



BIOPAMA Regional Workshop for Eastern and Southern Africa

Workshop Report

4 – 6 December 2012

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Executive Summary

The BIOPAMA (Biodiversity and Protected Areas Management) Project was launched in 2011 by the European Commission with Intra-ACP (Africa, Caribbean and Pacific) funding from the 10th European Development Fund. The project aims to assist the African, Caribbean and Pacific (ACP) countries in developing a framework for improving technical and institutional approaches to conserve biodiversity, particularly in protected areas, through regional cooperation and capacity building activities. To achieve this aim, the BIOPAMA project proposes to establish in each ACP region, a series of interlinked, but regionally centred, Observatories for Biodiversity and Protected Areas Management. Each Observatory will host a node for a Regional Reference Information System (RRIS), which will work as a platform to facilitate exchange of data/information among decision makers and managers of protected areas.

In order to assess issues related to the establishment of the regional Observatory and the RRIS that will address the needs of the Eastern and Southern Africa region, the International Union for Conservation of Nature (IUCN) and the Joint Research Centre of the European Commission (JRC) organised the first BIOPAMA Regional Workshop in Johannesburg on 4-6 December 2012. The workshop focused on identifying (i) requirements of data/information that contribute to better decisions for protected area management and (ii) regional priorities for capacity building for improving protected area management. In total, 53 delegates from 21 countries representing national governments, research institutions, protected areas, and NGOs attended the workshop.

Information on poaching, land degradation, protected area management, and species were identified as relevant for improving protected area management and should therefore be included on the RRIS. A few constraints for data/information sharing were mentioned: (i) misuse of sensitive data, (ii) exposure of low quality of data and management, which may jeopardize reputation of data holders, and (iii) economic value of data/information. On data sharing issues, delegates mentioned that current policies on data sharing agreements are incorporated within partnerships between organizations or countries and permissions are asked from organizations on a case by case basis. Regarding data standards, delegates required additional information on existing standards and what common standards could be achieved in the long term. There was a general agreement that because many countries already have some standards that they adhere to, changing from these standards would have to be a long-term decision and thus based on robust arguments.

Capacity development on governance/participatory resource management, information management and use and integrated land use planning were highlighted as some of the priority issues during the workshop. Participants suggested various levels at which capacity development interventions could take place, including Regional Economic Communities (REC), National & Local Governments, Protected Area Agencies & Managers, Communities & landowners. Large international corporations, particularly those involved in extractive industries were also identified as important in the decision process around Protected Areas.

In the final section of the workshop, delegates were invited to provide general comments and suggestion for the BIOPAMA project. It was highlighted that more information does not necessarily lead to better decisions. Furthermore, it was suggested that it would be crucial for the project to precisely define the problem in the decision-making process and then address this. These suggestions and other comments were noted by the BIOPAMA team and some are reflected in the actions proposed during the last session of the workshop. In closing the workshop, action items that needed further discussion were identified and delegates were invited to sign up to the various

working groups addressing those. The following working groups were formed: 1) data standards, 2) regional indicators, 3) existing information systems/initiatives, 4) existing Capacity Building/Training Initiatives, 5) identify what decisions Protected Area Agencies are struggling with, 6) identify partnerships and synergies with Regional Economic Communities (RECs) and their Program of Work (PoW), 7) development of on non-internet alternatives for the RRIS. Discussions around these topics will be pursued with the relevant group members after the workshop. In addition, important links to other components of BIOPAMA that were presented at the workshop will be pursued and communicated to stakeholders. These include the work of the IUCN WCPA/SSC Joint Task Force on 'Biodiversity and Protected Areas', which is part-funded through BIOPAMA, and which presented a) a call for engagement in better measuring the biodiversity outcomes of protected areas and b) a consultation on the development of standards for the identification of significant sites for biodiversity, as well as the ABS Initiative on the implementation of the Nagoya Protocol on Access and Benefit-sharing.

Contents

Executive Summary	i
List of Tables and Figures.....	iv
List of Acronyms and Abbreviations	v
1 Introduction	1
2 Presentations – setting the scene.....	2
2.1 Regional Assessments	2
2.2 The Regional Reference Information system - RRIS.....	4
2.3 BIOPAMA Capacity Development Approach.....	5
3.4 Questions and comments	5
3 Determining information needs	6
3.1 Background information	6
3.2 Objectives.....	6
3.3 Outcomes.....	6
4 Data standards, harmonization, sharing and licensing.....	7
4.1 Data sharing – Licensing, copyright, data standards and harmonization	7
4.1.1 Background information.....	7
4.1.2 Licensing and copyright.....	7
4.1.3 Data standards and harmonization	8
4.2 Understanding the Regional Reference Information System.....	9
4.2.1 Background information.....	9
4.2.2 Objectives	9
4.2.3 Outcomes	9
5 Identifying capacity needs for better decision making.....	10
5.1 Background	10
5.2 Objectives.....	10
5.3 Outcomes.....	11
6 Suggestions and Recommendations.....	12
6.1 General suggestions and comments on the BIOPAMA project.....	12
6.2 Discussion on existing training institutions and curricula	13
7 Conclusion.....	13
7.1 Action Items	13
7.2 Next steps.....	14
7.2.1 Regional Reference Information System	14
7.2.2 Capacity Building	14
8 References	14
9 Annexes.....	15
10 BIOPAMA contacts for the ESA Region.....	33

List of Tables and Figures

Figure 3-1: Scope of existing data for ESA region (Source: Endangered Wildlife Trust – Regional Assessment on data and information needs).....	3
Table 5-1: Summary of the points identified as strengths, weaknesses, opportunities and threats (SWOT) for the Regional Reference Information System (RRIS)	10
Table 10-1: Questions, responses and comments on BIOPAMA	16
Table 10-2: Data/information needs, including indications of quality, and availability and holder.	17
Table 10-3: Stakeholders and their current data sharing policies and practices in the ESA region.....	21
Table 10-4: Existing data standards used by participants’ networks mentioned during the morning session of Day 2	23
Table 10-5: Capacity needs of actors influencing decision on land degradation and habitat loss.....	26
Table 10-6: Actors influencing decisions on illegal/unsustainable resource use	29
Table 10-7: Capacity needs of priority actors influencing decisions on illegal/ unsustainable resource use	31

List of Acronyms and Abbreviations

ABS	- Access and Benefit-sharing	ITFC	- Institute of Tropical Forest Conservation
ACP	- Africa, the Caribbean and Pacific countries	IUCN	- International Union for Conservation of Nature
ADU	- Animal Demography Unit, University of Cape Town	JRC	- Joint Research Centre of the European Commission
AfESG	- IUCN African Elephant Specialist Group	JRS	- JRS Biodiversity Fund
AMESD	- African Monitoring of the Environment for Sustainable Development	KWS	- Kenya Wildlife Service
ARCOS	- Albertine Rift Conservation Society	MDG	- Millennium Development Goals
AU	- African Union	MEA	- Multilateral Environmental Agreements
BIOPAMA	- Biodiversity and Protected Areas Management	MESA	- Monitoring of Environment and Security in Africa
BIP	- Biodiversity Indicators Partnership	MIKE	- Monitoring Illegal Killing of Elephants
CB	- Capacity Building	MWEKA	- African College of Wildlife Management
CBD	- Convention on Biological Diversity	NBSAP	- National Biodiversity Strategy and Action Plan
CBNRM	- Community-based Natural Resource Management	NEPAD	- The New Partnership for Africa's Development
CC	- Creative Commons Licences	NGO	- Non-governmental Organization
CITES	- Convention on International Trade in Endangered Species of Wild Fauna and Flora	PA	- Protected Area
COMESA	- Common Market for Eastern and Southern Africa	PES	- Payment for Ecosystem Services
COP	- Conference of the Parties	PoWPA	- Programme of Work on Protected Areas
COSTECH	- Tanzanian Commission for Science and Technology	PPF	- Peace Parks Foundation
DEA	- Department of Department of Environmental Affairs, South Africa	REC	- Regional Economic Communities
DMR	- Department of Mineral Resources, South Africa	RRIS	- Regional Reference Information System
DOPA	- Digital Observatory for Protected Areas	SADC	- Southern African Development Community
EAC	- East African Community	SAEON	- South African Earth Observation Network
EDF	- European Development Fund	SANBI	- South African Biodiversity Institute
ESA	- Eastern and Southern Africa	SANParks	- South African National Parks
ESRI	- Environmental Systems Research Institute	SANSA	- South Africa National Space Agency
EWT	- Endangered Wildlife Trust	SAWC	- South African Wildlife College
FAO	- Food Agriculture Organization of the United Nations	SCI	- Safari Club International
FFI	- Fauna and Flora International	SMME	- Small, Medium and Micro-sized Enterprises
GBIF	- Global Biodiversity Facility	TAWIRI	- Tanzania Wildlife Research Institute
GRAA	- Game Rangers Association of Africa	TEEB	- The Economics of Ecosystems and Biodiversity
IBA	- Important Bird Areas	TFCA	- Transfrontier Conservation Area
IBAT	- Integrated Biodiversity Assessment Tool	TRAFFIC	- The Wildlife Trade Monitoring Network
IBEX	- BirdLife database for commercial EIA enquiries	UNESCO	- United Nations Educational, Scientific and Cultural Organization
ICCN	- Institute in Congo for the Conservation of Nature	UWA	- Uganda Wildlife Authority
IGAD	- Intergovernmental Authority on Development	WCPA	- World Commission on Protected Areas
IIED	- International Institute for Environment and Development	WDPA	- World Database on Protected Areas
IOC	- Indian Ocean Commission	WCS	- Wildlife Conservation Society
IPACC	- Indigenous Peoples of Africa Coordinating Committee	WHC	- World Heritage Convention
IRF	- International Ranger Federation	WWF	- World Wildlife Fund

