<br>Poor = degraded and at risk of being lost<br><br>Assumes assessed condition<br><br>Confidence values? Not realistic? |

## Delivery of ecosystem services and outcomes for society.

| Quality measure | Measurable or assessable target | Indicators | Data sources (existing and required) | Notes |
|---|---|---|---|---|
| **Contribution of PA/CA to Ecosystem services** | By 2025, the design and management of all new PA/CA take into account ecosystem services | % of new PAs that have sufficiently* integrated ES in design and management | Management plan (both PAs and regional ones) | Need to define threshold for "sufficiently"<br><br>[% of existing PAs that document ES] |
| | By 2030, threats to Ecosystem Services provided by PAs/CAs have been mitigated or reduced | % PAs/CA that have sufficiently* addressed/reduced internal and external threats to ES<br><br>% PAs/CAs integrated into wider landscape/seascape mgt (indicator in target 1) | Population indices: Size/abundance, structure, condition, and landscape context<br><br>Ecosystem health and integrity measures | We could integrate landscape mgt into the broader land use target/sub-target. (comprehensive spatial planning) |

| | | Population indices: Size/abundance, structure, condition, and landscape context | Optimization = |
|---|---|---|---|
| By 2030, the quantity and quality of the delivery of ES from PAs and CAs are optimized without compromising the integrity of the ecosystem | The ecosystem component that is most vulnerable to the use of each service is at a safe* level. (* safe = 'within the acceptable/natural range of variation')<br><br>Amount, quality and total value of ES that PAs and CAs deliver | Need good and standardized economic valuation estimates (per unit area) for all ecosystem services provided by ES, so that values can easily be calculated | - PAs ensure meeting biodiversity objectives while optimizing ES<br>- OECMs ensure meeting OECM objectives while optimizing ES/Biodiversity (Add in ES related targets: water)<br><br>Need to define "safe" |
| By 2030, the ES delivered by all PAs and CAs are valued and recognized by key decision makers | % of National ES accounting include the contribution of PAs and CAs<br><br>% of PAs and CAs systems with 'good' valuations of ES broken down by ES and beneficiaries/key stakeholders. | Need good and standardized economic valuation estimates (per unit area) for all ecosystem services provided by ES<br>- PA x PA calculations<br>- sampling and extrapolation<br>- global methodology | Valuation (could be sampled, not for every PA / CA) |

# 4. Plenary discussion

The intent of the workshop was to develop possible quality measures for protected and conserved areas that could be incorporated into the post-2020 biodiversity framework and targets. A set of quality measures that arose from discussions at the workshop are outlined in the Tables in Section 3 of this report.

The avenue to providing these proposals as input to the CBD discussions will be through the ongoing processes of consultation and negotiation towards the post-2020 Global Biodiversity Framework, including through the Open-Ended Working Group established for this purpose that will hold its second meeting in Rome towards the end of February 2020 and its third meeting planned for Cali, Colombia in July 2020. Secondly, discussing the outcomes with representatives of State Parties is an important follow-on step. The preparatory meeting for SBSTTA for the EU that will be held on Vilm in April is one possibility for State Party engagement, but all workshop attendees could discuss the workshop and its outcomes with their contacts in country.

A number of participants raised the issue of the renewal of the CBD Programme of Work on Protected Areas (PoWPA) and expressed the view that a renewal of the PoWPA would help advance many of the issues discussed in this workshop.

IUCN as a membership organisation is currently discussing and evolving its position in relation to the post-2020 framework and a motion relating to this (Motion 040) will be debated at the IUCN World Conservation Congress in Marseille, France to be held in January 2021. It is possible for all registered participants at WCC to provide input to the online discussion of Motion 040 that is now underway. The outputs from the Vilm workshop will be provided to IUCN groups working on developing the IUCN position.

NGOs are in a strong position to advance and promote ambitious targets as part of the post-2020 framework. Building alignment on positions between NGOs themselves and NGOs and governments that they work closely with can be an important mechanism for promoting ideas on targets and measures that can be advocated for through SBSTTA and COP discussions. NGOs can identify and propose changes that address the most problematic elements of the current Zero Draft. Some of these issues were identified in the Vilm workshop.

