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Middle Zambezi Biosphere Reserve

UNESCO 10-year Periodic Review

December 2020



United Nations
Educational, Scientific and
Cultural Organization



Man and
the Biosphere
Programme

PERIODIC REVIEW FOR BIOSPHERE RESERVE

[December 2020]

INTRODUCTION

The UNESCO General Conference, at its 28th session, adopted Resolution 28 C/2.4 on the Statutory Framework of the World Network of Biosphere Reserves. This text defines in particular the criteria for an area to be qualified for designation as a biosphere reserve (Article 4). In addition, Article 9 foresees a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4 and forwarded to the secretariat by the State concerned. The text of the Statutory Framework is given in the third annex.e form which follows is provided to help States to prepare their national reports in accordance with Article 9 and to update the data available to the Secretariat on the biosphere reserve concerned. This report should enable the International Coordinating Council (ICC) of the MAB Programme to review how each biosphere reserve is fulfilling the criteria of Article 4 of the Statutory Framework and in particular the three functions. It should be noted that it is requested, in the last part of the form (Criteria and Progress Made), to indicate how the biosphere reserve fulfills each of these criteria.

The information presented on this periodic review will be used in a number of ways by UNESCO:

- (a) for examination of the biosphere reserve by the International Advisory Committee for Biosphere Reserves and by the Bureau of the MAB International Coordinating Council;
- (b) for use in a world-wide accessible information system, notably for the UNESCO-MABnet and publications, facilitating communication and interaction amongst persons interested in biosphere reserves throughout the world. Kindly indicate if any part of this report should remain confidential.

The form consists of three parts:

- Part one is a summary highlighting the main changes in the biosphere reserve during the reporting period.
- Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects.
- Part three consists of two Annexes (A): the first Annex (A.1) will be used to update the directory of biosphere reserves on the MABnet. The second annex will be used to provide promotion and communication materials of the biosphere reserve (A.2).

The third annex comprises the Statutory Framework for the World Network of Biosphere Reserves.

Please provide as many quantitative data as possible as well as supporting documentation to complete the information provided, especially:

- ☐ Map(s) clearly showing the zonation (see in particular 2.3.1);
- ☐ The legal texts for the different zones.

The form should be completed in English, French or Spanish. Two copies should be sent to the Secretariat, as follows:

1. The original hard copy, with the original signatures, letters of endorsement, zonation map
2. and supporting documents. This should be sent to the Secretariat through the Official
3. UNESCO channels, i.e. via the National Commission for UNESCO and/or the
4. Permanent Delegation to UNESCO.
5. An electronic version (on diskette, CD, etc.) of the periodic review form and of maps
6. (especially the zonation map). This can be sent directly to the MAB Secretariat:

UNESCO
Division of Ecological and Earth Sciences
1, rue Miollis
F-75732 Paris Cedex 15, France
Tel: +33 (0)1 45 68 40 67
Fax: +33 (0)1 45 68 58 04
E-mail: mab@unesco.org
www.unesco.org/mab

PREAMBLE

This first Periodic Review for Zimbabwe's Mid-Zambezi Biosphere Reserve outlines a considerable body of conservation and sustainable development work achieved across all sectors in this vast area during the period 2010 – 2020 despite some considerable economic and administrative challenges.

The review reveals a clear need to strengthen the coordination and advisory capacity within this, Zimbabwe's first Biosphere Reserve. It has been more a case of serendipity that the achievements of the first 10 year period are aligned with long-term conservation and sustainable development goals.

There is undoubtedly a clear role for a collaborative Biosphere Reserve team to provide coordination where needed, to help identify synergistic projects and to assist existing project owners to identify sources of funding.

There is a need to reignite efforts to build awareness, communication and synergies amongst key stakeholders in the Biosphere Reserve. It will be important in the next few years to explore, in a collaborative manner, how to provide a supportive operating environment for all entities working within the area, through a coordinating role, and to encourage them to see the value of the Biosphere Reserve as a mechanism for information flow and a repository for data.

This situation needs to be urgently addressed if momentum for the Biosphere Reserve concept is to be built into the future.

The current administrative structure requires some refashioning and would be more appropriately driven by Zimbabwe's Ministry of Environment, Climate Change, Tourism and Hospitality Industry, following the guidelines of the Lima Action Plan.

An active and committed team comprised of senior key stakeholder representatives (and chaired by one of them) should be convened to help lead the Biosphere Reserve into the future, with an emphasis on its "coordinating" rather than "management" role.

There is also an urgent need to recraft the Biosphere Reserve narrative within Zimbabwe to encourage more stakeholder confidence and "buy in" by emphasizing the potential benefits of the Biosphere Reserve concept as a support mechanism not only to the landscape, but also to the individual organisations working within it.

In this respect it will be useful to draw on the cross-cutting experience of other AfriMAB member states, and also to seek urgent seed funding resources from within UNESCO and MAB Germany to accelerate the process.

3rd DECEMBER 2020

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PART I: SUMMARY

a) Name of the Biosphere Reserve:

Middle Zambezi Biosphere Reserve

b) Country:

Zimbabwe

c) Year of designation:

2010

d) Year(s) of periodic review(s):

2010 - 2020

e) Previous recommendation(s) made by the International Coordinating Council (MAB- ICC), if applicable:

UNESCO previously commented on institutional arrangements which were not yet properly structured for the Biosphere Reserve, namely:

- (i) Definition of the outer limit of the Transition Zone which was not included in the 1st dossier.
- (ii) Clarification of the population of the Reserve (Core, Buffer & Transitional Zones).
- (iii) Involvement of communities in the management of the Reserve.

f) What follow-up actions are completed and if not completed/initiated, please provide justifications:

- Clarification and mapping of the Transition Zone for the Biosphere Reserve has been completed (but will require further adjustments as described later in this report).
- Accurate population figures for the Reserve have been difficult to obtain as no official census has been carried out since 2012. Rural population figures have fluctuated considerably in the past decade due to economic constraints.
- Outreach workshops and research have been carried out in the community areas at the outskirts of the reserve in an attempt to create awareness and involvement of local people in the Biosphere Reserve.

g) Update on the implementation of measures to achieve the objectives of the biosphere reserve.

Table 1: Summary of objectives and measures

Objective of the biosphere reserve (as defined in the original application)	Measures taken so far	Comments

CONSERVATION FUNCTION

(as defined in the original application document)

“Contribute to the conservation of landscapes, ecosystems, species and genetic variation” (stress the importance of the site for conservation at the regional or global scales)

The Zambezi valley is part of Region 54 of the African Ecoregions. It consists of riverine, and terrestrial ecosystems, unique to the subcontinent, as well as the largest man made reservoir. Among threatened species found in the valley are the Black Rhino (*Diceros bicornis*), the Painted Wild Dog, *Lycaon pictus* and the Nyala (*Tragelaphus angasi*). The flora consist of Mopane /*Combretum*/ *Terminalia* woodland and the Zambezi riparian forest. At Mana Pools it comprises the only floodplain ecosystem left in the Middle Zambezi.

a/. Significant loss of indigenous tree cover has taken place in the transition zone areas adjacent to the Mana Pools core area and Charara Buffer Zone. This is mostly attributable to the initiation of community-level wood-fired tobacco curing. Remedial action has taken the form of *Eucalyptus* plantations as a substitute, and indigenous tree growing in deforested areas by the “My Trees” project and others.

b/. The small Black Rhino population surviving in the Matusadona National Park at the time of the Biosphere Reserve nomination has become extinct. There are long-term plans to reintroduce rhino in some parts of the Zambezi Valley

c/. **The Great Elephant Census - Zimbabwe Dunham KM, 2014** revealed an overall loss of 75% of the elephant population in the Sebungwe region (including Matusadona NP) and 40% of the elephant population in the Zambezi Valley since 2001. The proximate cause was illegal ivory hunting; the ultimate cause is thought to be the rapid decline of the Zimbabwean economy since the 2000-2001 land redistribution exercise and human population displacements resulting from this. Reaction to the loss has resulted in public/private-sector planning and collaboration for improved anti-poaching measures and a tightening of legal action against the wildlife trade in Zimbabwe. Elephant poaching figures appear to have decreased

Zimbabwe Parks and Wildlife Management Authority (ZPWMA) coordinates and manages biodiversity conservation efforts in conjunction with many other private players.

	<p>since 2016.</p> <p>d/. The accidental release of Australian Eed Claw Crayfish (<i>Cherax quadricarinatus</i>) into Lake Kariba resulted in a population explosion of this species, with severe impacts on native fish species. The situation has since improved through “learnt” predation by tigerfish and aquatic birds.</p> <p>e/. Lake Kariba’s population of introduced <i>Limnothrissa miodon</i> (Tanganyika sardine) has been severely depleted by overfishing during the report period. This has impacted on livelihoods on the Kariba shoreline.</p> <p>g/. Lake Kariba’s population of tigerfish (<i>Hydrocynus vittatus</i>) is believed to have been reduced significantly by the reduction in the <i>Limnothrissa</i> populations and also - anecdotally - by the siltation of tributary river spawning-grounds due to upstream alluvial mining.</p>	
<p>DEVELOPMENT FUNCTION (as defined in the original application document)</p> <p>Development - foster economic and human development which is socio-culturally and ecologically sustainable.</p> <p>In the Omay, Siyakobvu, Hurungwe and Dande areas, the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) there are wildlife management programmes run for and in conjunction with local</p>	<p>The CAMPFIRE programme has been recently reviewed and plans are underway to ensure its implementation. Prior to the review, the programme had failed to achieve sustainability. The Biosphere Reserve’s lifetime to date has coincided with poor overall performance of the broader Zimbabwean economy, and declines in key economic sectors including tourism, trophy hunting, and investment in infrastructure.</p>	<p>A comprehensive management plan is urgently needed for the Biosphere Reserve area to ensure that all development is sustainable. Greater transparency is needed in the implementation of the CAMPFIRE programme in order for it to function more effectively. (A new framework for the CAMPFIRE programme has been approved and will be implemented in the coming years).</p>

<p>inhabitants.</p> <p>Safari hunting is a major employment and revenue generating activity.</p> <p>Members of the public participate in conservation programmes through conservation societies, such as the annual wildlife counts.</p>	<p>There has been a rise in the utilisation of valuable and easily accessible mineral resources - notably gold and coal - within national lands technically reserved for biodiversity maintenance and wildlife. A number of rivers originating on the Zimbabwean plateau and flowing through the Biosphere Reserve have a high alluvial gold content and recent rises in world gold prices have catalysed an increase in their exploitation. Informal-sector gold panning has seen a rapid rise in the upper reaches of river systems within the Biosphere Reserve, threatening, in particular, river flows and water quality, and an increase in illegal wildlife hunting.</p>	
<p>LOGISTICS SUPPORT FUNCTION <i>(as defined in the original application document)</i></p> <p>Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.</p> <p>The area is a popular tourism destination, and contains two educational facilities - Rifa Wildlife Education Camp, which still functions full time and the Wildlife and Environment Society education facility near Kariba, which is now defunct.</p>	<p>Research is carried out in the landscape by Government institutions, academia, external researchers and NGOs. Research areas are broad covering scientific, social and political aspects of conservation. These include (but are not limited to) monitoring of terrestrial and aquatic ecosystems, strengthening biodiversity and ecosystems management, the role of local communities in conservation and monitoring the impacts of climate change. Research and monitoring carried out by different players is coordinated by the Zimbabwe Parks &</p>	<p>It can be seen from the conservation and development functions above how much is being done in the MZBR. The logistics function mirrors this.</p> <p>The strident theme throughout this review is the need for an overarching coordination management role. The single most impactful response to this review would be to get a coordinating function in place. This would harness the synergies of the plethora of activities across the landscape. The newly-formed Zambezi Conservation Network is working towards a landscape-</p>

<p>Research facilities include:</p> <ul style="list-style-type: none"> ● The University of Zimbabwe Lake Kariba Research Station ● Lake Kariba Fisheries Research Institution - The Parks and Wildlife Authority Fisheries Research Station ● The Zambezi Authority Environmental Laboratory 	<p>Wildlife Management Authority. <i>Specific activities within the logistics function include:</i></p> <p>a/. Tackling illegal wildlife trade. Implementation of collaborative 5-year Elephant Management Plans, which has resulted in better protection and a reduction in poaching statistics.</p> <p>b/. Monitoring of Illegal Killing of Elephants. Mana Pools, Sapi, Chewore are MIKE sites. Scientific research has been carried out by Parks and the University of Oxford on elephant poaching in the landscape.</p> <p>c/. Wild Dog Research & Conservation</p> <p>d/. Lion Research</p> <p>e/. Leopard/Predator Surveys & Intensive Predator Research Mana and Matus</p> <p>f/. Habitat monitoring</p> <p>g/. Fisheries research</p> <p>h/. Climate Change Research</p>	<p>wide approach to the area and could be a key ally within a future management structure.</p>
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h) Briefly describe the process by which the current periodic review has been conducted:

The MAB committee (represented by NATCOM, Zimbabwe) passed on the responsibility for conducting the current periodic review to The Zambezi Society in November 2019. A research team subsequently consulted with relevant ministries, regional authorities, local municipalities and with local people through the use of structured key informant interview guides and household questionnaires. The German National Commission provided the funds for the outreach research portion of the review.

i) Area and spatial configuration:

Covering approximately 34,000 km² in the Zambezi Valley and surrounds, the Middle Zambezi Biosphere Reserve (MZBR) features riverine and terrestrial ecosystems, unique to the subcontinent, including two Core National Park Areas and part of Lake Kariba, the world's largest man-made lake. The graphic map below refers:-

The Matusadona National Park (Core Area) lies at the western end of the Biosphere Reserve (on the southern shore of Lake Kariba) surrounded by **Buffer Zone** including Ume and NyamiNyami (to the west and south) and Gache Gache to the east. An area extending 20 metres into **Lake Kariba** from its shoreline is also included within the Buffer Zone of the Biosphere Reserve. From there a chain of Buffer Zone Safari Areas, to the east of Lake Kariba, including Charara, Hurungwe East, Hurungwe West, Rifa and Nyakasikana link Matusadona to the **Mana Pools National Park (Core Area)**. This, together with its adjacent Buffer Zone Sapi and Chewore Safari Areas to the east make up the UNESCO World Heritage Site inscribed in 1984. The Buffer Zone around Mana Pools/Sapi/Chewore also includes the Dande and Doma Safari Areas to the east and south-east respectively).