1 Introduction

Launched by the European Commission in July 2011, the Biodiversity and Protected Areas Management (BIOPAMA) project is funded through Intra-ACP (Africa, the Caribbean and Pacific countries) resources from the 10th European Development Fund (EDF). The BIOPAMA project aims to assist the African, Caribbean and Pacific (ACP) countries in developing a framework for improving technical and institutional approaches to conserve biodiversity, particularly in protected areas, through regional cooperation and capacity building. To achieve this aim, the BIOPAMA project is proposing to set up, in each ACP region, a series of interlinked, but regionally centred, Observatories for Biodiversity and Protected Areas Management. The roles of the Observatories include: (i) develop and progressively implement Capacity Building Programmes; (ii) coordinate the support (experts, infrastructure) to national services and regional organizations; (iii) facilitate networking of experts and institutions, (iv) develop and implement regionally tailored Communication and Awareness Raising Programmes about the project and its activities and (v) provide indicators for decision-making of regional and national institutions in charge of management of natural resources (BIOPAMA, 2011). Each Observatory will host a node for a Regional Reference Information System (RRIS), which will work as a platform to facilitate exchange of data/information among decision makers and managers of protected areas. Furthermore, the RRIS will provide functions to query and analyse data as well as generate new information products (BIOPAMA, 2013).

In order to assess issues related to the setting up of the regional Observatory and the RRIS, the International Union for Conservation of Nature (IUCN) and the Joint Research Centre of the European Commission (JRC) hosted the first BIOPAMA Regional Workshop for the Eastern and Southern Africa region in Johannesburg on 4-6 December 2012, hereafter referred to as ESA workshop. The overarching objective of the ESA workshop was, thus, to discuss with stakeholders a set of priorities for the establishing the regional Observatory and the RRIS in the ESA region. These priorities should include an outline of the data/information and capacity building needs of both decision makers and managers of Protected Areas to ensure that the regional Observatory and the RRIS addresses the needs in the region. Specifically, the objectives of the ESA workshop were to:

1. Increase the understanding of BIOPAMA, its objectives, expected results and key components as well as expected contributions from countries and organizations involved in the implementation of the RRIS.
2. Assess and validate regional, national and local priorities and strategic needs in terms of data/information, models and web based tools that can contribute to better decision making on Protected Areas, and thus relevant to be considered to the design and implementation of the RRIS.
3. Identify regional priority issues for capacity building, effective modalities for its delivery and existing institutions/resources that can contribute to the design and implementation of a Regional Capacity Building Programme.
4. Assess key priorities and challenges for the work of the regional Observatory and RRIS.

This report summarizes the discussions held and outcomes obtained during the ESA workshop. Section 2 describes some of the presentations given to clarify a) the objectives of the BIOPAMA project, b) the expected outcomes of the workshop and c) the outcomes of the two regional assessments (EWT, JRC and IUCN) in order to provide the delegates with relevant background information to be discussed. Section 3, 4 and 5 summarize the discussions concerning the RRIS and the Capacity Building activities. Section 6 highlights suggestions and recommendations of the

delegates on the BIOPAMA project. Finally, Section 7 describes actions items and the way forward. In addition, this report presents 9 annexes with detailed descriptions of the discussions and outputs obtained during the ESA workshop.

2 Presentations – setting the scene

The morning of the first day of the workshop was dedicated to introducing the BIOPAMA project and related initiatives, setting the scene for the expected outcomes of the workshop and providing delegates with the outcomes of the two desk-top assessments that were prepared ahead of the workshop. All presentations can be accessed through the following link:

https://cmsdata.iucn.org/downloads/esaro_workshop_presentations_optimized.pdf.

Below, we present brief summaries of the two regional assessments and the presentations on the RRIS and the Capacity Building Approach for BIOPAMA.

2.1 Regional Assessments

Two regional assessments were conducted prior to the ESA workshop to provide background information and serve as a starting point in the discussions:

- 1) *Regional assessment of the current status and needs of data and information for improved decision making and management of protected areas and biodiversity in the Eastern and Southern Africa (ESA) region.*

The Endangered Wildlife Trust (EWT) and the JRC conducted two independent assessments to identify the main role players in data management related to protected areas and the status and priority needs of data and information in the ESA region. The JRC questionnaire was sent out to all workshop participants, while the EWT sent out 168 surveys from which 56 responses were received. Figure 2-1 shows a map indicating regional extent and spatial scales of data in the ESA region, as reported by survey respondents (n=50). The size of the pie charts relates to the number of respondents from each country. In addition, the survey found that data were predominantly generated at national scale and few datasets were generated at regional and international scale. 59% of respondents (n=54) reported having dedicated data management departments and 53% (n=34) have standard data management protocols and standards in place. Over half of the respondents either already have a data management policy in place, or are in the process of developing one. These results are encouraging and informed further discussions on data management and needs during the workshop.

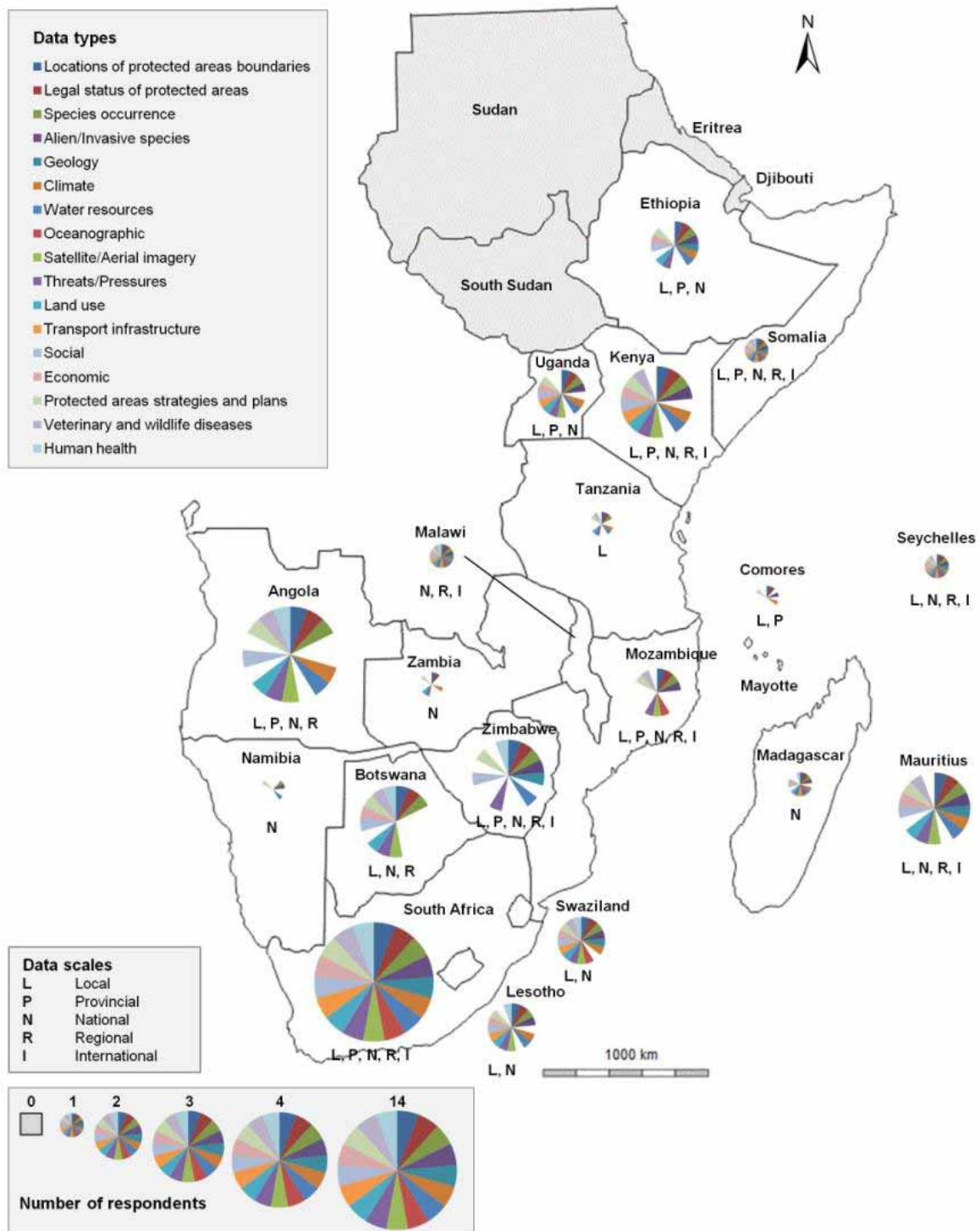


Figure 2-1: Scope of existing data for ESA region (Source: Endangered Wildlife Trust – Regional Assessment on data and information needs)

2) *Regional assessment on capacity building needs related to improved decision making and management of protected areas and biodiversity in the ESA region.*

The assessment was carried out as a desk study based on existing documentation that could be accessed mainly via internet combined with a limited number of interviews with key informants directly and by email. Over 50 documents were reviewed to collate the results of previous protected area management capacity needs and existing capacity building activities and programs.