It is also possible to contribute the results of this workshop to other processes and discussions that will be underway in the lead up to SBSTTA and COP15, either through the UN or other groups.

The SBSTTA 24 meeting planned for August 2020 will be the most important event where there will be an opportunity to influence the science-based context of the targets and measures associated with the post-2020 framework. Development of an INF document based on the outcomes of the Vilm workshop would be the best way to achieve this together with advocacy by Vilm workshop participants attending the SBSTTA meeting and/or COP15. One additional possibility is to prepare an Editorial Essay for the IUCN journal *PARKS* that could be available as a pre-print for the COP meeting.

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# Appendix A

## Agenda

| Sunday, February 2 | |
|---|---|
| **Time** | **Agenda Item** |
| 16.10 | Ferry to Vilm, registration |
| *18:30* | *Dinner* |
| 19:30 | **Session 1. Opening and welcoming remarks** |
| | Gisela Stolpe, BfN-INA local host |
| | Trevor Sandwith, IUCN GPAP |
| | Kathy MacKinnon, IUCN WCPA |
| | Barbara Petersen, BMU |
| | Introduction of participants |
| | Introduction to Vilm |
| | Where do we stand with PAs in the new Global Biodiversity Framework? Trevor Sandwith |

| Monday, February 3 | |
|---|---|
| *07:30* | *Breakfast* |
| 08:30 | Aims & Objectives, expected outputs and outcomes, Trevor Sandwith & Marc Hockings |
| 08.45 | Setting measurable quality metrics for PAs: rationale and challenges, Marc Hockings & Trevor Sandwith |
| 09:15 | **Session 2. Inputs and discussion of five different relevant themes** (that will become the key issues for five working groups): |
| | a. areas of particular importance for biodiversity and ecosystem services, Naomi Kingston, Stephen Woodley and Mark Mulligan |
| | b. governance and equity, Trevor Sandwith, Thora Amend, Phil Franks & Jenny Kelleher |
| *10:30* | *Coffee break* |
| 11:00 | **Session 3. Inputs and discussion of five different relevant themes contd.** |
| | c. management effectiveness and connectivity, Jonas Geldmann (ME) & Bastian Bertzky (Conn) |
| | d. other area-based conservation measures, including in sectors, outcomes for biodiversity and society, Harry Jonas, Edward Lewis & Heather Bingham |
| | e. outcomes for biodiversity and society (Stephen Woodley (Biodiv), Noelia Zafra-Calvo (Soc.) & Kathy MacKinnon (SDG) |
| *12:30* | *Lunch break* |

| 14:00 | **Session 4. Working groups** |
|---|---|

- Identify quality targets and their measurement

| 15:30 | *Coffee break* |
|---|---|

| 16:00 | **Session 5. Working groups contd.** |
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| *17.00* | **Session 6. Plenary report-back** |
|---|---|

| *18:00* | *Dinner* |
|---|---|

| 19:00 | **Session 7.** |
|---|---|

- Issues around performance measurements (main principles, relevance for Global Biodiversity Framework), Nick Salafsky

## Tuesday, February 4

| *07:30* | *Breakfast* |
|---|---|

| 08:30 | **Session 8. Working groups** |
|---|---|

- Reviewing existing data sources that relate to such targets and identifying significant gaps in both content and quality of the data sets and their geographic coverage
- To consider how gaps could realistically be filled, by supporting and extending existing data collection or developing additional monitoring programmes

| *10:30* | *Coffee break* |
|---|---|

| 11:00 | **Session 9. Working Groups contd.** |
|---|---|

| *12:30* | *Lunch break* |
|---|---|

| 14:00 | **Session 10. Plenary: reporting back from WG** |
|---|---|

| *15:30* | *Coffee break* |
|---|---|

| 16:00 | **Session 11.** Prepare and exchange with marine programme |
|---|---|

| *18:00* | *Dinner* |
|---|---|

| 19:00 | **Session 12.**<br>Talk and discussion Ecosystem services, Mark Mulligan |
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## Wednesday, February 5

| | |
|---|---|
| *07:30* | *Breakfast* |
| 08:30 | **Session 13. Working Groups** |