Tourism, sport hunting and conservation are the main sources of employment within the Biosphere Reserve, with Lake Kariba catering for important fishery and crocodile-farming industries.

The area also comprises human settlements, notably two towns located on the border with neighbouring Zambia: **Kariba**, where livelihoods are dependent upon the generation of hydro-electricity at Kariba Dam, fishing in Lake Kariba, and tourism, and **Chirundu**, which has a small tourism industry, but mainly caters to a vast number of inter-regional trucks linking southern and central Africa, which use the town as a temporary stopping point. There is also a small settlement at **Makuti** which houses a Police station, small hotel and is a temporary stopping point for overland trucks.

In this report, the **Transition Zone** (previously not comprehensively mapped in the original Biosphere Reserve application) is added. This Zone extends beyond the current limits of the Buffer Zone and comprises largely settled lands under CAMPFIRE (community-based wildlife management) or communal subsistence agriculture.

However, it is to be noted that when mapped correctly, the Transition Zone overlaps a large part of the Buffer Zone (see the updated map at Section 2.2 Figure 11). This clearly requires adjustments to be made to the zonation boundaries of both the Buffer and the Transition Zones in order to ensure that the Buffer Zone includes ONLY non-settled Safari Areas and the towns of Kariba, Chirundu and Makuti (as described above), and the Transition Zone includes ONLY the rural community settled lands.

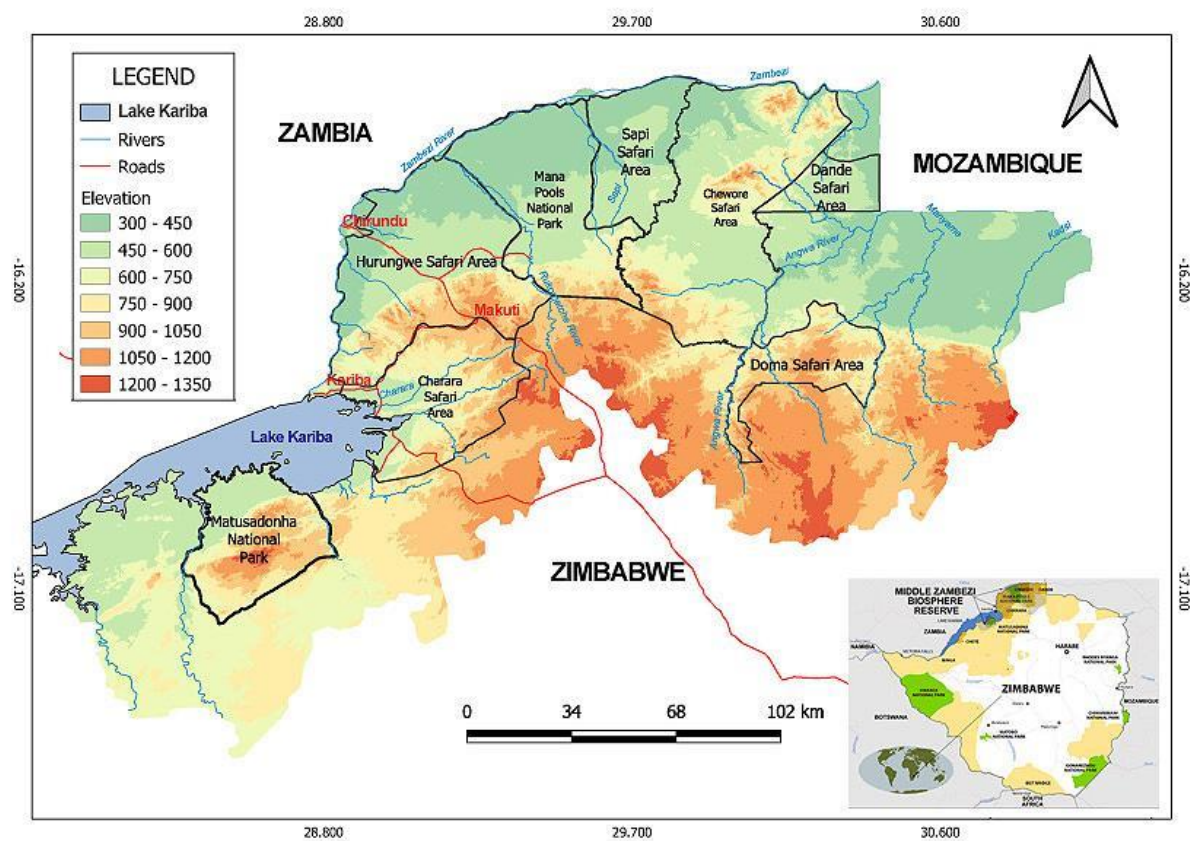


Figure 1: General map showing location, extent and topography of the Middle Zambezi Biosphere Reserve.

Table 2: Summary of area covering the MZBR

	Previous report (nomination form or periodic review) and date	Updates to original area in nomination form
Total Biosphere Reserve Area (terrestrial and lacustrine)	40,000 sq km	33, 945 sq km
Total Biosphere Reserve Area (terrestrial only)	None given	33,528 sq km
Area of terrestrial Core Area(s)	3,604 sq km	3,603 sq km
Area of current terrestrial Buffer Zone(s)	22,190 sq km	26,307 sq km
Area of terrestrial Transition	None given	3,618 sq km

Zone extending outside Buffer Zone		
Area of terrestrial Transition Zone currently overlapping Buffer Zone	None given	10,477 sq km
Area of marine (lacustrine) Buffer Zone (Lake Kariba \ Eastern Basin area)	717 sq km	417 sq km

j) Human population of the Biosphere Reserve:

It has been very difficult to arrive at a reliable figure for the human population of the reserve for two main reasons:-

- The last official [Population Census of Zimbabwe](#) was taken in 2012. An [Inter-Censal \(mid-term\) Demographic Survey](#) was conducted in 2017 but this gives only estimates. No reliable figures are available since then, however, anecdotal evidence indicates that there has been an increase in the human population in rural areas since 2010 (largely due to urban-rural migration brought about by economic challenges).
- The boundaries of the Biosphere Reserve straddle many districts and do not necessarily coincide with the district boundaries used in the 2012 Census. This makes estimation of rural human population within the settled areas of the Biosphere Reserve very difficult to compute.

The majority of the human population in the MZBR is found in the urban areas of Kariba and Chirundu and in those areas of the Buffer and Transition Zones which lie outside the wildlife Safari Areas. The Core Zones have only ZPWMA (ZimParks) staff and their families (with seasonal influx of tour operators, staff and visitors), while the Safari Areas contain at any time, less than 50 people, comprising mainly sport hunters, their hosts and staff.

Given the above, the summary at Table 3 below is merely an estimate, totalling around 252,500 for the whole Biosphere Area.

Table 3: Summary of Human Population of the MZBR

	Previous report (nomination form or periodic review) and date	At present: estimated figures based on ZIMSTAT Census, 2012
Core Area(s) (permanent and seasonally)	560	Protected areas ZimParks staff complement:
Mana Pools National Park		355
Matusadona National park		(Tourists excluded as variable)

Buffer Zone(s) (permanent and seasonally) <ul style="list-style-type: none"> ● Kariba Urban ● Chirundu/Makuti 	40,000 and 50 (safari areas)	<ul style="list-style-type: none"> ● Kariba (Urban) - 26,451 ● Chirundu - 4,000 ● Makuti - Statistics not available - likely to be not more than 500 ● Safari Areas - estimate 250
Transition Area(s) <ul style="list-style-type: none"> ● Hurungwe ● Kariba Rural ● Mbire ● Gokwe North 	None given	<ul style="list-style-type: none"> ● Hurungwe -114,400 ● Mbire - 21,700 ● Makonde - 36,500 ● Gokwe North - 9,000 ● Guruve - 39,000 ● Statistics not available for other areas.

Source: Zimbabwe National Statistics Agency (ZIMSTAT) 2012

k) Budget (main sources of funds, special capital funds) and international, regional or national relevant projects/initiatives carried out or planned.

Table 4: Periodic Review Budget

Budgeting the Periodic Review Date		
Main Source of Funds	Amount	Activity
UNESCO (Participation Programme)	USD 22,000	Awareness Workshops conducted by ZIMNATCOM 2017
German NATCOM	USD 15,500	2019: Current periodic review compilation including community research.
UNESCO ROSA	USD 2,000	2020: Report compilation, draft and completion
UNESCO ZIMNATCOM	Staff time/Government vehicle use	

I) International, regional, multilateral or bilateral framework of cooperation. Describe, where applicable, the contribution of the biosphere reserve to achieve objectives and developing mechanisms that contribute to the implementation of international or regional bilateral or multilateral agreements, conventions, etc.

Zimbabwe is a significant contributor towards international agreements, concessions and other regional, multilateral or bilateral frameworks of cooperation through the Zimbabwe Parks and Wildlife Management Authority (ZPWMA). A large part of the Middle Zambezi Biosphere Reserve falls within the management area of the ZPWMA and, in the absence of its own management structure, the MZBR can be said to contribute indirectly to international, regional, bilateral/multilateral agreements and conventions as follows:

- Convention on Biological Diversity (CBD), Zimbabwe signed in June 1992 and ratified it in November 1994;
- Cartagena Protocol on Biosafety (ratification May 2005);
- Nagoya Protocol on Access and Benefit Sharing (accession November 2017);
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES, accession 1981);
- Convention on the Conservation of Migratory Species of Wild Animals (a party since 2012);
- International Treaty on Plant Genetic Resources for Food and Agriculture (ratification 2005);
- International Plant Protection Convention (2002);
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (accession March 2012);
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (accession March 2012);
- United Nations Framework Convention on Climate Change (ratification 1992); and
- UN Convention to Combat Desertification (ratification September 1997);
- The Mana Pools National Park, Sapi and Chewore Safari Areas World Heritage Site was designated in 1984 and is also a constituency of the UNESCO Middle Zambezi Biosphere Reserve (MZBR), which was accorded the Biosphere Reserve status by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2010 (UNEP, 2011). Mana Pools, along with the Sapi and Chewore Safari Areas, was declared a World Heritage Site in recognition of the unique scenic qualities of the area and the fact that it was home to a number of protected species. Thus the operations of the Mana Pools WHS are governed by both the 1972 World Heritage Convention and the UNESCO Man And Biosphere statutes. [State of Conservation: Mana Pools National Park, Sapi & Chewore Safari Areas \(Zimbabwe\)](#);
- The Middle Zambezi Valley contains key areas of global biodiversity importance, RAMSAR designated wetland areas (RAMAR Convention ratified in 2013), and is an Important Bird Area designated by Birdlife International;
- At a regional level, Zimbabwe is party to the SADC Protocol on Wildlife Conservation and Law Enforcement, which aims at establishing a common framework for conservation and sustainable use of wildlife in the region. The protocol encourages member states to agree to policy, administrative and legal measures for promoting conservation and sustainable wildlife practices in their jurisdictions and to collaborate on common approaches for achieving the goals of international agreements on wildlife. The protocol also urges member states to harmonise legal instruments for wildlife, establish management programmes for wildlife and create a regional database of wildlife status and management (6th CBD Report).
- UN SDGs (United Nations Sustainable Development Goals) - Zimbabwe has committed itself to implementing all the SDGs with an emphasis on SDGs 2, 3, 4, 5, 6, 7, 8, 9, 13 and 17.

SADC Zambezi Watercourse Commission (ZAMCOM) - Zimbabwe is party to this agreement which involves regional cooperation on the planning, management, utilisation, development, protection and conservation of the Zambezi Watercourse, as well as on the

role and position of the public with regard to such activities and the possible impact on social and cultural heritage matters.

Transfrontier conservation areas (TFCAs); The easternmost section of the KAZA (Kavango-Zambezi) transfrontier area overlaps with the westernmost section of the MZBR area, including the Matusadona National Park and associated community areas of Ome and Nyaminyami. The MZBR is also a large component of the proposed Lower Zambezi Trans-Frontier Conservation Area which is currently under development. The area straddles the Zambezi River and includes several national parks, safari and game management areas, as well as community areas with conservation potential within both Zimbabwe and Zambia;

- At national level, the MZBR contributed towards achieving the Aichi targets as follows: the Zambezi Valley – water hyacinth, crayfish invasive species programme;
- The Government of Zimbabwe, through the Ministry of Environment, Climate Tourism and Hospitality Industry (MECTHI), in partnership with the UNDP is implementing a 6-year (2018-2023) GEF funded project entitled: “[Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe](#)”, known as the [Zambezi Valley Biodiversity Project \(ZVBP\)](#). The project is implemented under a National Implementation Modality (NIM) where MECTHI is the implementing partner. Its objective is: to promote an integrated landscape approach to managing wildlife resources, carbon and ecosystem services in the face of climate change in the protected areas and community lands of the Mid to Lower Zambezi Regions of Zimbabwe, and it includes (among other things) a proposed management plan for the area downstream from Kariba Dam.

PART II: PERIODIC REVIEW REPORT

1. BIOSPHERE RESERVE:

1.1 Year designated:

Accepted in 2009 and incorporated in 2010.

1.2 Year of first periodic review and of any following periodic review(s) (when appropriate):

2020 and every 10 years following.

1.3 Follow-up actions taken in response to each recommendation from the previous periodic review(s) (if applicable), and if not completed/initiated, please provide justifications:

Not applicable as this is the first periodic review.

1.4 Other observations or comments on the above:

No comments or observations.