Based on current critical threats to PA management and taking into account previous capacity building assessments and consultations with some key stakeholders, the following thematic areas were identified as critical for capacity building:

- | | | |
|---|---|-------------------------------|
| 1. Governance (including legal framework) | } | Process
("how" we manage) |
| 2. Management effectiveness (including planning) | | |
| 3. Improving access to sustainable protected area funding | } | Content
("what" we manage) |
| 4. Managing conflicts between humans and wildlife | | |
| 5. Climate change adaptation and mitigation | | |
| 6. Restoring or maintaining connectivity opportunities | | |

A key level of intervention identified for BIOPAMA in capacity building for PAs in the region is at the Senior Management and Policy level (Senior PA managers in the field and at headquarters, PA executives and policy level staff in various Ministries and at the regional level).

2.2 The Regional Reference Information system - RRIS

The aim of the RRIS is to support the provision and exchange of information for decision making for biodiversity and protected area management. The RRIS will provide a platform and tools for accessing and leveraging data, performing analysis, generating and reporting indicators. The RRIS will be based around the framework, technology and services developed within the Digital Observatory for Protected Areas (DOPA). DOPA has been created by the JRC in collaboration with Birdlife International, GBIF, RSPB and UNEP-WCMC (Dubois et al. 2010). DOPA is conceived as a set of distributed databases combined with open, interoperable web services to provide a large variety of end-users including park managers, decision-makers and researchers with means to assess, monitor and forecast the state and pressure of protected areas at the global scale allowing for prioritization according to biodiversity values and threats. Seven elements are supporting DOPA, including species analysis, global ecosystem services, habitat modelling, terrestrial ecosystem monitoring, land cover change and threats, marine ecosystem monitoring and governance and management.

DOPA allows sharing of data and models (which means improved automation & reusability) through distributed responsibilities and maintenance, easy customization of tools for different end-users and hence increased potential for multidisciplinary analyses. The strength of DOPA can be summarized as follows:

- DOPA is free: the analytical tools and web based services developed at JRC are open source
- DOPA can be used outside of PAs (simulation of new parks)
- DOPA is scalable (can be adapted to local/ regional needs)
- DOPA builds on partnerships (improved services and indicators)
- DOPA represents a much needed global reference information system for biodiversity

On the other hand, the weakness of DOPA is its strong internet dependence, especially given the continued constraints imposed by limited internet connectivity in some parts of the ESA region. In addition, data sharing issues needs to be discussed and well defined.

BIOPAMA foresees building a Regional Reference Information Systems (RRIS). DOPA – conceived as a global system - will provide fundamental services to support the RRIS, but regional specificities have to be taken into account (technical and thematic issues will vary), as well as the need for additional tools, methods and data to address these specificities.

2.3 Capacity Development within BIOPAMA

The capacity building (CB) component within the BIOPAMA project aims to a) tailor capacity building programs to regional conditions, thereby addressing regional priorities concerning main threats to PAs and targeting relevant decision makers, b) develop and distribute relevant training materials addressing priority needs and c) increase the level of excellence of at least one regional training centre in each of the regions covered under BIOPAMA by updating their curricula, providing technical tools and methods that could be used after the life of the project and strengthening regional networks (BIOPAMA, 2011).

To achieve these aims, the CB activities will consider the regional priorities defined by key stakeholders and existing regional assessments and documents on capacity building. The CB activities will also take into account CB modalities implemented at multiple scales, i.e. from individual PA, to landscape and national level.

A key priority of the CB component is to ensure that its impacts are sustainable and scaled up. To ensure sustainability, the CB activities will develop conditions and capacity to enable training centres to replicate training beyond the life of the project, through, for example, development of curricula, strengthening of regional networks and maximizing the use of regional experts instead of international consultants and advisors.

In addition, the IUCN will document lessons learned around capacity building activities throughout the project implementation and utilize these to adapt approaches as needed in the context of BIOPAMA. Lessons learned as well as tools and best practice guidance tested during project implementation will be utilized to guide the design and implementation of other capacity development projects and initiatives, particularly those developed by the Convention on Biological Diversity (CBD), the UNESCO's World Heritage Convention and others.

3.4 Questions and comments

The questions and comments from participants on all the presentations of the morning session are outlined in details in Table 9-1 in Annex 1, but some main points are summarized below.

BIOPAMA includes both marine and terrestrial systems and links closely with a number of other initiatives already active (e.g. the AMESD project) and planned (e.g. IGAD/IOC project starting in 2013). As one of the main focus areas of BIOPAMA, capacity building is aimed at various levels, including local (communities and PA Managers), national (PA agencies and Ministries), regional and international level. Participants suggested that there might also be a need to address the gap in information exchange between decision makers and implementers as well as identifying the main development drivers and how to influence development policies (including the ability to defend the value of PAs in relation to other sectors). These considerations as well as a comprehensive assessment of existing initiatives should then also inform capacity building priorities for BIOPAMA.

3 Determining information needs

Presentation: Outcomes of EWT and JRC questionnaire: “Capturing first user requirements for BIOPAMA” – Key data needs and challenges	Juliana Stropp (JRC)
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3.1 Background information

This session focused on assessing regional data and information needs, availability and quality. To begin the session, the findings of the regional assessments were summarized. The outcome of these assessments indicated that relevant information, such as threats is potentially used at a suboptimal level because of poor data quality and/or lack of data availability. For example, 66% of the respondents considered information on threats to be inaccurate and incomplete. Key data needs and challenges that can be addressed by BIOPAMA were discussed in three working groups. The pre-workshop assessments highlighted some broad topics for which data/information are needed: a) Threats, b) PAs, c) Species and d) Biophysical factors. These topics were suggested to guide the further refinement of data/information needs within each working group.

3.2 Objectives

The objectives of this session were thus to:

- identify the most relevant information needs for BIOPAMA (potentially using the four broad topics outlined above), which should be included on the RRIS
- assess quality and availability of relevant information
- identify who is doing what and where data and information may be available

3.3 Outcomes

The following data/information were identified as most relevant for BIOPAMA to include in the RRIS:

- Poaching:
 - Large scale commercial poaching
 - Local poaching for subsistence
- Land degradation:
 - Due to infrastructure development
 - Land use / land cover change
- Protected area management:
 - PA management plan
 - PA management effectiveness
 - PA boundaries
 - PA activities and information (research and project database)
- Species
 - Abundance
 - Status and trends
 - Distribution
 - Diversity
 - Threats identification and assessment

The detailed outcomes of the three group discussions outlining the participants' views on priority information needs and their respective quality and availability in the region is presented in Table 9-2 in Annex 2.

4 Data standards, harmonization, sharing and licensing

Presentation: Peace Parks Foundation – experience with data sharing and harmonisation	Craig Beech (PPF)
Discussion: Challenges and opportunities for data sharing – harmonisation, licensing, copyright issues and how to overcome them	All Participants

In this second data session, discussions focussed around two topics that are crucial for data sharing: 1) licensing and copyrights and 2) data standards and harmonization. Two parallel sessions were held to address each of these topics.

4.1 Data sharing – Licensing, copyright, data standards and harmonization

4.1.1 Background information

The EWT assessment shows that the main factors limiting data sharing are the sensitive nature of data (64%) and proprietary rights (61%); the JRC assessment indicates that 64% of the relevant information is not available due to licensing issues and shows a number of themes that are classified or restricted by license. The EWT survey further indicates that all respondents are willing to share their data. The majority of the respondents share data at a national level. Within southern Africa, organisations share data at a regional level (70% in full and 52% partial). Fewer organisations share data in eastern Africa (50% in full and 35% partial). Taken together, these results suggest that integrating data from various countries will require agreement on data standards and harmonization.