- To develop possible metrics that could be used to assess progress towards measurable quality targets that could draw on one or more of these datasets.

| | |
|---|---|
| *10:30* | *Coffee break* |
| 11:00 | **Session 14. Contd. WGs** |
| *12:30* | *Lunch* |
| 14:00 | **Session 15. Plenary reporting back from WG** |
| 15.00 | **Session 16.** |

- A scientific research perspective on the issues and discussions, Stephen Woodley

| | |
|---|---|
| *15:45* | *Coffee break* |
| 16.15 | **Session 17.** |

- Relevant research/work and potential contributions by participants and their institutions to implement recommendations

| | |
|---|---|
| *18:00* | *Dinner* |
| 19:00 | **Session 18. Working Groups wrap up work** |

## Thursday, February 6

| | |
|---|---|
| *07:30* | *Breakfast* |
| 08:30 | **Session 19. Final outcomes discussion** |
| *10:30* | *Coffee break & Evaluation* |
| 11:00 | **Session 20. Discussion and way forward** |
| 11:45 | **Session 21. Feedback and closing remarks** |

# Participants

| Name | Institution |
|---|---|
| George Akwah Neba | IUCN (International Union for Conservation of Nature), Senegal |
| Thora Amend | Conservation & Development / IUCN- WCPA, Germany |
| Bastian Bertzky | European Commission – Joint Research Centre (JRC), Italy |
| Timothy Boucher | The Nature Conservancy, United States of America |
| Pete Chaniotis | Joint Nature Conservation Committee, United Kingdom |
| Carly Cook | Monash University, Australia |
| Jose Courrau | IUCN-ORMACC, Costa Rica |
| Anthony Dancer | SMART/Zoological Society of London, United Kingdom |
| Paul Donald | BirdLife International, United Kingdom |
| Caitlin Douglas | King's College London, United Kingdom |
| Philip Franks | IIED, United Kingdom |
| Jonas Geldmann | University of Cambridge / IUNC-WCPA, United Kingdom |
| Francisco Guil | Spanish Ministry for the Ecological Transition, Spain |
| Mervi Heinonen | Metsähallitus Parks and Wildlife, Finland |
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| Harry Jonas | Future Law/IUCN, Malaysia |
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| Edward Lewis | UNEP-WCMC, United Kingdom |
| Brian Mac Sharry | European Environment Agency, Denmark |
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| Imen Meliane | IUCN/WCPA, Tunisia |
| Joan Momanyi | Coastal Ocean Research and Development- Indian Ocean (CORDIO- East Africa), Kenya |
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| Melinka Najera | IUCN, Costa Rica |
| Thomas Niederberger | ICCA Consortium, Switzerland |
| Beryl Nyamgeroh | IUCN, Kenya |
| Judy Oglethorpe | World Wildlife Fund-US, United States of America |
| Kristina Rodina | UN FAO, Italy |
| Niklaus Salafsky | Foundations of Success, United States of America |
| Trevor Sandwith | IUCN GPAP, Switzerland |

| Name | Institution |
|---|---|
| Angela Marcela Santamaría Gómez | Resnatur: National Network of Civil Society Natural Reserves, Colombia |
| Georg Schwede | Campaign for Nature, Germany |
| Etotépé A. Sogbohossou | University of Abomey-Calavi, Benin |
| Gisela Stolpe | Federal Agency for Nature Conservation International Academy for Nature Conservation, Germany |
| Daniel Wagner | Conservation International, United States of America |
| Julian Walcott | Centre for Resource Management and Environmental Studies, University of the West Indies, Barbados |
| Alison Woodley | IUCN WCPA Task Force on Beyond the Aichi Targets and Canadian Parks and Wilderness Society, Canada |
| Stephen Woodley | World Commission on Protected Areas,IUCN, Canada |
| Noelia Zafra-Calvo | Basque Centre for Climate Change, Spain |
| Irina Zupan | Ministry of Environment and Energy, Croatia |