1.5 Describe in detail the process by which the current periodic review has been conducted:

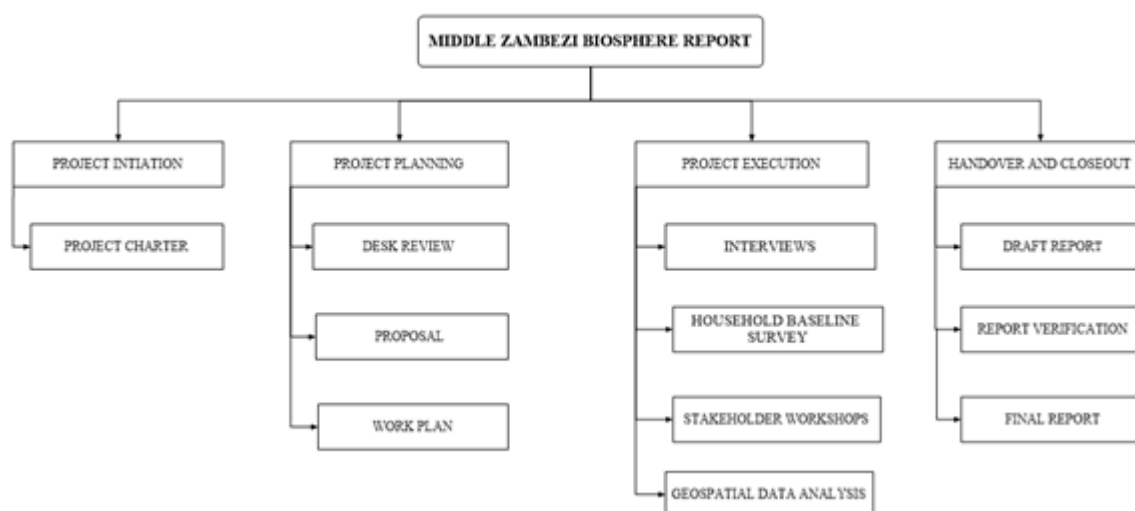


Figure 2: Summarises the process by which the current periodic review was conducted

The MAB committee appointed Zambezi Society to produce the draft and final Ten-Year Periodic Reviews of the Middle Zambezi Biosphere Reserve to document and evaluate the performance of the Middle Zambezi Biosphere Reserve.

The information used to compile this report was obtained by carrying out desktop reviews and conducting field work research.

The UNESCO standard review questions and aspects were supplemented with questionnaires pertaining to the following aspects:

- a. Achievements of the Biosphere Reserve to enhance its status as a legal entity
- b. Role of various stakeholders in helping the Biosphere reserve's goals
- c. Community involvement in the management of the Biosphere Reserve
- d. Eco-sociological benefits of the Biosphere Reserve to communities
- e. Women empowerment

The first stages involved desktop research and the development of an inception report that was submitted to NATCOM. MAB officially appointed the Zambezi Society as the consultant to conduct the study. The work plan, proposal and inception report were agreed on the 18 August 2019. This was followed by 30 days of field work.

The project was then split into two phases and activities were conducted in the order shown in Figure 3:

Phase 1: Planning and Data collection

Phase 2: Report Writing, Validation and Presentation

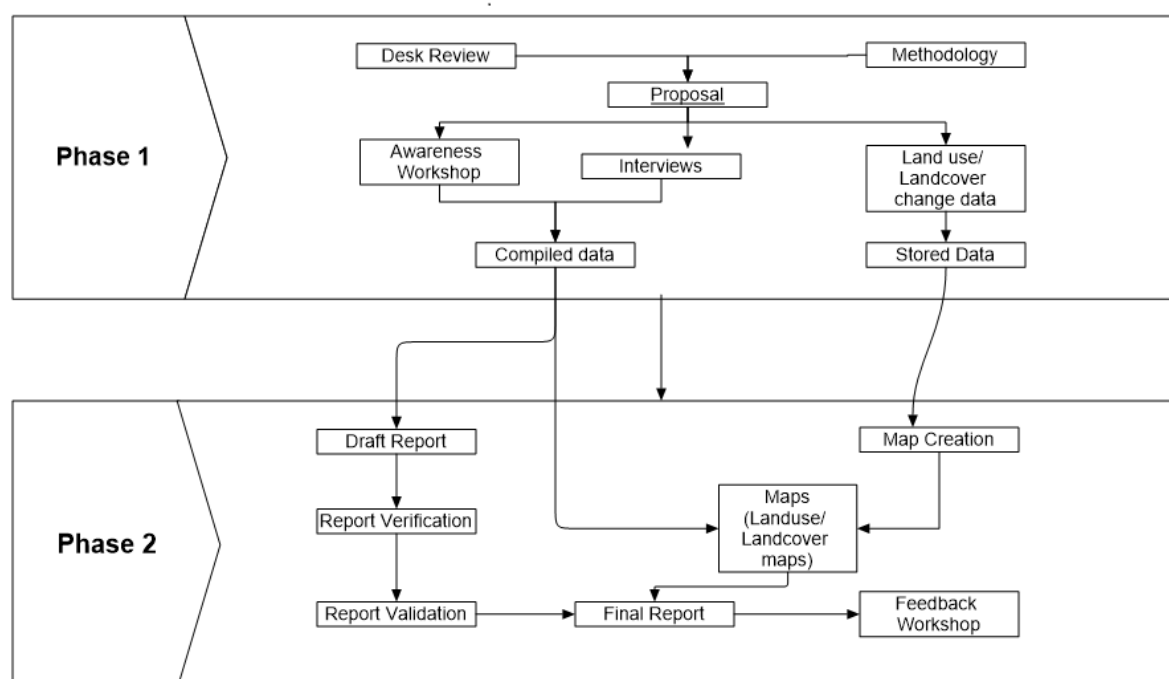


Figure 3: Shows the steps that were taken to write the MAB periodic review report

The first phase consisted of desk reviews based on the template form of the periodic review report. These were carried out to verify existing and missing information. Periodic reviews of other biosphere reserves were also studied to establish the best writing format. Geospatial techniques of remote sensing and GIS were used to analyse the dynamics of land use/ land cover changes. Land use maps were used to compare the variations in land use between 2009 and 2019. The most recent population statistics were obtained from Zimstats in order to identify the number of people living in Biosphere Reserve. One on one meetings were carried out as part of data collection with National authorities, RDC CEOs, private stakeholders and relevant research institutions. A fieldwork exercise was also carried out in four sample Districts of the MZBR to gather data from communities, experts and other stakeholders.

The review combined a desktop review of both published and grey literature with a pragmatic mixed methodological approach in which both quantitative and qualitative methods were used. The mixed approach was preferred as it allows for a trans-disciplinary framework for the assessment of the MZBR. The MZBR includes natural resources, forestry and wildlife agencies and human communities that are mediated by a complex institutional framework.

The second phase involved compilation and analysis data for the Middle Zambezi Biosphere Reserve for the periodic review. A draft of the Ten-Year Periodic Review was produced and presented to the MAB National Committee and other stakeholders. After ensuring all corrections and editing had been satisfactorily completed, the report was forwarded to MAB Committee for onward transmission to ZIMNATCOM and then UNESCO.

Data collection

Figure 4. Shows the steps that were taken to prepare and collect data for the MAB periodic draft review report.

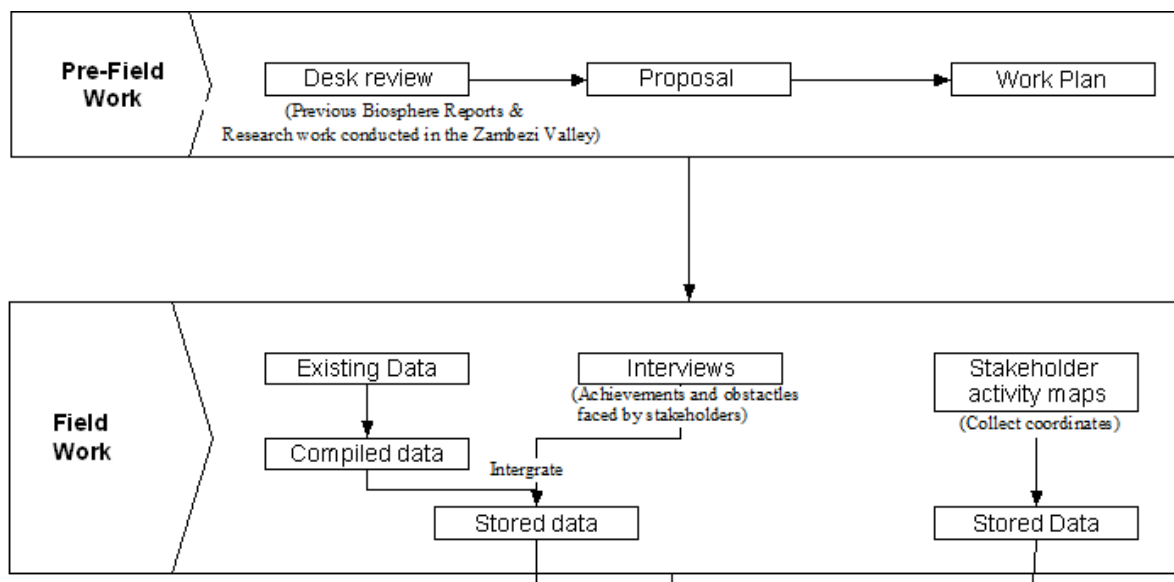


Figure 4: Summary of data collection procedure

Secondary data was mainly collected using statistics from primary records and review of reports, policy and strategic plans. Primary records were obtained on human-wildlife conflicts, rainfall and temperature, fish catches and effort, game counts and human population. Scholarly sources (Google Scholar) were also used to obtain published information especially on the conservation issues in the MZBR.

1.5.1 Which stakeholders were involved?

The following is a list of key stakeholders:

- a) UNESCO (specifically the regional representatives in South Africa) to provide guidance on the process and requirements.
- b) Zimbabwe National Commission for UNESCO (ZIM NATCOM) Board Members and staff.
- c) Man & Biosphere (MAB) Committee for Zimbabwe.
- d) National Authorities: Ministry of Environment, Climate Tourism and Hospitality Industry (MECTHI), Environmental Management Agency (EMA), Zambezi River Authority (ZRA), ZimParks (ZWPMA), Zimbabwe Tourism Authority (ZTA), Agritex.
- e) National private-sector associations: Zimbabwe Hunters Association, CAMPFIRE Association.
- f) Local and International Conservation NGOs: Responsible for providing support to the Biosphere Reserve.
- g) Rural District Councils: Hurungwe RDC, Binga RDC, NyamiNyami RDC.

- h) Local communities, community leaders, traditional leaders.
- i) Community-based NGOs.
- j) Research institutions/universities (Univ of Zim, Chinhoyi University of Technology, Lake Kariba Fisheries).
- k) Tourism industry stakeholders.
- l) Private companies and businesses in Kariba (Padenga, Lake Harvest etc).
- m) Other interested and affected parties: Landowners living in and adjacent to the MZBR.

1.5.2 What methodology was used to involve stakeholders in the process? (e.g. workshops, meetings, consultation with experts)

A consultative approach with the following key stakeholders was adopted throughout the process:

- UNESCO (via e-mail, phone calls & meetings)
- MAB (via e-mail, phone calls & meetings)
- Public institutions (e.g. ZimParks) (via e-mail, phone calls & meetings)
- Academia (workshops)
- Local Communities (workshops)
- Rural District Councils (workshops)
- Traditional Leaders (workshops)
- Urban Councils (workshops)

Stakeholder meetings and workshops were conducted through the periodic review process.

In Oct-Dec 2017, the Zimbabwe National Commission for UNESCO (ZIM NATCOM) held a series of Outreach Awareness Workshops in Mbire, Guruve, Gokwe North, Hurungwe, Makonde and Nyaminyami Districts of the Biosphere Reserve. Details of these are given in the report [MZBR Outreach Awareness Workshops Report Oct-Dec 2017](#).

In July 2019: The Zambezi Society took the opportunity of its attendance at a meeting of the KAZA (Kavango-Zambezi) Carnivore Conservation Coalition in July 2019, to consult with other attending stakeholders regarding the Biosphere Reserve. The following stakeholders responded to a short questionnaire regarding the MZBR:-

PADENGA (Croc Farm - Lake Kariba)
 LAKE HARVEST(Commercial fisheries Lake Kariba)
 ALERT (Lion research)
 ZIMPARKS (Zimbabwe Parks & Wildlife Management Authority)
 CIRAD (Conservation NGO)
 NYAMINYAMI Rural District Council
 MAPP (Conservation NGO)
 ZTA (Zimbabwe Tourism Authority)
 PANTHERA (Conservation NGO)
 NATIONAL PARKS RESCUE (Conservation NGO)
 CARBON GREEN AFRICA (Conservation NGO)
 IAPF (International Anti-Poaching Foundation NGO)

The results of this consultation are included in the summary document: [Data collected from key stakeholders at KAZA meeting July 2019](#)

In October 2019, four **Stakeholder workshops** were held in Nyaminyami, Mbire, Gokwe North and Chinhoyi to validate, adopt and allow for knowledge translation with the different stakeholders. The Chinhoyi workshop brought together all stakeholder representatives from across the MZBR.

Attendance was as follows: Nyaminyami 35; Mbire 15; Gokwe North 41; and Chinhoyi (validation) 23; Consultants and enumerators 15. Officials from the UNESCO National Commission participated at all.

Reports of these workshops are available here:-

[Gokwe North workshop report](#)

[Nyaminyami workshop report](#)

[Mbire workshop report](#)

[Chinhoyi workshop report](#)

Field research & data collection (2019)

In Sept 2019, supported by funding from Germany, a trans-disciplinary research team made up of a Zambezi Society community liaison officer, two senior scientists and five graduate research assistants was assembled to conduct a community data collection exercise. Due to the size of the MZBR and limited resources available, four districts had to be purposely sampled, which are; Mbire, Kariba, Nyaminyami and Gokwe North, (See Figure 5a, b and c). Kariba district was included in the study since it is the only urbanized town with developed business firms that are operational. In order to get a cross sectional appreciation of the different areas in the biosphere reserve, the other three dominantly rural districts were recruited in the study.

Figure 5. a, b and c (below) show the wards that were sampled for primary data collection. Map (a) is the map of Mbire, Map (b) is for Kariba and Nyaminyami and Map (c) is for Gokwe North.