4.1.2 Licensing and copyright

4.1.2.1 Objectives – Licensing and copyright

The objectives of this session were to:

- 1) discuss general constrains of sharing data
- 2) discuss the possibility of adopting the Creative Commons License (CC, 2013) as a means to manage data sharing and licensing in the framework of the RRIS/BIOPAMA by answering the following questions:
 - a) What is your opinion on adopting the Creative Commons within RRIS/BIOPAMA?
 - b) What are the pros and cons of adopting the Creative Commons as a framework for data licensing in RRIS/BIOPAMA?
- 3) identify current data sharing models already exist in the ESA region

To answer question b) the two groups conducted a SWOT analysis, thereby discussing the Strength, Weaknesses, Opportunities and Threats that the adoption of the Creative Commons License could bring to RRIS/BIOPAMA.

4.1.2.2 Outcomes – Licensing and copyright

4.1.2.2.1 General constrains of sharing data

The following constraining issues for sharing of data were mentioned:

- Economic value of data: Because data have economic value, data holders may use their data as a source of money and thus may be unwilling to share it freely.
- Sensitivity of data: There are concerns about misuse of sensitive data, for instance, occurrence of endangered species can be used for guiding poaching. This may discourage institutions to share their data.
- Reputation: By sharing their data/information, data holders may expose low quality of data or weak management issues of their institutions or protected areas. This exposure may jeopardize their reputation.

A detailed record of the issues raised by the participants is shown in Annex 3.

4.1.2.2.2 Creative Commons License

The following points summarize the issues brought up during the SWOT analysis on adopting the Creative Commons License for the RRIS/BIOPAMA:

- Strengths: The CC is an internationally accepted standard with good templates for data sharing and licencing agreements. It is possible to tailor-make your license, thereby offering to the data holder more options. It may save legal fees, as there are templates available.
- Weaknesses: There are already accepted standards available (e.g. GBIF).
- Opportunities: It is possible to use easily accessible templates given by CC, giving the RRIS/BIOPAMA flexibility.
- Threats: No common information on sensitive data is available, as people do not share this.

It was suggested to have 1) a mixed model of free access data and limited access data in an agreement between partners and 2) a template for data requests to facilitate access and detailed requests, including the purpose of data use.

4.1.2.2.3 Data sharing models in the ESA region

Participants described current data sharing policies and practices in the region, including those used by governmental and international organizations as well as NGOs. These policies and practices include, for instance, data sharing agreement incorporated within a partnership between organizations or countries and permissions asked from organizations on a case by case basis (see Table 9-4 in Annex 4).

4.1.3 Data standards and harmonization

4.1.3.1 Objectives – Data standards and harmonization

The objectives of this session were to:

1. assess data standards used in the region that could be used for the RRIS/BIOPAMA
2. assess opportunities for data harmonisation at the regional/international level

4.1.3.2 Outcomes – Data standards and harmonization

The discussion started with an overview of the steps involved on data management (e.g., data collection, quality check, data analysis, data standards and data sharing). It was mentioned that if the methods/standards used for certain data set is shared among several data holders, it would possibly allow integration of data into a larger data sets.

Overall the discussion centred around the fact that more information was needed on what standards existed and what common standards could be achieved in the long term, as many countries already have some standards that they adhere to. Changing from these standards would have to be a long-term decision and thus based on very robust arguments. The participants also mentioned a few data

standards that existed in the countries/organisations (Table 9-4: Existing data standards used by participants’ networks mentioned during the morning session of Day 2 in Annex 5), but found that there were many gaps in terms of what standards were being used where and by whom. As a recommendation, it was proposed to establish a working group on standards. A list of all points brought up by the participants in this session is presented in Annex 6.

4.2 Understanding the Regional Reference Information System

Presentation and live demo: Opportunities for using web based data management, access and analysis tools – the DOPA example	Andreas Brink (JRC) / Juliana Stropp (JRC)
Discussion: Gaps and challenges related to the effective use of RRIS for protected area management (including capacity gaps)	All participants

This session focused on understanding the strengths and weaknesses of the proposed Regional Reference Information System (RRIS).

4.2.1 Background information

The DOPA (<http://ehabitat-wps.jrc.ec.europa.eu/dopasimple/>) is an example of a suite of web services about biodiversity and protected areas. The functionalities being developed for DOPA will support the setting up of the RRIS, which will work as a platform to facilitate exchange of data/information among decision makers and managers of protected areas. The value of the RRIS to the conservation community, as mentioned by a respondent of the survey, “get everyone playing a role in conservation...onto a common platform where they can see what everyone else is doing. We need to have a common place or places where the information flows around freely, easily and with credibility. A single authoritative place where data can be updated and held for the common good.”

4.2.2 Objectives

The objective of this session was to conduct a SWOT analysis on the RRIS.

4.2.3 Outcomes

The items listed below reflect the general comments of participants on the RRIS:

1. Matching products with end-users – the RRIS should be flexible enough to serve different end-users with different needs, for example PA managers, the private sector and government. The data needs to be relevant to the practical (or real world) issue/situation.
2. How do we deal with high priority areas for nature conservation that are not protected? (e.g. for financial institutions to make decisions on investments and loans)
3. Protected Area managers can use really good mapping to engage with communities and prioritization of management issues (end-users need to see the value of collecting data and also benefit from the products).
4. It is important to identify the decision makers who could benefit from the RRIS. Ensure good understanding of who is doing what already and what tools are out there that BIOPAMA can perhaps build on.
5. Use the RRIS as stand-alone system for people that do not have access to internet

A summary of the SWOT analysis on the RRIS is shown in Table 4-1. A detailed list of participant’s contributions to the SWOT analysis is given in Annex 7.

Table 4-1: Summary of the points identified as strengths, weaknesses, opportunities and threats (SWOT) for the Regional Reference Information System (RRIS)

Strengths	Weaknesses	Opportunities	Threats
Quick access to range of different data sets at different scales (comparability)	Internet dependency	Capacity building on the use of the tools	Misuse of data/information
Free/no cost/open access/open source	Current coarseness of data	Improve communication among stakeholders / Building a network of users and experts	Political fences/lack of cooperation/bureaucracy in terms of access to data
Reflects the most up to date data (potentially), near real time	Incompatibility of data/information	Link with similar initiatives/systems (e.g. AMESD)	Information quality
Multi users oriented	Language barrier		Lack of capacity to manage and use this system
Interactive	Lack of skill to use internet/tools (and what is science behind in order to interpret the information)		Similar platform/projects (competition)
Potentially valuable for PA planning			No technical support (computer/infrastructure) in many PA

5 Identifying capacity needs for better decision making

Presentation: Defining capacity building needs based on main threats to Protected Areas	Moses Mapesa (WCPA)
Discussion: Identifying key decision makers influencing threats to PAs and their capacity needs	All Participants

5.1 Background

The emphasis for the BIOPAMA capacity building programme is on interventions targeting key stakeholders in the decision making processes impacting on PAs. This meant that discussions were focussed on the major threats to PAs and who was involved in decisions that influenced these threats. The assumption is that if decisions around the major threats can be influenced, this could have a positive impact on PAs management. Building on the discussions of the previous sessions, two major areas of threat were determined: 1) Land degradation/habitat loss (including infrastructure development) and 2) Illegal/unsustainable resource use.

5.2 Objectives

In this session, the overall aim was to get a better understanding from participants of

- 1) where decisions affecting PAs in the region are taken and by whom,
- 2) what the key capacity needs are in achieving integrated land/water use planning that effectively considers the requirements of biodiversity conservation and effective protected areas planning and management,
- 3) how these capacity needs could be addressed (modalities) and
- 4) what existing programs and networks can be built on by the capacity building program.

5.3 Outcomes

A summary of the main outcomes of both groups is outlined below and the detailed information compiled in the group sessions is given in Annex 8 (Land degradation/habitat loss group) and Annex 9 (Illegal/unsustainable resource use).

The main actors/decision makers identified in the groups were: Regional Economic Communities (REC), National & Local Governments, Protected Area Agencies & Managers, Communities & landowners. Large international corporations, particularly those involved in extractive industries were also identified as important in the decision process around Protected Areas.

The main themes where capacity gaps were identified for the main actors mentioned above were centred around governance/participatory resource management, information management and use, integrated land use planning, economic valuation of PAs, implementation of MEAs, impact and management of wildlife crime.

Possible modalities for the implementation of the capacity building programme included awareness/briefing papers, e-modules, seminars, training, networks/committees, demonstration projects, exchanges and on-the-job training.

The items listed below reflect the general comments and suggestions from participants on capacity building under BIOPAMA (including comments made during the data sessions):

- The capacity building approach needs to be tailored individually for each of the levels.
- At all levels, there is a need to make stakeholders aware of the rights they have/ do not have.
- Capacity building should not necessarily always be aimed at top management, sometimes the intervention is better aimed at the technical staff.
- There is a need to support and enhance communications between various Ministries, in particular the Ministry of Environment with other Ministries.
- A good starting point for BIOPAMA would be to develop a comprehensive inventory of training initiatives that includes: Description of Training course, Training provider, level that training is aimed at and possibly participants to contact about further info.
- Capacity building should perhaps address the gap of collecting up to date species data.
- Concerns on quality and implementation of PA Management Plans as well as data management at the PA and national level could perhaps be addressed through the Capacity Building component of BIOPAMA.