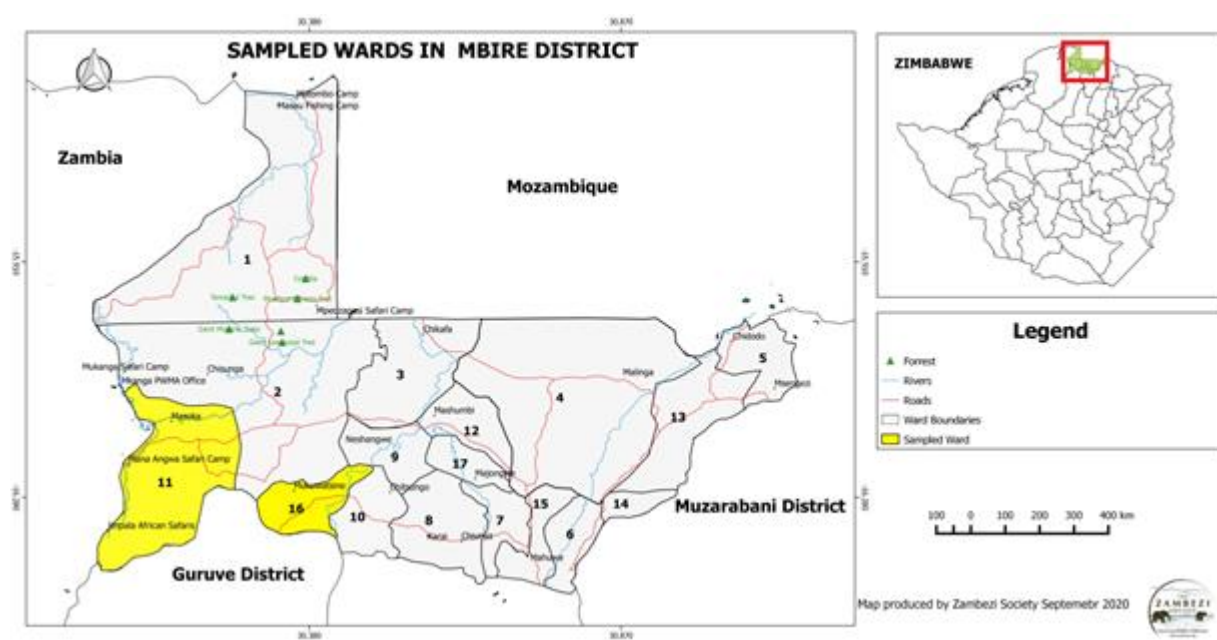


Figure 5a - Sampled wards in Mbire District

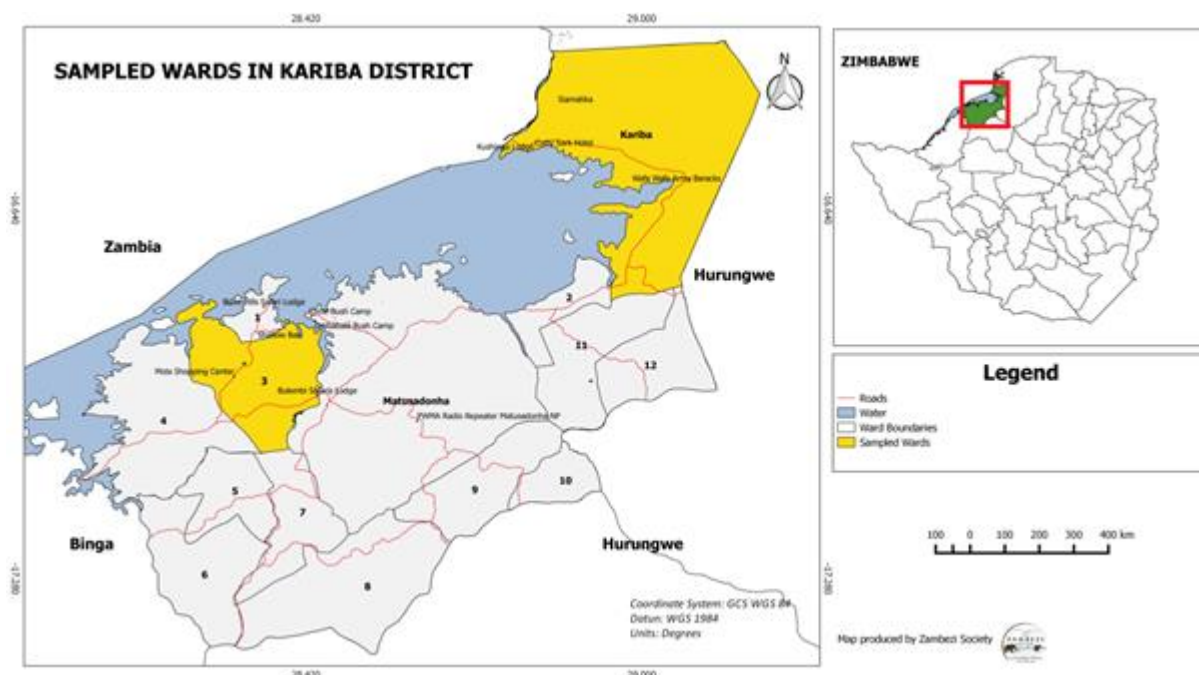


Figure 5b - sampled wards in Kariba & Nyaminyami districts

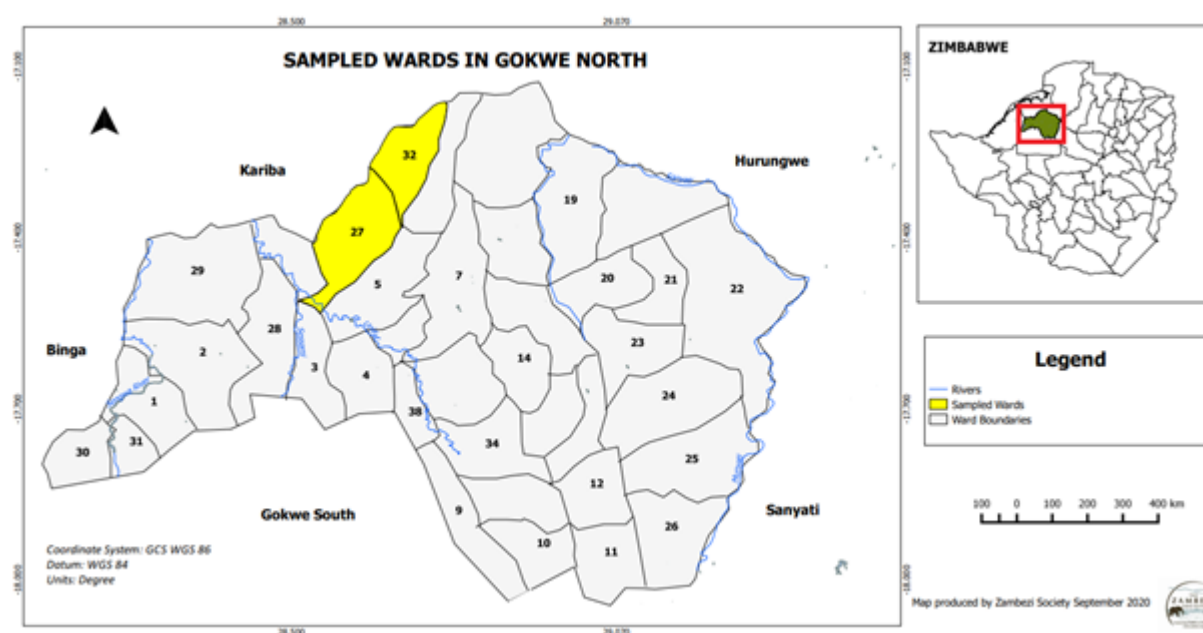


Figure 5c - sampled wards in Gokwe North

Household questionnaire survey: A [Household Survey](#) was conducted with 422 respondents (Table 5 & 6). The questionnaire solicited information on community benefits, community participation, indigenous knowledge systems, environmental education and socio-cultural issues. See: [Household Survey Data Collected](#) and [HOUSEHOLD SURVEY REPORT FOR MZBR REVIEW](#)

Table 5: Distribution of household respondents across the sampled districts

District	Number of household respondents
Mbire	152 +23
Kariba (Rural)	99

Nyaminyami	106
Mbire Rural	23
Kariba (Urban)	19

The sample size included both male and female headed households with males comprising a higher proportion (n=206; 55.83%) of the respondents.

Table 6: Socio-economic status for sampled households

Value	Frequency	Percentage
Gender		
Male	206	56
Female	160	44
Employment status		
Unemployed	165	45
Self employed	127	35
Employed	74	20
Age group		
18-29 years	69	19
30-39 years	117	33
40-49 years	116	32
50-59 years	28	6
60-69 years	26	7
70+ years	10	3
Education		
O Level	224	62
Primary	75	21
None	31	8
A Level	15	4
Diploma	12	3
Degree	9	2

Key informant interviews with experts in the MZBR were also conducted using a specially-designed [KEY INFORMANT GUIDE](#). The interviews targeting local community traditional leaders and elders; local RDC authorities; MAB committee representatives, Zimbabwe Parks and Wildlife Management (ZPWMA) officials with a long history and experience with the functions of the MZBR. Convenient sampling was used since some of the heads of institutions were not present at the time of the study. The selected interviewees included representatives from national and local government agencies and departments, tour operators, kapenta fishing companies, research stations, community leaders and key-traditional practitioners (Mhondoro¹) and non-governmental conservation organisations. Results of these interviews are summarised in the [Report on KEY INFORMANT INTERVIEWS](#)

Periodic Review meetings:

- In Dec 2019: After recommendations from MAB that two experts from The Department of Environmental Affairs (South Africa) be asked to advise on the review process and review the first draft of the report, the experts visited Harare in December 2019 and gave detailed

¹ The lion spirits of the land

feedback which provided comments meant to refine the review report. [Minutes of meetings with the SA team - Dec 2019](#)

- In Nov 2020: A final meeting of key stakeholders was held in Harare to clarify any final amendments to the draft of the 2010 – 2020 Periodic Review before its completion and submission, and to discuss future directions for the Mid-Zambezi Biosphere Reserve. [Minutes of key stakeholders meeting Harare Nov 2020](#)

1.5.3 How many meetings, workshops, etc. occurred throughout the process of conducting this review?

One on one meetings were conducted with private stakeholders, CEOs of RDCs, national authorities and research institutions as part of data collection. Four validation workshops were done to validate and disseminate the findings with relevant stakeholders in the Biosphere Reserve (Sept 2019), including political stakeholders, local healers, those with major, economic activities and those implementing other projects. A meeting with regional MAB representatives was held in Dec 2019 to discuss modalities for the Periodic Review and another with key stakeholders in Harare at the end of the report compilation process in Nov 2020. Attendance registers were signed by all the participants.

1.5.4 Were they well attended, with full and balanced representation? (Describe participation and stakeholders)

The meetings were attended across all sectors including: Traditional leaders and elders; Government officials; NGOs and other civic organisations, Local Government (Rural District Council) officials and representatives of local communities and household heads.

Table 7: Stakeholder meetings attendance (validation workshops)

Type of attendant	Gokwe North	Mbire	Nyaminyami	Chinhoyi
	41	15	35	23
Traditional leaders	0	1	3	4
Government officials	16	7	6	8
NGOs/Civic organisations	4	3	4	3
Local Govt (RDC officials)	21	4	16	8
Local communities household heads	0	0	6	0

2. SIGNIFICANT CHANGES IN THE BIOSPHERE RESERVE DURING THE PAST 10 YEARS:

2.1 Brief summary overview: narrative account of important changes in the local economy, landscapes or habitat use, and other related issues. Note important changes in the institutional arrangements for governance of the biosphere reserve area, and changes (if any) in the coordinating arrangements (including the biosphere reserve organization/coordinator/manager) that provide direction for the biosphere reserve. Identify the role of biosphere reserve organization/coordinator/ manager in initiating or responding to these changes.

The major factor influencing changes in local economies, land use and habitats within the MZBR since its establishment in 2010 has been Zimbabwe's macro-economic crisis and corresponding increases in poverty among rural communities. The onset of the COVID-19 pandemic in 2020, and its associated economic impacts, have made this situation far worse.

Significant changes are summarised in the sections below:

The ability of the Biosphere Reserve organisation to influence any of these changes has been considerably handicapped by the following:

- There appears to be little shared understanding about the value of a global UNESCO Biosphere Reserve designation. This has resulted in very little “buy in” from authorities currently responsible for the management of the MZBR area and from other stakeholders (in some cases, almost active resistance to the concept).
- The Reserve has no legislative standing in the statutes of Zimbabwe as yet (a [Draft Statutory Instrument](#) was prepared by the MAB Committee in 2017 and submitted to ZIM NATCOM for onward transmission to the Ministry of Environment, but no progress has been made since).
- There has been no progress in the creation of a MZBR management plan to provide direction.
- No funding appears to have been made available/accessed for any of the above.
- Absence of a coordinating structure and “point person” to lead the process.

2.1.1. Changes in the local economy (within the MZRB landscape)

KARIBA:

Kariba is the only truly urban area within the MZBR landscape. Formerly a centre for **tourism**, the town's tourism revenues have suffered in the past two decades in comparison to the popular Victoria Falls due to a) Zimbabwe's economic challenges; b) no affordable scheduled air access for regional and international visitors due to lack of an “open skies” airline policy and the restricted size of the Kariba airport runway. Although there is a plan to build a new and bigger airport for Kariba to enable larger aircraft to land, lack of national funds has prevented this happening. The town's accommodation options were reduced to only one major resort (Caribbea Bay), one small hotel (Cutty Sark) and a number of private lodges and guest houses. However, in 2019 a safari company invested in the development of two new 34-bed and 26-bed tourism facilities on Mica Point. One event which attracts significant numbers of local and regional visitors to Kariba is the annual Kariba Invitation Tiger Fishing Tournament (KITFT) held each year in October.

Kariba has seen **population growth** of 2% per year mainly due to in-migration because of increased commercial activity. The town now boasts Africa's largest crocodile farming enterprise (Padenga), Lake Harvest and other large commercial fisheries, and the 300 Megawatt expansion of the Kariba South Bank hydro-electric power facility to provide additional power on the Zimbabwe side of the Zambezi River. There has been a need for housing expansion (new developments at Kasese and Baobab Ridge). This has resulted in increasing pressure on water supply, quality and sewerage disposal systems. Wildlife movement corridors are being squeezed and sometimes blocked,

resulting in increased incidents of human wildlife conflict. There is also increased snaring and bushmeat poaching being recorded by local conservation NGOs working in the area.