The information above and that contained in the desk-top assessment form the basis for developing the capacity building component of the BIOPAMA project and in subsequent follow-ups with a wider audience of stakeholders, the priorities identified to date will be refined further to finalise the capacity building programme.

6 Suggestions and Recommendations

In this final session, the outcomes of the work of the past two days were summarized briefly and then the floor opened for delegates to pose any remaining questions as well as allow time to discuss any concerns or suggestions that had emerged over the course of the workshop.

6.1 General suggestions and comments on the BIOPAMA project

In summary, the delegates provided the following suggestions and comments:

- 1) Share information on IUCN capacity building initiatives on Protected Areas with existing training initiatives (include these in the data base on existing initiatives)
- 2) Provide more information about existing training curricula (e.g. Mweka and SAWC)
- 3) Focus capacity building on both the data managers and the users of the information (i.e. include technical skills and information processing)
- 4) Capacity building needs to include information management and use, but also may need data generated (training on data collection)
- 5) It is important to be aware that more information does not necessarily lead to better decisions – need to be very clear about this. It is also important to interrogate what exactly the problem in the decision making process is and then address this.
- 6) Create links with research labs and users and demonstrate the use of information/data, e.g. German Aerospace
- 7) It is important to include analysis of data, not only data itself. Will BIOPAMA be producing status and trends reports? Indicators? Protocols?
- 8) The **Biodiversity Indicators Partnership** <http://www.bipindicators.net/> already exists and has developed many indicators on a global level. This can be used as a basis for finding relevant indicators (resource to use).
Also consider **Protected Planet** which could perhaps provide some reports on trends of indicators on a local level. NB opportunity to also improve networking of PA experts. WCMC is also planning global work on PA boundaries and is cleaning them up – this could again present a potential opportunity for improved networking.
- 9) JRC has already developed the BIOPAMA Indicator Tracking System, which will soon be available as a web service – this is another building block that can be used to develop regionally applicable indicators. PoWPA indicators should be added too.
- 10) Need to ensure that we include the beneficiaries in developing appropriate indicators. Perhaps a communications strategy should be developed to ensure that the relevant stakeholders are engaged appropriately.
- 11) What decisions are Protected Area Agencies/Managers trying to make / struggling with? Ask this first, then we can determine level of intervention and what is needed (information/CB)
- 12) What is the framework for information management within BIOPAMA? Where is the data, how is it analysed and by whom? What problem are we addressing?
- 13) There is a great opportunity to use the building blocks within the RIS for decision making – can tailor-make what is needed.
- 14) What is the best way to engage with BIOPAMA (partnership agreements)? Build on complementarity of regional initiatives (e.g. AMESD) to avoid duplication
- 15) What are the mechanisms for the establishment of partnerships with BIOPAMA, particularly with the RECs (EAC, IGAD, AU, SADC)? -> working group?
- 16) How sustainable is BIOPAMA? It needs to build on existing structures and strengthen these, e.g. BIP, GBIF, etc. and adapt to the region. Map other initiatives and build on these and use existing networks such as the WCPA, which might be a good starting point.

These suggestions and comments were taken on board by the BIOPAMA team and some are reflected in the action items discussed in the last session of the workshop.

In addition, the workshop encompassed consultation on the two objectives of the IUCN WCPA/SSC Joint Task Force on 'Biodiversity and Protected Areas', which is part-funded through BIOPAMA. The first is to establish processes allowing better measurement of the biodiversity outcomes of protected areas, and hence better understanding of factors influencing these outcomes. In this regard, the taskforce shared a questionnaire soliciting involvement in compiling time series data for species populations inside and outside of protected areas. The second objective is to develop standards for the identification of significant sites for biodiversity or "key biodiversity areas", encompassing and adding value to existing standards such as Important Bird Areas and the Alliance for Zero Extinction. The taskforce shared information on the process and results so far, and committed to maintaining a flow of engagement to workshop participants on the subject.

6.2 Discussion on existing training institutions and curricula

The request for further information on existing programmes was partly addressed by a subsequent presentation on existing programmes within Mweka College of African Wildlife Management and the Southern African Wildlife College. These two presentations provided participants with a good overview of what was currently available in the region and generated some discussion around gaps and opportunities.

Comments and discussions on opportunities offered by the two colleges included:

- The focus at Mweka has shifted to more **academic** and less **paramilitary** training. Mweka has often been criticized for this. It is important to know what is needed for rangers (academic, practical or a mix of both).
- Concern was raised about the **language barrier** for rangers from e.g. Angola and Mozambique – this has often been highlighted. SAWC now has a Portuguese speaking staff member who is teaching in Portuguese.
- Is there **networking** on curriculum development and key issues in the region? Not on-going, but in the past, Mweka has linked with some of the other training institutions in the region and assisted with curriculum development. E.g. joint curriculum developed with Garua (Cameroon), SAWC (SA) and Mweka (TZ) on bushmeat. Also Mweka has provided support in the development of a curriculum for Kitabi College of Conservation and Environmental Management (Rwanda). Many countries have developed or are developing their own training centres, e.g. Botswana, Zimbabwe, Mozambique, Kenya, South Sudan. But, there is no continental network in place at the moment – this could be something that BIOPAMA could support? WCPA develops curricula globally for wildlife management and would be a strong player in ensuring a harmonized approach.
- Build an **alumni network** as a resource? Mweka just starting an alumni network in 2013. These could perhaps be used as mentors?

7 Conclusion

7.1 Action Items

In closing the workshop, some action items were identified that needed further discussion with delegates and delegates were asked to sign up to the various working groups addressing these action items. Discussions around these topics will be pursued with the relevant group members after the workshop. The following working groups were formed:

1. Working Group on Data Standards
2. Working Group on Regional Indicators
3. Working Group to collate existing information systems/initiatives
4. Working Group to collate existing Capacity Building/Training Initiatives

5. Working Group to determine what decisions Protected Area Agencies are struggling with
6. Working Group on partnerships and synergies with RECs and their PoW
7. Working Group on non-internet alternatives for the RRIS

7.2 Next steps

7.2.1 Regional Reference Information System

- Consolidate the outcomes of the EWT survey and JRC questionnaire, including the information gathered during the working sessions
- Share the consolidated outcomes of the user requirements assessment
- Identify pilot institutions (partners)
- Design and populate the database according to a clear understanding of the information requirements for the RRIS, addressing the needs of the various key stakeholders

7.2.2 Capacity Building

- Refine capacity building needs further with a wider audience
- Develop action plan for the Capacity Building Programme
- First training workshop on priority topic (2013)
- Build/expand and support regional networks of experts and training institutions
- Support curriculum revision/development with identified regional institution(s)
- Develop toolkits for specific priority regional issues
- Support PoWPA implementation at regional level and some national level

8 References

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- G. Dubois, M. Clerici, S. Peedell, P. Mayaux, J.-M. Grégoire and E. Bartholomé. 2010. A Digital Observatory for Protected Areas - DOPA, a GEO-BOM contribution to the monitoring of African biodiversity, In: "Proceedings of Map Africa 2010", 23- 25 November 2010, Cape Town, South Africa.

9 Annexes

Annex 1: Questions, responses and comments on the presentations given to clarify the BIOPAMA project

Annex 2: Data/information needs, including indications of quality, availability and data/information holder

Annex 3: List of issues concerning data sharing and licenses

Annex 4: Stakeholders and their current data sharing policies and practices in the ESA region

Annex 5: Existing data standards used by participant networks

Annex 6: List of issues concerning data standards and harmonization

Annex 7: Points identified as strengths, weaknesses, opportunities and threats (SWOT) for the Regional Reference Information System (RRIS)

Annex 8: Capacity gaps and needs for addressing land degradation and habitat loss – detailed outcomes

Annex 9: Capacity gaps and needs for addressing illegal/unsustainable resource use - detailed outcomes

Annex 1: General Questions on BIOPAMA

Questions, responses and comments about the presentations given during the morning session of Day 1

Table 9-1: Questions, responses and comments on BIOPAMA

Question	Response	Comment
Will BIOPAMA incorporate marine work? There is an IGAD/IOC [Intergovernmental Authority on Development /Indian Ocean Commission] project starting in 2013 that could link very well with BIOPAMA.	Yes, BIOPAMA does include marine, but there are also other projects such as the one mentioned that will link closely with BIOPAMA and add value.	-
How can we ensure fair access and benefit (ABS Initiative)?	Through capacity development in communities	There is a gap in information exchange between decision makers and implementers and this may also need to be addressed.
If capacity development is addressing threats, there should be more discussion on what those threats are, what the development drivers are and how to influence development policies. How can we make sure we address the threats?	This is the work of the workshop and we are seeking input from all of you into this.	Perhaps we should also consider the language, specifically the use of the word “threat”. This relates to how best we interest other sectors in listening to our messages – this is the crux of what we need to achieve and includes, e.g. the Ministry of Finance. Also important to link networks at various levels and ensure communication between them.
Africa is very complex – how is BIOPAMA going to approach the set up of the Observatories?	This will need to be participatory and depends on the engagement of partners. There will be detailed negotiations around this to ensure sustainability.	-
Genetic resources and Protected Area valuation: how realistic is this PA valuation (and how does it work)? Protected Area agencies find themselves in a situation where they need to be able to defend the value of Protected Areas in relation to other sectors and would welcome good valuation methods.	TEEB [The Economics of Ecosystems and Biodiversity] publications are a very good starting point. There are many examples of valuation of ecosystem services (e.g. extractive, genetic, etc.) and these have been used quite effectively in some negotiations.	-
Communities as decision makers – will they be included in capacity building activities?	1. Yes, where they are relevant to decisions around PAs, there is scope for specific capacity building activities, e.g. capacity building for assessing their resources, capacity building on bioinformatics. 2. Delegate to help identify some of these initiatives.	Ensure good understanding of /building on existing capacity building initiatives to avoid duplication, improve sustainability and save costs.

ANNEX 2: Data/information needs

Data/information needs, including indications of quality, and availability and holder compiled by the participants during the afternoon session of Day 1

Table 9-2: Data/information needs, including indications of quality, and availability and holder. NA: no answer

Topic/Information type	Quality	Availability	Stakeholder
Biophysical factors			
Climate change	NA	NA	Boulder Colorado University, Max Plank Institute, amongst others, have developed climate change models
Climate variables (rainfall, temperature, etc.)	Low	Local	NA
Fire	NA	Not Free	SANSA
Soil	NA	NA	NA
Water	NA	NA	Lake Victoria Basin Commission, Water commission in each Country, Central Water Authority for Mauritius, National Fresh Water Ecosystem Priority Areas, Nile River, Nile Basin Initiative
Protected Area			
PA boundaries	Low	NA	Protected Planet, National Authorities
PA INFO + Activities	NA	NA	Protected Planet
PA management plan	High	NA	National PA Authorities, e.g. SANParks, KWS, TANAPA
PA management effectiveness	NA	NA	WDPA
Planning and Management	NA	NA	DEA (National Departments)
Values of PA through research findings	High	NA	Ethiopia
Social factors			
Capacity building	NA	NA	SANBI, JRS, Africa GBIF group
Community cultural value	NA	NA	Natural Justice
Demographic information	NA	NA	x

Table 10-2 (continued)

Topic/Information type	Quality	Availability	Stakeholder
Social factors			
Economic valuation	NA	NA	(TEEB)
Finance and Economy	NA	NA	(IBAT)
Governance	NA	NA	NA
Human Wildlife conflict	NA	On request	EWT (human wildlife conflict data), KWS, IIED, IGI, ITFC
Legislation Policy	Need to be updated with Nagoya Protocol Decision	Country website	SADC member states
Participation	NA	NA	Natural Justice
Species			
Species abundance	NA	NA	Living Planet Index (see link below)
Species (Status and trends)	NA	NA	IUCN Red List of Threatened Species
Species Inventory	Accurate but incomplete	NA	SANParks, GBIF Africa, JRS funded, IUCN-AfESG, Animal Demography Unit of the University of Cape Town, AZE, BirdLife (IBA's)
Distribution	Low because most of the time these data are outdated	NA	IUCN Red List of Threatened Species
Diversity	NA	NA	Ecosystem profiles (CEPF)
Threats identification and assessment	NA	NA	IUCN Red List of Threatened Species
Trends	NA	NA	NA
Threats			
Conversion of land caused by infrastructures development	High	NA	Ecosystem profiles (CEPF)
Illegal killing and trade	NA	NA	TRAFFIC
Invasive species	Patchy	NA	Working for water, Working for fire, Working for wetlands
Land degradation	High (remote sensing)	Depends on ecosystem	NA

Table 10-2 (continued)

Topic/Information type	Quality	Availability	Stakeholder
Threats			
Land use and transformation	Suspect good	Unavailable	DMR (SA); Ecosystem profiles (CEPF)
Land Use Change	NA	NA	Ecosystem profiles (CEPF)
Large scale commercial poaching	NA	Depending on the country	NA
Local poaching for subsistence	NA	NA	NA
Poaching	NA	NA	KWS (and other PA Agencies)
Pollution	NA	NA	NA

Links to some additional existing information sources on Protected Areas and Biodiversity:

Alliance for Zero Extinction sites: <http://www.zeroextinction.org/>

BirdLife International Important Bird Areas: <http://birdlife.org.au/projects/important-bird-areas>

Critical Ecosystem Partnership Fund (CEPF) - especially relevant to the capacity building aims of BIOPAMA: <http://www.cepf.net>

Living Planet Index (Population abundance time series in protected areas): <http://www.zsl.org/science/research-projects/indicators-assessments/index,134,ZI.html>; <http://www.bipindicators.net/lpi>

UNEP-WCMC: http://www.unep-wcmc.org/datasets-tools--reports_15.html

Protected Planet: <http://www.protectedplanet.net/> which encompasses the UNEP-WCMC/IUCN-WCPA World Database on Protected Areas: <http://www.wdpa.org/>

Integrated Biodiversity Assessment Tool: <https://www.ibat-alliance.org/ibat-conservation/>

IUCN Red List of Threatened Species: <http://www.iucnredlist.org>

Key biodiversity areas guidelines: Langhammer (2007): <http://data.iucn.org/dbtw-wpd/edocs/pag-015.pdf>

Langhammer, P.F., Bakarr, M.I., Bennun, L.A., Brooks, T.M., Clay, R.P., Darwall, W., De Silva, N., Edgar, G.J., Eken, G., Fishpool, L.D.C., Fonseca, G.A.B. da, Foster, M.N., Knox, D.H., Matiku, P., Radford, E.A., Rodrigues, A.S.L., Salaman, P., Sechrest, W., and Tordoff, A.W. (2007). Identification and Gap Analysis of Key Biodiversity Areas: Targets for Comprehensive Protected Area Systems. Gland, Switzerland: IUCN.

ANNEX 3: Issues related to data sharing and licensing

List of issues related to data sharing and licensing raised by the participants during the morning session of Day 2

1. The “creative commons” is an internationally accepted standard with good templates for data sharing and licencing agreements.
2. Data papers may be one way of overcoming territoriality and ensuring that data are available in the public domain.
3. Propriety info and sensitivity of data can sometimes just be an excuse for unwillingness to share. If you want to protect data, you should say why – e.g. 3 years to allow publication of own data, then data becomes open access... Be clear upfront on what you want data for, then mostly not a problem.
4. Information is power – very often the ones that are unwilling to share also do not publish. Once they start publishing, then generally data is also shared more readily.
5. Data have economic value and some data holders use this to make money and are thus unwilling to share their data freely.
6. Some donors require data to be shared freely and particularly if it is of value to the country as a whole.
7. Data are sensitive at different levels (e.g. data on specific species). There are concerns that sensitive data can be abused (e.g. increased poaching) and thus it is difficult to get data from public institutions.
8. Some park managers may not feel comfortable sharing their data when they have many problems in their PA as this may reflect badly on them.
9. It is important to have formal legal processes to make data accessible even if they are free to allow better access control, especially for sensitive data.
10. It depends on what kind of data you want to make available. And for each kind of sensitive data you will need a specific data sharing process.
11. One way to share more sensitive data is to share broad data (e.g. trends) and not the specific data points for e.g. species occurrence.
12. High-level data (climate change, land use, etc...) can be provided by the regional institutions (IGAD, SADC) that manage regional projects and it may not be necessary to obtain detailed sensitive data.