LAKE KARIBA:

Decline in kapenta fisheries catch due largely to:

- Overfishing (excess of fishing rigs, many from Zambia), aggravated since 2010 by increases in kapenta fishing quotas and permits in response to political and economic crises.
- Reducing nutrient levels aggravated by low lake levels, frequent droughts and erratic rainfall (attributed to climate change).
- Changes in thermocline and primary plankton production, attributed to climate change (Mahere, Chifamba and Mutsambiwa 2014).

Traditional coal-fired electricity generation from Hwange has declined and resulted in the need for a **considerable increase in the amount of electricity required from Kariba Hydro-Electric scheme**. Two additional turbines have been installed on the Zimbabwe side (300 Mega Watts). They became operational in 2019. Zambia has also increased their generation capacity during this review period. This has meant bigger water offtakes and a decline in lake levels (which is a problem when there are droughts). Low lake levels mean less nutrients for fish – hence declining fish populations. Invasion of **alien freshwater crayfish** (apparently released from a farm in Zambia) produced a small income-generating market (for ZimParks and for the local economy as the fish were sold to restaurants in Harare), but the population now appears to be declining.



Kapenta boats on Lake Kariba. Photo by Zambezi Society

CHIRUNDU:

The static human population of the border town of Chirundu, currently estimated at 4,000, is significantly increased by the continual influx of transitory drivers of **long-haul trucks** using the Chirundu bridge/border to cross between Zimbabwe and Zambia. The number of these trucks has increased hugely in the 2010 - 2020 period, and they queue (sometimes for several days) to cross the border. Lack of town planning has led to **haphazard development** of trucking stations along the main road, to accommodate these vehicles and their drivers. Some of these stations have been constructed with little regard to existing wildlife corridors and pose a potential threat to nearby natural springs and salt-pans with important wetland ecology. There are increasing problems of health and sanitation, waste, and increasing human wildlife conflict as well as snaring/poaching.



Chirundu Bridges and Hippos. Photo by Wild Zambezi

CORE AREAS:

Tourism since 2010 has brought **increased income** to Mana Pools which attracts international tourists – less so in Matusadona as deteriorating road access decreased drive-in tourism. New tourism developments in Mana Pools since 2010 include 1 safari lodge; 3 new ‘temporary extended camps’; 5 new permanent camps (Nyamatusi, Ingwe, Chitembe, Nyamawani and Kasawi). Each of these developments has resulted in an influx of staff members and an increase in traffic during safari season. Since 2010, there has been an increase of ZimParks staffing numbers at Nyamepi station (many of whom have been joined by their families) and associated increased requirements for housing, facilities (medical, recreational etc) food/bushmeat (ration hunting). Low government salaries can result in increase in meat poaching for commercial purposes (as alternative income). Matusadona has suffered from ZimParks having insufficient funds to manage the Park in the past decade. In November 2019, ZimParks entered into a partnership with African Parks, for the co-management of Matusadona National Park.

Fish and wildlife poaching has been held at bay to some extent by the increasing involvement of conservation NGOs until 2019, when African Parks took over the management of the Park in partnership with ZimParks. **Illegal mining activities**, especially alluvial gold panning along the rivers of the Matusadona (Sanyati/Ume) and in the southern escarpment rivers of Mana Pools is a growing environmental problem.

BUFFER-ZONES HUNTING AREAS:

Consumptive tourism (hunting) has traditionally been a major revenue earner for ZimParks, but there has been a **decrease in hunting revenue** in recent years, and a resultant loss of jobs. The main cause of this is the USA’s ban on the importation of hunting trophies, which has reduced hunting tourism to Zimbabwe, but there has also been a **reduction of wildlife populations in some hunting areas** (e.g. Doma, Charara, Sapi) due to a) decades of lack of strict controls over hunting quotas; and b) increased poaching due to lack of funding for ZimParks to carry out effective patrolling and controls. **SAPI safari area** (previously a hunting area) was leased to Great Plains Conservation as a non-hunting reserve for 25 years starting in 2016 (via an MOU). Similarly **Rifa Safari Area** was leased to Hemmersbach Rhino Force in 2018 for 25 years for conversion to non-hunting and for a potential rhino reintroduction project in the long term. **Illegal mining activities**, especially alluvial gold panning, along the rivers that feed the Zambezi Valley are encroaching into the buffer zones and are in danger of creating huge environmental impact. More worrying is the

granting of **'legal' mining concessions** within these Buffer Zone areas where work is carried out, without proper adherence to strict Environmental Impact Assessment processes. Similarly, licences have been granted for 'sand-mining' or 'de-siltation' exercises along river beds (e.g. in the Gache Gache River at the eastern end of Lake Kariba, and the Angwa River at the eastern boundary of Chewore Safari Area). These activities can easily be fronts for the mining for gold or other minerals, with associated potential for environmental destruction.

BUFFER-TRANSITIONAL ZONES (communal land/agricultural):

These areas have seen an increase in population and in-migration from cities due to poverty levels. Government has provided incentives for a huge increase in **'cash crop' agriculture e.g. tobacco** which is more resistant to the droughts that seem to be occurring with climate change. Results – habitat change (see below). **Snaring/bushmeat/fish poaching**, especially on the edges of the Buffer Zones/National Parks has increased in some areas due to absence of controls by the regulatory authorities. An exception to this is in the Hurungwe District, where the influence and activities of the International Anti-Poaching Foundation's Akashinga Women's Initiative in the past decade have produced jobs for women and have had an effect on reducing poaching and increasing arrests for wildlife crime offenses. **Illegal mining activities** (as described above for the Core Areas and Buffer Zone) also affect the Transitional Zone, and similarly the granting of **'legal' mining** rights which are carried out without due diligence of proper EIAs is a worry.



Tobacco Crop. Photo by African Wildlife Foundation

2.1.2 Habitat changes and deforestation

- a) **Forests in the MZBR are increasingly dominated by shrubs as opposed to trees.**
Reasons for this:-

CORE AREAS (National Parks/Tourism) & BUFFER AREAS (Hunting):

Lack of control of veld fires in all ZimParks controlled areas. Elephant damage in the alluvial terrace areas of Mana Pools due to influx of elephant population into the riverine areas along the Zambezi in dry months of the year has almost entirely removed the shrub layer and, during years of drought (2019), removed even all the grasses, leaving a dustbowl. The vegetation has a chance to recover annually if the rainy season is sufficient, but sustained years of elephant damage, coupled with climate change (less rainfall) is already showing considerable changes to the alluvial habitat (loss of baobabs (*Adansonia digitata*), lack of small-growth *Faidherbia Albidas* etc).

BUFFER & TRANSITIONAL ZONES (communal land/agricultural):

The change from traditional food crop agriculture to small-holder informal agriculture and an increase in poverty levels has resulted in more profitable 'cash crops' being grown, the production of which often has significant environmental impact e.g. tobacco. In Hurungwe communal area, for example, the number of tobacco farmers increased from 204 in 2008 to 2106 in 2017, with only very marginal benefit to growers (ref: Zambezi Society research). Land clearance for tobacco farming activities (and the need for wood to fuel tobacco curing barns) has resulted in considerable loss of miombo forests especially in the buffer zones adjacent to National Park areas. Traditional leaders report that wood fuel poaching is also on the increase because of poverty (it is often sold to outside tobacco farmers for cash). River siltation is increasing as a result of land clearance and deforestation. The loss of certain tree species growing on rocky outcrops is having a detrimental effect on traditional practices (e.g. rain-making ceremonies), and is exposing rocks and valleys to erosion.

Consultations with government officers, district councilors, traditional leaders etc in community areas, revealed that government-run programmes designed to implement sustainable conservation practices in communal areas (e.g. educating farmers about tree preservation and forest sustainability, promoting community gardening, producing sustainable crops etc) are failing due to lack of funding and lack of monitoring. Poverty makes people reluctant to undertake longer-term environmentally sensitive practices, preferring the quick-fix (environmentally damaging) solutions. Lack of land tenure in communal land areas is also a problem.

Two private-sector reforestation initiatives (Kariba REDD+ and 'My Trees' Project) are achieving some success. The Kariba REDD+ project is encouraging tobacco farmers to use alternative sources of fuel for tobacco curing. REDD also provides limited funding and technical support for local community gardens and conservation agriculture initiatives. My Trees aims to replant, restore, and protect indigenous forest in tobacco growing areas, and provide alternative sources of income to affected communities, emphasising employment for women.



Chopped Tree (Tobacco Deforestation). Photo by African Wildlife Foundation

URBAN AREAS

As populations have expanded in Kariba (permanent) and Chirundu (transitory), there has been an increase in demand for firewood for fuel and a resulting effect on deforestation of mopane-dominated woodland in areas surrounding both urban settlements.

b) **Siltation of perennial springs and deep pools in major rivers**

This problem is occurring because of agricultural practices as described above affecting river systems downstream. Springs and pools in the rivers within the two core wildlife areas of the MZBR have traditionally been important sources of inland water for wildlife in these areas. However, as these dry up earlier each year due to siltation, animals are forced away from the interior to seek water at the Zambezi River (in Mana Pools) or Lake Kariba (in Matusadona) where the increasing density (particularly of elephant) is having detrimental effects on alluvial and riverine habitat.

2.1.3. **Poaching and illegal harvesting of resources**

- Resources for Zimbabwe's law enforcement authorities (ZimParks, Police etc) to carry out their activities efficiently in the MZBR have been short for decades. As a result, illegal hunting (both commercial and subsistence) remained largely unchecked until surveys carried out as part of the Great Elephant Census, published in 2014, revealed a 40% decrease in elephant populations in the Mid-Zambezi Valley since 2001 and a corresponding 75% decrease in the Sebungwe area at the western (Matusadona) end of the MZBR. (Ref: [National Summary of Aerial Survey Results for Elephant in Zimbabwe: 2014](#) - Kevin Dunham Oct 2015 for Great Elephant Census)
- Acting on the results of this census, the Zimbabwe Parks Authority established a collaborative working arrangement with private-sector NGOs, and together they developed a series of 5-year Regional and National Elephant Management Plans starting in 2015. (Ref: [Zimbabwe National Elephant Management Plan \(2015-2020\)](#)).

These put in place a collaborative public/private-sector framework to strengthen anti-poaching and law-enforcement activities, and to tighten up on the legal processes to ensure more efficient, effective and appropriate sentencing for illegal wildlife trade offenders through the courts.

It is important to differentiate between commercial poaching (for the illegal wildlife trade in ivory, skins, scales, bones etc) which is usually carried out by organised syndicates often involving nationals from neighbouring countries e.g. Zambia or Mozambique and subsistence poaching (for bushmeat and fish) which is usually carried out by local communities living adjacent to wildlife land.

Public-sector (ZimParks) anti-poaching activities reinforced by the new collaborative framework with the private sector introduced since 2015 have shown considerably increased effectiveness throughout the MZBR areas, in both Core and Buffer Zones. The construction of the central ZAVARU (Zambezi Valley Anti-Poaching Reaction Unit) base in southern Mana Pools in 2018, with funding assistance from the private sector, has considerably strengthened capacity for anti-poaching operations.



ZimParks ZAVARU Base. Photo by Tashinga Initiative

In addition, from Matusadona in the west, to Dande in the east, private conservation organisations (NGOs or tour operations) are providing material, financial and food assistance to rangers, and equipment and logistical support to increase operational efficiencies e.g. quicker response to poaching incursions, more successful outcomes of contacts (arrests etc).

A parallel private/public-sector collaborative framework to tighten up on law-enforcement procedures was also introduced in 2015. Together, these two approaches have resulted in game-changing successes in helping to curtail the illegal wildlife trade in Zimbabwe. In 2019, 70 illegal wildlife trade cases involving 152 individuals took place in Zimbabwe and 62% of these cases were successfully concluded, with 29 individuals being given maximum sentences of 9 years (for illegal possession of ivory, pangolin or rhino horn). Correspondingly, between 2016 and 2017, according to wildlife conservation stakeholders, including the Zambezi Society, the numbers of elephants known to have

been poached for their ivory in the MZBR area dropped by 61% and by a further 36% between 2017 and 2018. During 2019 only a handful of known elephant poaching cases occurred.

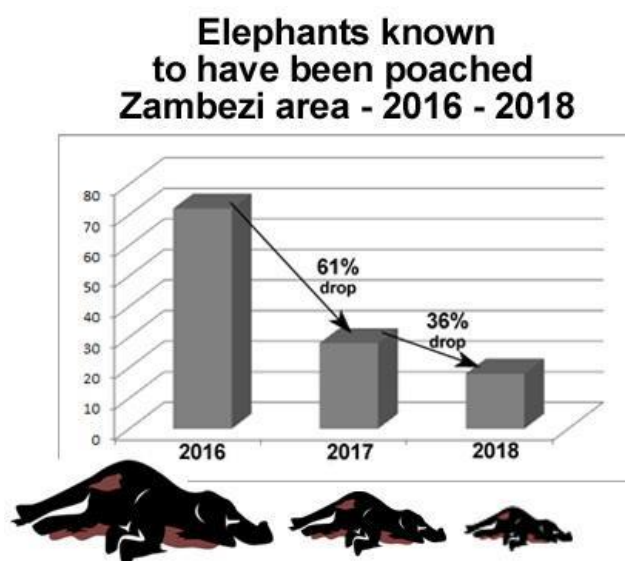


Image: Decrease in elephant poaching since the implementation of collaborative Elephant Management Plans.

Subsistence bushmeat and fish poaching, however, appear to be on the increase - fueled by increasing economic hardships faced by rural communities over the past decade and exacerbated by the COVID-19 pandemic in 2020. The worst affected wildlife areas are those which have settled lands immediately adjacent - in particular the Gache Gache-Charara-Kariba-Hurungwe 'corridor' which links the MZBR's two Core Areas of Matusadona and Mana Pools. The poachers come from the surrounding local communities and set wire snares to entrap various species from small antelopes up to buffalo, or hunt with packs of dogs and spears rather than traditional firearms. Skins and hides discovered in sewerage and latrine systems indicate local involvement in this type of poaching.

Fish poaching with illegal nets on Lake Kariba and along the Zambezi River has long been prevalent and a cause of concern regarding the sustainability of populations of tigerfish, tilapia and other species.