ANNEX 4:

Stakeholders and their current data sharing policies and practices identified by the participants during the morning session of Day 2

Table 9-3: Stakeholders and their current data sharing policies and practices in the ESA region

Stakeholder	Current practice
East African Community	use data from member states, do not need contract, because member states automatically share data as part of membership obligations.
South African National Parks (SANParks)	Two main models – 1) mandated to collect and share data with government institutions; 2) Data sharing agreements of various models with external partners. e.g. Data sharing with the South African Earth Observation Network (SAEON) through data sharing agreement incorporated within a partnership agreement – collaborative data and new data generated together (reciprocal). External requests for data are accepted, but recipients need to enter into a data sharing agreement (no financial gains). There is also open source data (processed information such as maps) available without disclaimers. Sensitive information is also available but with stringent access control.
Tanzanian Commission for Science and Technology (COSTECH) and Tanzania Wildlife Research Institute (TAWIRI)	Collect and manage data, not sure about how it is shared. TAWIRI have monitoring data and they will certainly need some agreements to provide these data. Because they spend money to produce these data they cannot give them for free.
Albertine Rift Conservation Society (ARCOS)	ARCOS has overarching regional agreements with 5 countries, where data sharing is governed by the individual agreement with each country. This requires detailed negotiations up front with each country around data sharing issues. Can use GBIF standards in countries that are part of GBIF.
WWF Madagascar	In Madagascar, there is a network of NGOs that have agreed to share data freely within their network. The data are held centrally, but can be accessed from various points – open access, no intellectual property ownership. In addition, WWF Madagascar has signed agreement to feed data into the WDPA.
Indian Ocean Commission (IOC)	The IOC asks permission from countries on a case by case basis.
Department of Environmental Affairs (DEA, South Africa)	DEA houses data on PAs, but provinces need to input this data. DEA accepts data requests for raw data and this is governed by data sharing agreements, but also provides free access for non-sensitive data (processed data like maps, etc).
Wildlife Conservation Society (WCS)	Generally share all data and only if very specific reasons given for not sharing data immediately, then might limit sharing of a specific data set for a specified period of time (e.g. to allow publication). Priority to governmental policies (importance of governments being really clear about what and how they share data). WCS promotes open source, user specified software to access data that is available for sharing to reduce processing costs.
Natural Justice	Generally share all data, but often governed by data sharing agreements
Fauna & Flora International (FFI)	Share data freely at no cost, governed by data sharing agreement; reciprocal agreements with some partners
BirdLife International	e.g. IBA data sets free on website, species data too (processed data), but no raw data – this needs to be requested and some data sets are restricted (IBAT) – this is for commercial use and users pay for the data (some have annual subscriptions).
Indigenous Peoples of Africa Coordinating Committee (IPACC)	Data is freely available to members (membership based organisation), sometimes refer requests directly to communities, who then decide which data to share.

Table 10-3 (continued)

Stakeholder	Current practice
Uganda Wildlife Authority (UWA)	House data on PAs and species, share most data with partners through partnership agreements, but accept external requests, which are then governed by data sharing agreements.
SANBI	SANBI collect their own primary data through projects that the government is managing (conservation monitoring).
Government of Botswana	No formal data sharing process or policies exist but data are still shared in informal way. Most of the data are produced by researchers and they are asked for a final report of research but not for the primary data, so this is often not available in country.
IGAD region	Within the context of the AMESD project, there is already a system in place for data sharing.

ANNEX 5: Existing data standards used by participant networks

Table 9-4: Existing data standards used by participants' networks mentioned during the morning session of Day 2

Stakeholder	Current practice
Kenya	National spatial data infrastructure in Kenya do standards; area census templates – there is some standardisation within the country; ESRI standards for projections and datums.
Birdlife, Wetland bird count, African Large mammals count, MIKE	Animal census – there will always be many standards – but carefully record methods used in metadata (and the data can be converted to say density per hectare which will then be comparable). <u>Different levels of harmonisation</u> possible might vary depending on type of data. E.g. mammal population data serve a central database of who has what and clear metadata forms and then links to where the original dataset stands.
Peace Parks Foundation	Use global standards for naming, e.g. FAO Landcover

ANNEX 6: Issues concerning data standards and harmonization

List of the issues related to data standards and harmonization brought up by the participants during the morning session of Day 2

1. All participants need to find out what spatial standards are used in their countries and organisations.
2. Participants should get more information on current standards, where standards are used, where they are not, and how data can be aligned with existing standards.
3. Participants need to understand sustainability of BIOPAMA project – changes in data standards require huge amounts of work and it would need to be a long-term solution.
4. There is a need to clarify difference between different methods to collect data and standards used in a data base. Methods to collect data might vary, but it is important that the method is explicitly recorded. It is also important to be consistent when naming and describing methods to collect data.
5. It is crucial to keep a good metadata, including information such as who collected the data, when data was collected, accuracy census, etc. The Darwin Core, used by GBIF for example, gives a set of minimum mandatory fields that should be included on the metadata.
6. Increase awareness amongst all data collectors of existing standards to use. There are good standards in place, for instance 22 attributes that go into WDPA, GBIF standards, MIKE, ISO – perhaps these could be used as a starting point as they are international standards that are being used in various locations already.
7. BIOPAMA could encourage the use of international best practice. One possibility would be that the Capacity Building component of BIOPAMA to focus on informing data managers across countries about global standards and best practice. During this training one would need to ask again who is using what standards and how we could all harmonise.
8. How can we work together define a best practice? Suggestion: There could be a capacity building training for adopting a common language on data. It is first crucial to understand what is happening at the national level, and then move towards integration at regional level.
9. It is crucial to keep a feedback loop between data providers and users to ensure optimal use of resources for data collection and processing.
10. Recognition of data owners is crucial: when you are putting data on BIOPAMA the institutions have to be mentioned.
11. Authority: it is important to clarify who can change data and how this authority would be given.
12. Establish a working group on standards to start by identifying standards used in the participants' institutions.

ANNEX 7: Points identified as strengths, weaknesses, opportunities and threats (SWOT) for the Regional Reference Information System (RRIS)

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> - Quick access to range of different data sets - Broad overview/scale/coverage - Comparable across the region - Free/no cost - Reflects the most issued data - Live data – very recent data - Open access/open source - Multi user oriented, building a network of users and experts - Interactive - Easy to identify data gaps - Hugely valuable for PA planning 	<ul style="list-style-type: none"> - Internet dependency (practical application of the RIS might be very limited due to internet connectivity especially for remote PA managers) => very strong weakness - Infrastructure capacity (hardware, internet, connectivity, etc)/additional costs for new/improved infrastructure - Local skill to use internet/tools (What is science behind it in order to interpret the data, add explanation/description of what outputs mean and how to use/apply them, programming code used?) - Human resource capacity (programming, database management, interpretation) - Coarseness of data - Lack of understanding of user’s needs could mean irrelevant information provided - Feedback loop between research/analysis/academia and the system needed to ensure continued relevance of products - Incompatibility of data/info - Language barrier
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> - Training to use this tool adapted to the capacity and internet/technical infrastructures of each country (Tutorial on line to use RIS (video)) - Creating a version that is internet independent - Could make low-bandwidth versions - Country with good connectivity could serve as a node - Offline work? Then upload - Satellite connectivity - High resolution data - Improve communication among stakeholders - Using existing networks to reach stakeholders (e.g. BirdLife and ARCOS) - Link with similar initiatives operating at local/national/regional level (at a lower scale than BIOPAMA) and build on existing information, build trust between institutions to share information - Build on existing infrastructure (e.g. AMESD) - Good quality summary outputs for various users - Involvement of stakeholders in PA processes (e.g. mapping), including engagement of communities - Knowledge sharing with Academics 	<ul style="list-style-type: none"> - Information used in the wrong way/misuse of data or information (e.g. sensitive data) - Data restriction access (base layers) - Information/data quality (Lack of common data standards, Lack harmonized methods for data collection) - Lack of relevant data to input into the system - Political fences/lack of cooperation/bureaucracy in terms of access to data; Policy issues - Lack of capacity to manage and use this system - Sustainability issues, insufficient funding of BIOPAMA project to achieve its objectives - Data generators need to see how their data is used, otherwise might lose incentive to collect data; balance between people that demand data and people or organizations that will provide data through BIOPAMA; understand the investment needed from participants - No technical support (computer/infrastructure) in many Protected Areas (=> focus of BIOPAMA at national level first?) - Compatibility of systems - Lack of communication between various management levels (network between high-level and site level management?) - Using appropriate communications channels and modes (language) for the relevant level of user. - Existence of products not widely communicated; Lack of awareness of products

Annex 8: Capacity gaps and needs for addressing land degradation and habitat loss – detailed outcomes

This group identified groups of actors and addressed the capacity building needs at the group level, including modalities and existing mechanism in their discussion outcomes.