Since 2010, ZimParks efforts to counter bushmeat and fish poaching activities in and around Bumi Hills, Matusadona, Sanyati and Gache Gache on Lake Kariba and along the Zambezi River between Kariba Dam and Kanyemba have been considerably strengthened by conservation NGO and tour operator assistance.

The Matusadona Anti-Poaching Project (MAPP), which has operated in the area since 2013 provides the following information:-

The fish poachers are Zambian and Zimbabwean Nationals. The former operate out of SIAVONGA and its surrounds. They are equipped with motorised banana boats and generally operate in teams of four. Their operations are commercial. The Zimbabweans are less well equipped and come from the communal lands bordering the National Parks. The common practice by both Nationals is to cordon off bays and drive the fish into illegal twine nets with the use of a 'beating' stick known as DOMBOLO and this activity is performed at night. Twine nets are the most common by far. During the spawning season, nets are placed below the water surface to avoid detection and intermittently along the main river systems. Given that these river systems reach well into Zimbabwean territory, the Zambians generally avoid them. All species

of fish are targeted and the most vulnerable are tiger fish in the spawning season between November and March. The fish are marketed as both fresh fish and dried.

Annually ZPWMA with the assistance of MAPP arrests in excess of 100 poachers, the bulk of them Zimbabweans. Zambians (10 TO 15%) are handed over to the police in Kariba and processed at the local court where they generally receive prison sentences of between 4 and 8 months for first time offenders. Their docket includes breaches of National boundaries, illegal vessels and illegal fishing. Their vessels are forfeited to the state. The Zimbabweans are generally fined as first time offenders and handed over to the police as repeat offenders. The fines are not substantial and hardly a deterrent. Hundreds of kilometers of twine and cotton nets are recovered annually in this area, and dozens of bark boats and other homemade fishing vessels.

In a country where unemployment is in the region of 90%, the demand for cheap sources of protein is seemingly insatiable...Unemployed people have moved into areas proximate to the lake for the very purpose of fish poaching. The poaching pressure is particularly bad west of the Sanyati river eastern boundary of the Matusadona National Park, where law enforcement is weak and where the lake narrows.



Lake Kariba Sanyati Gorge & Matusadona shoreline from the air. Photo by Wild Zambezi

The efforts of MAPP were joined by the Zambezi Society's new Charara Wildlife Recovery initiative created in 2019 to reinforce protection of the Charara/Hurungwe 'corridor' area. Its aim is to reduce wildlife crime, bushmeat poaching and illegal fishing activity particularly in the area east of the Sanyati River, as mentioned above.

Conservation Lower Zambezi (CLZ) (a Zambian-based NGO which works with partners on both sides of the Zambezi River to protect wildlife and fishing resources from the Kariba Dam downstream to Kanyemba on the border with Mozambique) reports that, as on Lake Kariba, anti-poaching patrols fight a constant battle with fishermen using illegal twine netting. (Ref: [Lower Zambezi Fisheries Management Plan - Findings and recommendations, November 2019](#)).

Where gill nets are used, the fishing offtakes are more sustainable. CLZ reports that some 20,000 people benefit from fish resources along the Zambezi River. Annually, subsistence fishing in this area extracts around 700 tonnes of fish during a 9-month fishing season (fishing is prohibited for 3

months of the breeding season). Artisanal fishing extracts around 900 tonnes per year (9 months fishing). Recreational fishing results in small off-takes, but is considered a major threat as large breeding fish are usually extracted for sport fishing, despite the fact that the angling tourism industry on both sides of the Zambezi River is working hard to promote awareness of the need for Catch and Release policies.

However, the economic challenges referred to earlier are ongoing and, bushmeat and fish poaching, which produces an easily-accessible source of protein, is likely to be a continuing problem in the face of increasing poverty among rural communities living adjacent to the MZBR.

Extraction of mineral resources via illegal mining activities (e.g. alluvial gold panning) and 'legal' mining activities carried out without proper adherence to Environmental Impact Laws are a threat in all areas of the MZBR, particularly along the major river tributaries of the Zambezi. (See Section 2.1 Para 1 above).

2.1.4. Human/Wildlife Conflict

Research indicates that there is an increase in Human-Wildlife Conflict (HWC) throughout the MZBR, with HWC cases rising due to a growing human population demanding increased land area for settlement. Newly-settled land often blocks animal corridors, or entices wildlife species like baboons or elephants to raid gardens or crops.

In some cases, HWC cases result from illegal hunting activities (e.g. snare use in Mbire District). Despite these challenges, some wards within the MZBR such as Masoka Ward 11, have managed to develop a positive way of living in harmony with wildlife. This appears to be as a result of the awareness education about the value of wildlife provided by a long on-going and successful CAMPFIRE programme in Masoka.

Solutions to minimize HWC solutions are underway based on research findings. Some communities (e.g. the people in Nyaminyami district) feel that they are being brutalized in an inhumane manner, as they do not possess any sophisticated hunting equipment with which to defend themselves from wild animals.

The setting aside of animal corridors to allow wildlife access is extremely important, particularly in heavily settled urban areas like Lake Kariba and Chirundu. Kariba Town Council is considering game corridors in their planning processes, and, with the assistance of active local conservation NGOs, has helped to mitigate HWC to some extent by erecting an electric fence round their waste disposal dump site to reduce its attraction for elephants and other scavenging animals.

Since 2017, ZPWMA (ZimParks) in Kariba have also undertaken an ongoing 'capture and translocate' program of baboons in an attempt to reduce interaction with urban dwellers in the town.

At Chirundu the combination of lack of facilities and inadequate planning fails to cater sufficiently for the proximity of wildlife and a steadily-increasing influx of itinerant long-haul trucks and their drivers waiting to cross the border into Zambia. The result is lack of waste disposal facilities, insanitary conditions and an increase in incidents of HWC as animals are drawn to the town to scavenge. Furthermore the requirement for space to accommodate parking of overnight trucks has resulted in large areas of natural mopane woodland wildlife habitat being cleared even at some distance from the town, thus blocking traditional wildlife corridors leading to nearby watering sources and forcing wildlife into closer proximity with people.

Some districts have adopted land use plans including mechanisms for dealing with HWC cases. For example, in 2011, Mbire District adopted the 'Mbire Natural Resources Management Plan' in 2019, they adopted the Mbire land use plan to run from 2020 onwards. Inclusive in the land use plan are sacred sites, conservancies, connectivity of corridors, identification of trans boundary corridors and

trying to protect the communities from HWC. Local Game Scouts are also now trained at Mshandike Sanctuary and participate in Problem Animal Control (PAC) in trying to reduce HWC.

2.1.5. URBAN environmental changes/Issues (Kariba Town and Chirundu)

- **Expansion of Fish and Crocodile Farming in the past 10 years**
Waste disposal from the expanding Padenga Crocodile Farm is a concern in terms of its environmental impact.
- **Pollution of Lake Kariba**
An increasing number of Kapenta fishing rigs are causing increased petroleum pollution, littering and noise pollution.
- **Waste Disposal (Kariba)**
Sewerage has become a big problem for Kariba Town. Municipal sewage is being pumped into the lake. Sewer pipes are often blocked by poachers disposing of hides and heads etc. The Kariba rubbish dump (although recently fenced to keep out wildlife) needs attention in terms of separating waste out for recycling and re-use. There is a proliferation of rubbish washed up from the lake onto shorelines around Kariba and in the Matusadona National Park.



The fence around Kariba Rubbish Dump. Photo by KAWFT

- **Waste Disposal (Chirundu)**
This is a big problem because of the presence of the long-haul trucks held stationary at the border for days. Drivers use the town as a rubbish dump and wild animals raid everything.



Elephant eating rubbish, Chirundu. Photo by Zambezi Society

The Marara Recycling Project - a community initiative run by a local womens' group, and funded by NGO Hemmersbach Rhino Force has made some progress in sorting rubbish for recycling.



Hemmersbach Rhino Force Marara Waste Project, Chirundu. Photo by Zambezi Valley Conservation Network

But a long-term solution to the waste problem in Chirundu has caused frustration because town-planning decisions for Chirundu are having to be made in Harare and this causes huge delays.

- **Urban livelihood strategies**

In urban areas, particularly Kariba, residents are establishing gardens along stream banks to grow vegetables for family consumption as economic hardships bite. This attracts wildlife and can result in human-wildlife conflict issues.

2.1.6. RURAL Environmental Changes/Issues

- **Rapidly increasing rural population**

This is putting increased pressure on limited communal land (which is often in marginal areas unsuitable for agriculture). This increases the threat of land degradation and destruction of natural habitats in neighbouring wildlife areas and increases the threat of subsistence bushmeat poaching and illegal fishing.

- **CAMPFIRE programme**

A 2015 EU-funded review of this community-based wildlife management programme revealed that the CAMPFIRE programme is struggling to succeed in areas where direct payment systems (to communities at Ward CAMPFIRE Committee level) are not in place. Mbire district is an exception to this. According to CAMPFIRE, the decrease in trophy hunting in recent years has left a huge gap in the organisation's funding model, and has resulted in loss of jobs. Non-hunting tourism seldom fills this gap in community areas. Diversification of income generating models (i.e. beekeeping/horticulture/etc) is being explored for alternative livelihoods. A new framework for the CAMPFIRE programme has been developed and approved and will be implemented from 2021.

- **Rural livelihood strategies**

Some rural communities have started harvesting natural Zambezi Valley forest products e.g. Masawu fruits and Mawuyu (Baobab) powder for sale in the cities, or locally at markets or fishing camps e.g. at Kanyemba on the Zambezi River and Gache Gache on Lake Kariba.

- **Uncontrolled veld fires** are often set by poachers. This is particularly problematic in transboundary areas e.g. on the border with Mozambique (extreme eastern end of the MZBR), where it is difficult to create transboundary fire guards.

- **Stream bank cultivation and river siltation**

An increase in uncontrolled cultivation along stream banks has resulted in siltation, the shrinking of rivers and a reduction in water supply for rural communities. Many perennial pools and water sources along the rivers of the Zambezi Valley (e.g. at Mushumbi Pools, Mana Angwa, Chitake Springs etc) have changed and are drying up. These were all used by wild animals as water sources, some by people, and some were of spiritual significance and inhabited by traditional "svikiro" (spirit mediums). With these water sources drying up, wildlife is forced to encroach into community lands in search of water, or people seek out water sources in wildlife areas. This increases the chances of HWC.

- **Mining**

A high gold price in recent years has resulted in a proliferation of a) artisanal and b) commercial alluvial gold-panning or mining in river systems in rural areas of the Zambezi

Valley. While impoverished communities rush to reap the benefits of alluvial gold deposits, the mining practices employed are extremely damaging to the environment as they disturb riverine biodiversity and habitats. Large numbers of people invade previously unsettled areas, and live in unsanitary conditions, with woodland habitat destroyed for firewood and wildlife poached for bushmeat.

A more recent (and worrying development) is a government-sanctioned 'desiltation' programme proposed along the lower reaches of the Angwa River near Mana Angwa, on the border of the Chewore Safari Area which is part of the World Heritage Site and lies within the MZBR. It is suspected that the extraction of gold and other minerals will take place under the guise of this 'desiltation'. This is an area of high biodiversity, cultural and archaeological value, where any such mining activity would pose considerable threats.

2.1.7. Changes/threats to biodiversity

(Note, some of these have been mentioned in the sections above)

- **Poaching** (commercial and bushmeat) throughout the MZBR - affecting wildlife populations particularly vulnerable species like the Pangolin.
- **Fishing with illegal nets** - Kariba and Zambezi River - reducing numbers of Tigerfish and other fish species.
- **Pollution** from commercial industry (e.g. crocodile farming, fishing rigs) or agriculture (cotton-growing).
- **Mining** (alluvial mining gold panning and 'desiltation' in the rivers of the MZBR, including the Angwa, which forms the eastern boundary of the World Heritage Site (Chewore Safari Area) - potential destruction of alluvial and riverine habitat, disturbance of rare bird species like the African Pitta, destruction of archeological sites and artefacts e.g. dinosaur fossil beds.
- **Oil & gas exploration** - this threatens parts of the Dande Safari area at the eastern end of the MZBR.
- **Tourism development** - if not carefully planned and controlled in a fragile ecosystem like the 'floodplain' alluvial terraces of Mana Pools and along other Zambezi River areas, there is a danger that tourism, while it provides much-needed income for Park management, can also provide threats to biodiversity. In Mana Pools there is already some evidence that increasing tourism developments and presence of larger numbers of people is restricting wildlife movement to limited areas resulting in habitat destruction. Presence of too many tourists at the height of the safari season may be having detrimental effects on wildlife behaviour (e.g. disruption of wild dogs at dens and kills can lead to the pack becoming vulnerable to predators (as per observations by conservation NGOs)). More frequent use of tourist transfer boats on the Zambezi River can cause riverbank erosion, loss of riverine vegetation and disturbance of bird nesting sites on river sandbanks through wave action.
- **Agricultural development** - destruction and pollution of natural habitats to grow cash crops like cotton and tobacco and resulting in deforestation of natural habitats for tobacco curing.
- **Invasive species** - non-native and alien (e.g. water hyacinth in parts of Lake Kariba and the Zambezi River and the old alluvial channels of Mana Pools).

2.2 Updated background information about the biosphere reserve:

The Middle-Zambezi Biosphere Reserve is the first within Zimbabwe, the only others in the SADC region being in Malawi and South Africa.

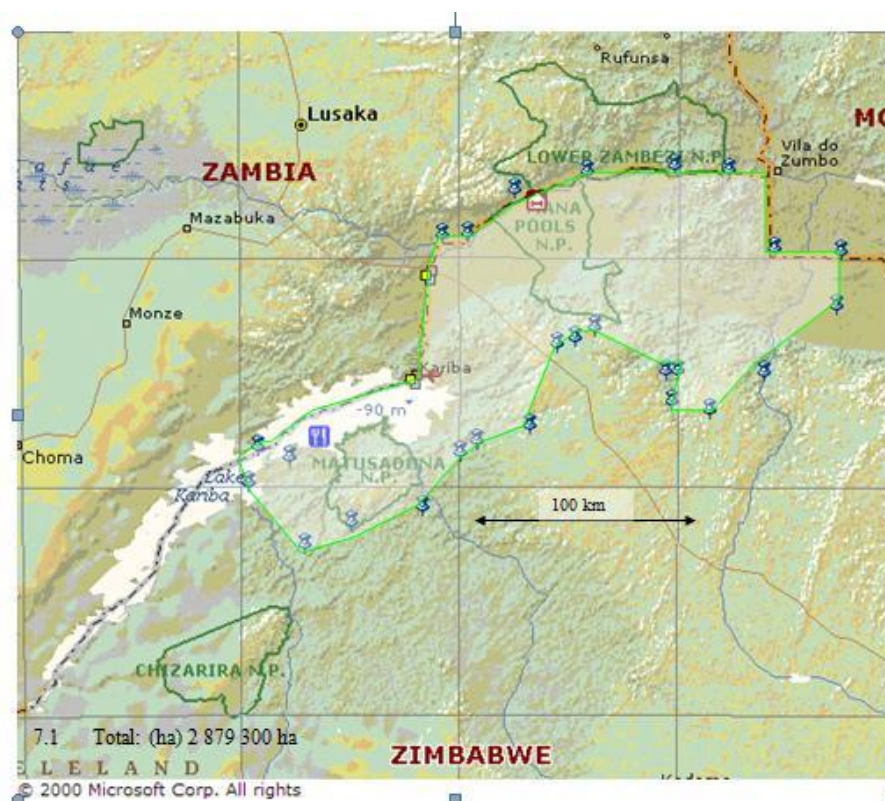


Figure 6a: Map included in the original application for the Middle Zambezi Biosphere Reserve's designation (for comparison purposes only).

Since designation in 2010, the total area of the MZBR has now been re-estimated more accurately at approx 44,005 sq km. This is divided into the following:

CORE AREAS: Matusadona National Park (1407 sq km) and Mana Pools National Park (2196 sq km).

BUFFER ZONE: Safari Areas (hunting), Private Reserves (non-hunting), the towns of Kariba, Chirundu and Makuti (all contained within wildlife areas) and some settled areas under community wildlife management or agriculture. The total area of the Buffer Zone is 26,307 sq km.

TRANSITION ZONE: The Transition Zone in the original application for the Biosphere Reserve designation did not have clearly defined boundaries mapped. This was subsequently done in a revised map (see Figure 6b below).

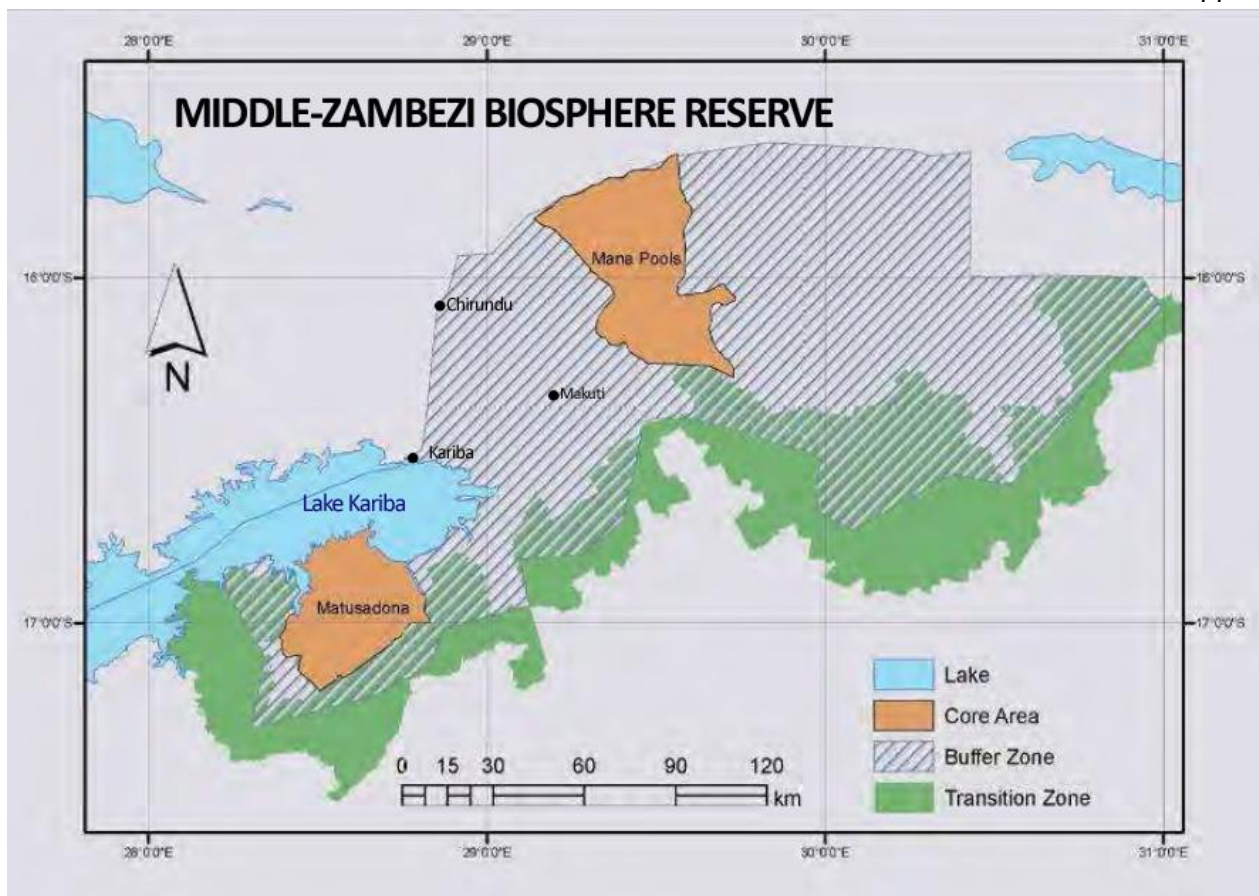


Figure 6b: Revised original Middle Zambezi Biosphere Reserve Map defining the Transition Zone.

The Transition Zone comprises largely settled lands under CAMPFIRE (community-based wildlife management) or communal subsistence agriculture, and extends for a total of 14,095 sq km. Of this total area, 3,618 sq kms extends beyond the current mapped area of the Buffer Zone and the remaining 10,477 sq kms overlaps the mapped area of the Buffer Zone. This anomaly requires a future adjustment to be made to the Zonation boundaries and is addressed in the suggested changes section below. The Transition Zone, as mapped, includes community areas where livelihoods depend either on wildlife resources or semi-subsistence agricultural practices some of which are currently having significant (and often detrimental) environmental impacts on the natural woodland areas of the Biosphere Reserve's Buffer and Core Zones (e.g. the growing and curing of tobacco, as described elsewhere in this report).

Since 2010, background information pertaining to the different areas of the Biosphere Reserve as described in the original application document has changed as follows:-

- a. **Kavango/Zambezi (KAZA) transfrontier area:** The western end of the Biosphere (including Matusadona NP) has now been included in the Kavango/Zambezi (KAZA) transfrontier area (see map below):

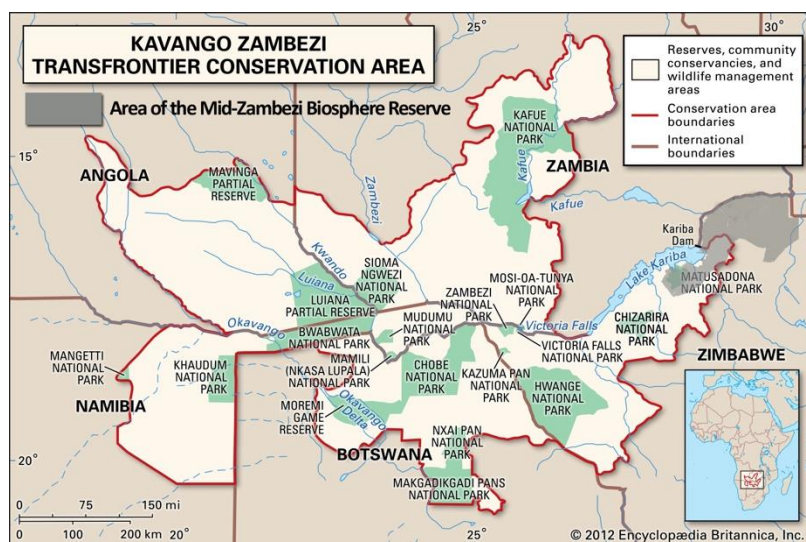


Figure 7: Map showing overlap of the Middle Zambezi Biosphere Reserve and the KAZA Transfrontier Conservation Area.

- b. **Lower Zambezi Transfrontier Conservation Area:** The Mana Pools Core Area of the MZBR together with the Lower Zambezi National Park across the Zambezi River in Zambia form the new Lower Zambezi Transfrontier Conservation Area (see map Figure 8 below). The official declaration of this area is imminent. It was due in early 2020, but was delayed by the COVID-19 Lockdown.

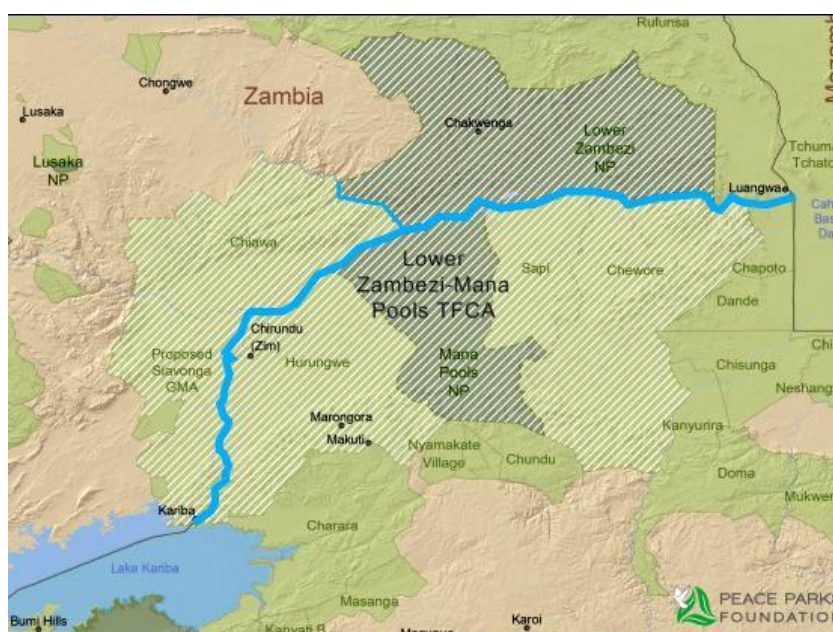


Figure 8: Map showing location of the proposed Lower Zambezi Transfrontier Conservation Area (shaded in grey)

- c. **Matusadona National Park:** On 1 November 2019, the Government of Zimbabwe and conservation NGO **African Parks** signed a 20-year co-management agreement for this Park to implement management strategies, secure the park and restore wildlife populations, unlocking its ecological, social and economic value, enabling communities to derive long-term benefits.

- d. **The Sapi Safari Area and the Rifa Safari Area** are now private non-hunting reserves run by private operators under 25-year concession MOUs in partnership with ZWPMA (ZimParks). The changes of land-use occurred in 2016 and 2017 respectively (see map below). It is too early to say what the outcome of these changes are.



Figure 9: Map showing location of Sapi and Rifa non-hunting Safari Areas

Updated map of the Biosphere Reserve

Below are updated maps of the Middle-Zambezi Biosphere Reserve showing:

- a) The topography and land-use demarcations
- b) Core, Buffer and Transition Zones and extent of human settlement therein

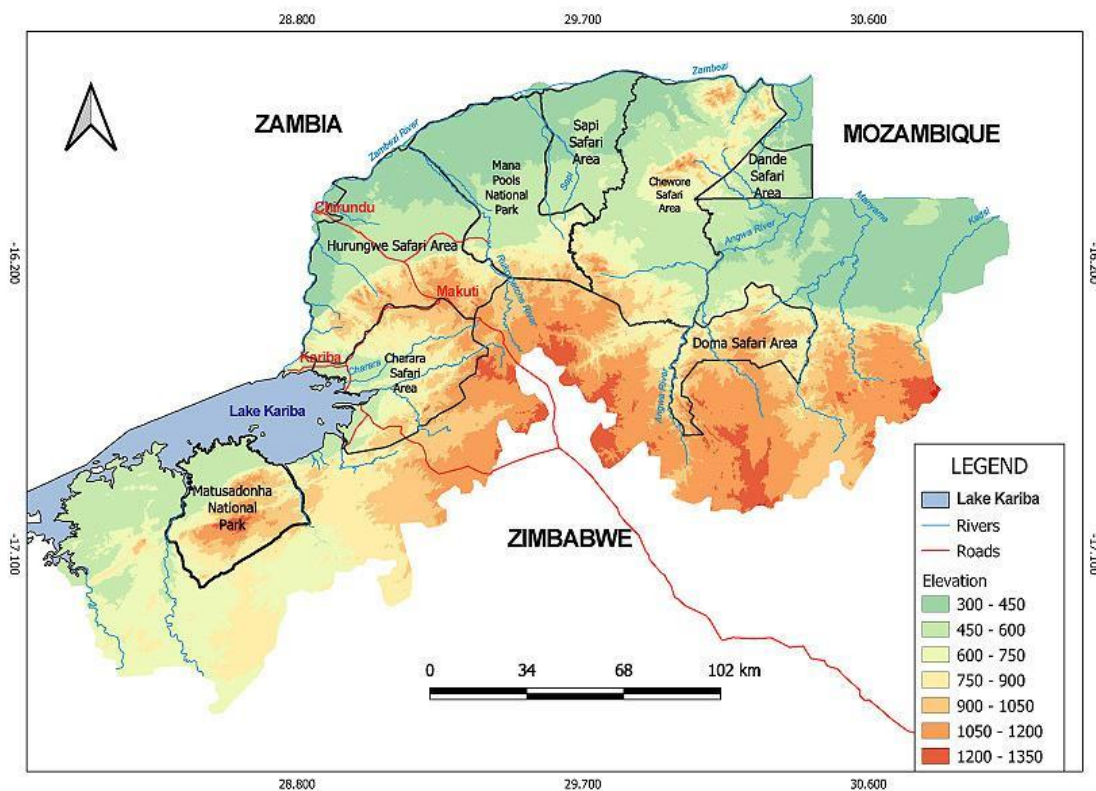


Figure 10: Topographical map of the Middle Zambezi Biosphere Reserve showing major geographical features and land-use demarcations.