Table 9-5: Capacity needs of actors influencing decision on land degradation and habitat loss

Level	Actors	Capacity needs	Modalities	Existing mechanism
International	Big companies exploiting natural resources (mining, oil, gas, agriculture)	Information	Information on sensitive areas, key biodiversity areas, no-go zones, legal status and boundaries of PA, best practices on how they can conduct their activities better. Briefing papers	World Business Forum for Sustainable Development (WBSD)
	Donors (eg. WorldBank, EU, African Development Bank,	Awareness	Awareness (need to make them understand the issues). Briefing papers	
	Consumers	Awareness	Awareness (need to make them understand the issues)	
	NGOs	Advocacy	training, seminars, E-modules	
Regional	Regional economic communities (agriculture, environment, mining, infrastructures divisions of SADC, IGAD, COMESA). Secretariat and staff members.	Environmental law, data management, land cover change analyses, EIA, transboundary national resource management, integrated resource management (cross-border)	Briefing papers by IUCN partners, regional council, technical committees, training sessions, seminars	Briefing papers by IUCN partners. Regional training centre identified by BIOPAMA leading (eg. Southern Africa Wildlife College, African College of Wildlife Management (MWEKA)). POWPA capacity building workshops.
	Donors	Awareness	Awareness (need to make them understand the issues). Briefing papers	
	Agencies (eg. commissions in charge of a geographical area	Awareness	Awareness (need to make them understand the issues)	
	Regional companies	Environmental safeguards		
	NGOs	Advocacy, data management	training, seminars, E-modules	

Table 10-5 (continued)

Level	Actors	Capacity needs	Modalities	Existing mechanism
National	Ministries (Environment, Wildlife, Natural Resources, Infrastructure, Local Development, Land, Energy, Finance, Agriculture, Tourism, Science and Technology)	mainstreaming, integrated land use planning/natural resources management, environmental law knowledge, conflict resolution, policy formulation, negotiation skills, communication, benefit sharing, good governance (participatory, transparent, accountable)	demonstrations to technical staff (eg. progress that South Africa has made as example for practical training), Training the trainer	South African/ other case studies, specifically about integrated land-use planning and mainstreaming. NBSAPS as useful platform.
	Agencies (eg. National Environmental Management Authority, Protected Area, commissions in charge of a geographical area in one country)	payment for ecosystem services, environmental accounting, cost-benefit analysis	training, cross-visits	Conservation Strategy Fund in Latin America as model. Side events at COP meetings.
	Private Investors	Information and awareness, benefit sharing	tools and guidelines on CSR, best practices on sustainable business practices	World Business Forum for Sustainable Development (WBSD)
	Donors	Awareness	Awareness (need to make them understand the issues). Briefing papers	
	NGOs	Advocacy, data management	training, seminars, E-modules	
County/ Provincial	Provincial/ District Government (Environmental, Economic, Land Use Planning, Socio-economic)	mainstreaming, integrated land-use planning, conflict resolution and identification, good governance (participatory, transparent, accountable, empowering), land capability assessment	demonstrations to technical staff (eg. progress that South Africa has made as example for practical training), workshops, cross-visits to other provinces	South African/ other case studies, specifically about integrated land-use planning and mainstreaming. NBSAPS as useful platform.
	NGOs	advocacy, conflict resolution	training, seminars, E-modules, cross-visits	
	Municipal	good governance (participatory, transparent, accountable, empowering)	demonstrations to technical staff (eg. progress that South Africa has made as example for practical training), workshops, cross-visits to other municipalities	South African/ other case studies, specifically about integrated land-use planning and mainstreaming. NBSAPS as useful platform.

Table 10-5 (continued)

Level	Actors	Capacity needs	Modalities	Existing mechanism
Local	Individual Protected Areas	conflict resolution, PA planning, management effectiveness, participatory resource monitoring, good governance (participatory, transparent, accountable, empowering), data management	on-the-job training, best practices, mentoring, tools and guidelines, cross-visits between Pas	World Commission on Protected Areas. BirdLife working with PA agencies to monitor biodiversity at sites.
	Community-based/ Community leaders	governance, participatory resource monitoring, understanding of planning tools and instruments, entrepreneurship, sustainable use practices (eg soil conservation), documentation, data management, land capability assessment	training, seminars, cross-visits, tools and guidelines, awareness activities	BirdLife Local Conservation Groups
	Village government	governance, participatory resource monitoring, understanding of planning tools and instruments, land capability assessment	training, seminars, cross-visits, tools and guidelines, awareness activities	ICCN toolkit
	NGOs	advocacy, conflict resolution	training, seminars, E-modules, cross-visits	
	Land owners	land rights, awareness, good practice, land capability assessment	tools and guidelines, seminars, meetings with land owners, mapping (at various levels),	Land owner Trust in Kenya
	Municipal	good governance (participatory, transparent, accountable, empowering)	demonstrations to technical staff (eg. progress that South Africa has made as example for practical training), workshops, cross-visits to other municipalities	South African/ other case studies, specifically about integrated land-use planning and mainstreaming. NBSAPs as useful platform.

Annex 9: Capacity gaps and needs for addressing illegal/unsustainable resource use - detailed outcomes

This group identified three major sectors that influence decisions: Government, Civil society and communities and the Private Sector. Within each of these sectors, the group then identified specific stakeholders involved in decisions around this threat at the four levels – international, regional, national and local.

Table 9-6: Actors influencing decisions on illegal/unsustainable resource use

Sector	Level	Actor	
Government	International	CITES Scientific Authority	
		CITES Management Authority	
		CBD	
		WHC	
		Nairobi Convention	
		MDG (UN Assembly)	
	Regional	NEPAD	
		AU	
		SADC	
		EAC	
		IOC	
		IGAD	
		Lusaka Agreement Task Force	
		TFCAs Management committees	
		National	Ministry of Environment
			Ministry of Agric
	Ministry of Water		
	Fisheries		
	Local	Treasury/Finance (taxes)	
		Energy	
Justice			
Defence			
Tourism			
International/Foreign Affairs			
Parliament			
Protected Area Authorities			
Internal Affairs (Police/customs)			
Local Government			
PA Managers			
Civil Society/ Communities	Local & National	NGOs (GRAA and others)	
		CBOs	
		Faith-based Groups	
		Traditional Authorities	
		Resource User Groups	
		Citizen scientists	
	Regional & Intl	NGOs (IUCN, TRAFFIC, PPF, IRF, SCI and others)	
		Academic Institutions	

Table 10-6 (continued)

Sector	Level	Actor
Private Sector	Local/ National	SMME (Tourism, Pharmaceutical, Bio-commerce, carfts, taxidermists) Chamber of Commerce Banking/Finance/Insurance
	Local/ National/ Regional/ International	Extractive Industries
	Regional & Intl	Offsets, PES etc companies

The group then prioritised which decision makers were felt to have the most impact on the threat and should thus be targeted first in a capacity building programme. The priority actors identified were the Ministry of Environment, the Protected Area Authority, the Protected Area Site Managers as well as the Ministry of Justice and NGOs and CBOs. For each of these priority actors, the group then identified specific capacity needs and existing initiatives. For Parliament and the National Treasury/Ministry of Finance, participants felt that it was important to provide training on the appreciation of Protected Areas' value to the national economy and the impact of illegal/unsustainable use on Protected Areas. Similarly, participants felt that CBOs, Resource User Groups, Faith-based Groups and Traditional Authorities at the local site level should also be made aware of the value and importance of PAs and protecting resources. Below is the more detailed outline of needs for the main priorities identified above:

Table 9-7: Capacity needs of priority actors influencing decisions on illegal/unsustainable resource use

Actor	Capacity Need	Existing Initiatives
Ministry of Environment	<ul style="list-style-type: none"> - Training on use of information from BIOPAMA - Training on resource use/mobilization of resources (information/Capacity) - Training on how to implement MEAs, e.g case studies (Lack of understanding on how to engage and use MEAs), incl adequate resourcing - Exchange of best practice between countries on sustainable use - Economic Valuation of PAs and opportunities for PES - Awareness on what BIOPAMA is 	<ul style="list-style-type: none"> - MESA/AMESD - training on use of spatial information (satellite imagery), - SANBI - training on use and interpretation of spatial information at regional level – - WCMC on national indicators - Sustainable use best practice guidelines - Biotrade guidelines - CBD runs workshops on NBSAPs (incl Ecosystem valuation), elearning modules on implementing PoWPA, regional training on PoWPA - WWF training on PES and Economic Valuation? (Catalogue of existing training - perhaps from WDPA)
Ministry of Justice	<ul style="list-style-type: none"> - Training on impact of wildlife crime and overutilization and value of healthy wildlife sector to the economy (what does it mean?) - magistrates, prosecutors, judges, customs, enforcement - to ensure penalties are appropriate - Species/Specimen Identification Training - Training on the importance of building up case law and statistics on wildlife crime 	<ul style="list-style-type: none"> - Species Identification Tool (EWT/SANBI/TRAFFIC) - Training of magistrates on wildlife crime and trade issues (EWT/SANBI/TRAFFIC)
Protected Area Authorities	<ul style="list-style-type: none"> - Sustainable financing (specific opportunities around ABS) - Conservation Area Planning - Exchange of best practice between countries on sustainable use - Strategic Planning - Economic Valuation of PAs and opportunities for PES - Training on effective supervision (project management/management training, resource management) - Training on value of CBNRM/ community engagement at PA level - Training on use and interpretation/analysis of information around unsustainable use - Training on the value of collection of standardized data (Train the trainers on standardized data collection, demonstration site) - (Ranger Training - monitoring techniques, law enforcement) 	

Table 10-7 (continued)

Actor	Capacity Need	Existing Initiatives
Protected Area Managers	<ul style="list-style-type: none"> - Sustainable financing (specific opportunities around ABS) - Exchange of best practice between countries on sustainable use - Economic Valuation of PAs and opportunities for PES - Technical methods for promoting sustainable use in PAs - (Ranger Training - monitoring techniques, law enforcement) - Training on community engagement (around resource use) - how to engage communities - Training on use and interpretation/analysis of information around unsustainable use - Training on crime scene management & evidence collection 	

10 BIOPAMA contacts for the ESA Region

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