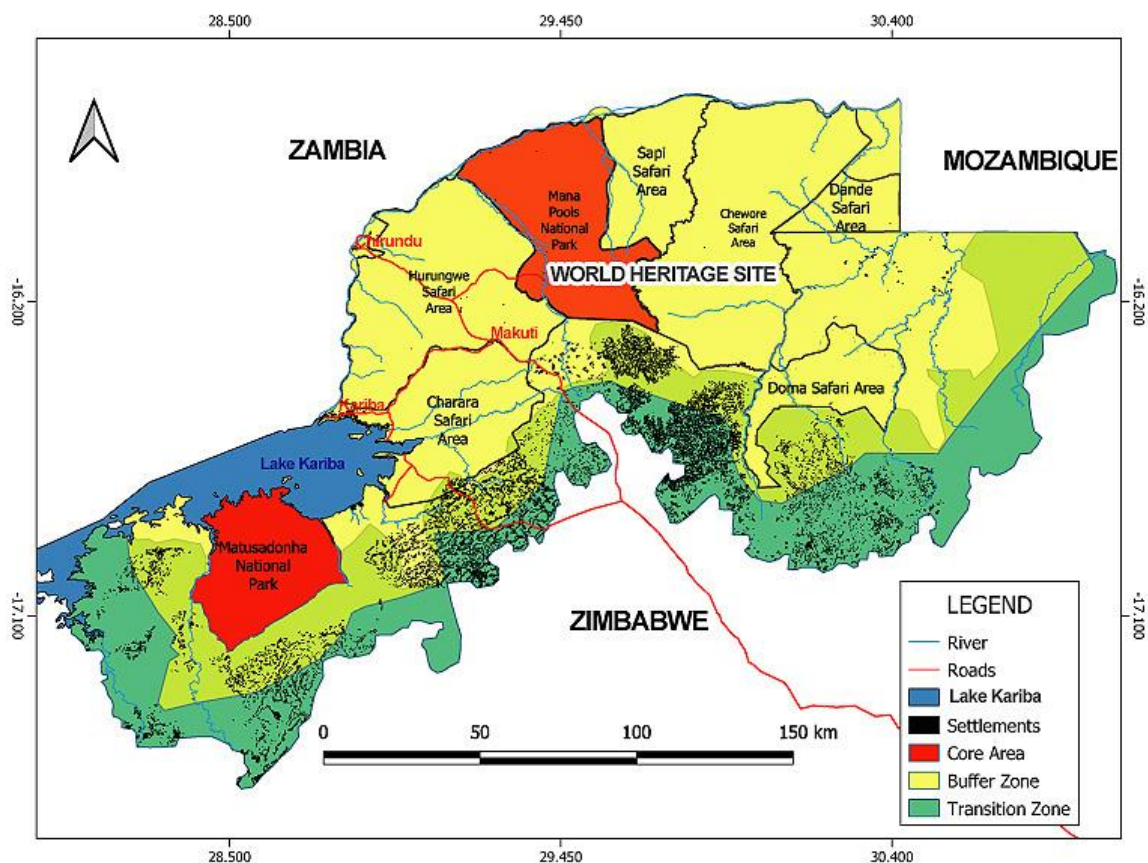


Figure 11: Map of the Middle Zambezi Biosphere Reserve showing Zonations and extent of human settlement.

SUGGESTED CHANGES

1. Suggested further amendment to the mapping of the BUFFER and TRANSITION ZONE boundaries:

As described earlier in this report, the demarcation of the Biosphere Reserve's Transition Zone (mapped subsequent to the original application) shows large overlaps with the mapped Buffer Zone area. These overlaps are indicated in light green in Figure 11 above). Adjustments need to be made to the boundaries of both the Buffer and the Transition Zones in order to ensure that the Buffer Zone includes ONLY non-settled Safari Areas and the towns of Kariba/Chirundu and Makuti, and the Transition Zone includes ONLY the rural community settled lands.

2. Suggested addition of two CORE AREAS to the zonation of the Biosphere Reserve:

a) Lake Kariba Aquatic Core Area: Prof Chris Magadza, who submitted the original application for Biosphere Reserve designation on behalf of Zimbabwe, has pointed out that although Lake Kariba's eastern basin was included in the original application as a Marine (Lacustrine) Buffer Zone of the Reserve, an additional **Lake Kariba Aquatic Core Area** should be added. This would encompass that part of the lake 20 meters deep from the shoreline that lies within the Biosphere Reserve area. The total length of this proposed new Aquatic Core Area has been calculated as approximately 271 kms (to a depth of 20 meters from the shoreline) (see map Figure 12 below).

b) Mavuradonha Wilderness Area: It has been suggested by conservation NGOs that the **Mavuradonha Wilderness Area** should be included as a Core Zone of the MZBR (see map Figure 12 below). This area covers some 600 sq km and lies to the extreme eastern end of the MZBR, but was not included within the original application. It has significant geological, biodiversity, cultural and

historical value and in January 2017, was declared a National Monument of Zimbabwe and accorded special protection status under the direct supervision of the National Museums and Monuments of Zimbabwe (NMMZ). The Mavuradonha Wilderness covers 600 sq kms of savannah woodland and spectacular scenery at the junction of two major geological features - the mountains of the southern Zambezi Escarpment (running west to east) and those of the Great Dyke (running south to north). The area contains plant species unique to the Great Dyke's mineral-rich geology, including an extensive natural grove of rare indigenous raphia palms (*Raphia farinifera*), has excellent examples of San rock art, numerous sites of historical and cultural significance, including the nearby ruins of Mutota's Kraal as well as various species of wildlife, including elephants. (Ref: [Biodiversity, Conservation and Cultural Heritage Importance of the Mavuradonha Wilderness Area in the Muzarabani district, northern Zimbabwe - Oct 2016](#) - Black Crystal Consulting (Pvt) Ltd on behalf of Varden Safaris). In addition, there are sacred forests and important relict dry forest patches in the Zambezi Valley area of Muzarabani immediately adjacent to the northern boundary of the Mavuradonha Wilderness Area which, although located within settled lands, are culturally and ecologically significant. The designation of the Mavuradonha Wilderness Area as a National Monument was welcomed by community leaders, conservationists and tour operators who have for many years sought to defend it from wildlife poachers and the destructive encroachment of mining companies seeking platinum, gold and other minerals.



Mavuradonha mountains from main road. Photo by Zambezi Society

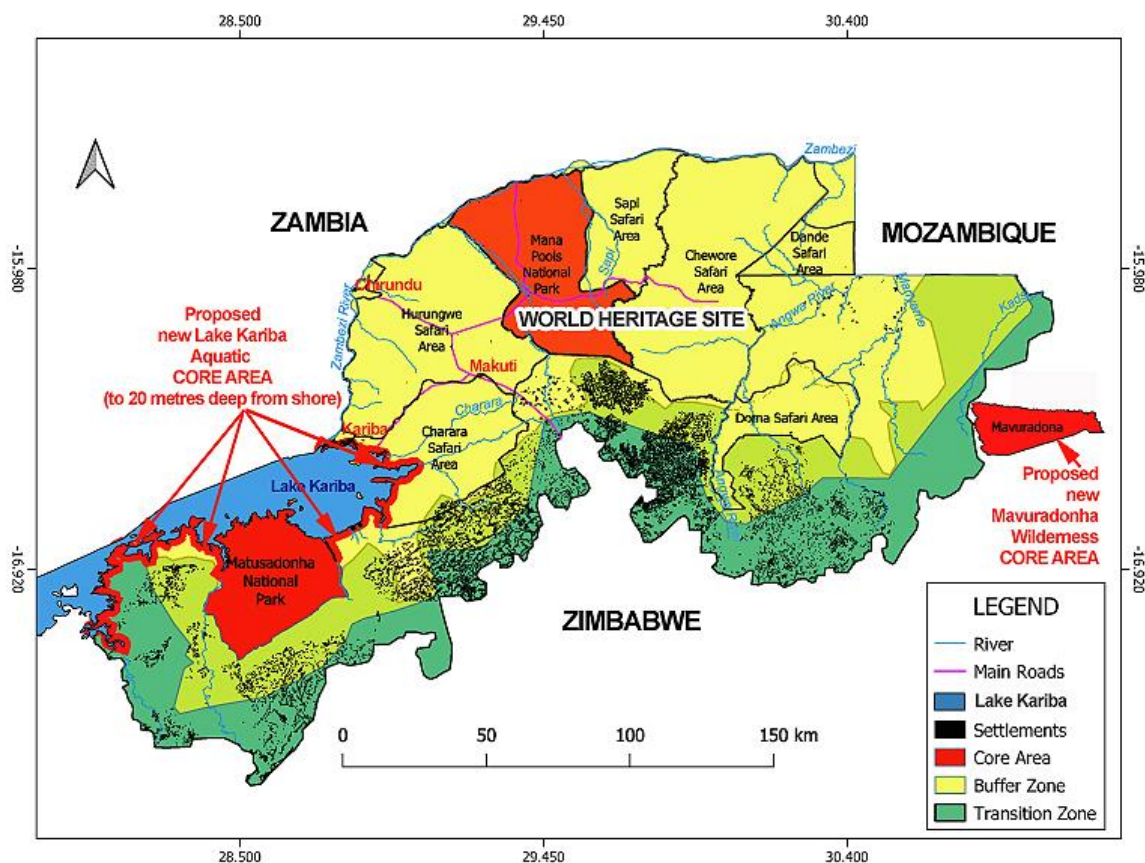


Figure 12: Map showing two suggested new CORE AREAS for additional inclusion within the Middle Zambezi Biosphere Reserve.

Table 8: Summary of proposed NEW area changes to the MZBR (including proposed new Core Areas and Transition Zone extension as described above).

	Previous report (nomination form or periodic review) and date	Proposed changes to original area in nomination form	Proposed changes including 2 proposed new Core Areas
Total Biosphere Reserve Area (terrestrial and lacustrine)	40,000 sq km	33, 945 sq km	34,545 sq km PLUS approx 274 kms (to a depth of 20 metres from the Biosphere Reserve shoreline).
Total Biosphere Reserve Area terrestrial only	None given	33,528 sq km	34,128 sq km

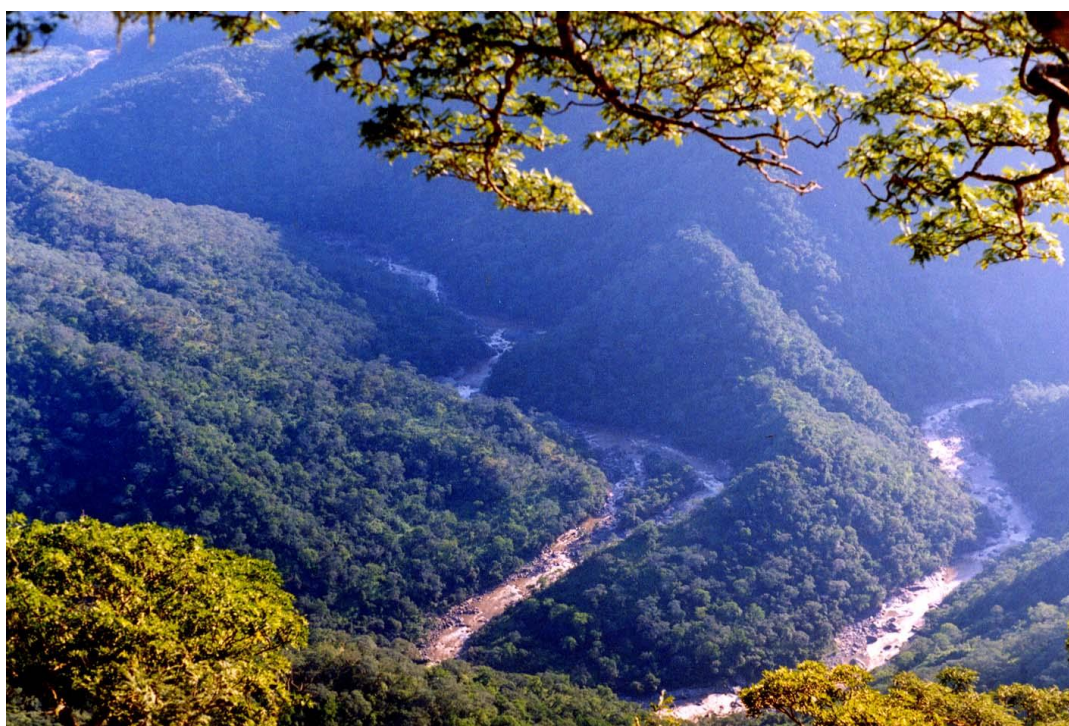
Area of proposed new Core Area Mavuradona Wilderness			600 sq km
Area of terrestrial Core Area(s)	3,604 sq km	3,603 sq km	4,203 sq km
Area of terrestrial Buffer Zone(s)	22,190 sq km	26,307 sq km	26,307 sq km
Area of terrestrial Transition Zone extending outside Buffer Zone	None given	3,618 sq km	3,618 sq km
Area of terrestrial Transition Zone overlapping Buffer Zone	None given	10,477 sq km	10,744 sq km
Area of marine (lacustrine) Buffer Zone (Lake Kariba Eastern Basin area)	41 700_ ha/417 sq km	417 sq km	417 sq km
Length of proposed new Lake Kariba Aquatic Core Area			Approx 274 kms (to a depth of 20 metres from the Biosphere Reserve shoreline).

2.2.1 Updated coordinates (if applicable). If any changes in the biosphere reserve's standard geographical coordinates, please provide them here (all projected under WGS 84):

Table 9: Shows updated coordinates for the Biosphere Reserve including a) the outer limits of the Transition Zone (now mapped) and; b) an alternative outer easternmost point which includes the proposed addition of the Mavuradonha Wilderness.

Cardinal points	Latitude	Longitude
Most central point:	16°20'52.72"S -16.353	29°32'10.09"E 29.536

Northernmost point:	15°38'43.80"S -15.679	29°33'41.26"E 29.569
Southernmost point	16°59'4.64"S -17.628	30°13'23.82"E 28.572
Westernmost point:	17°6'32.66"S -17.16	28°1'48.66"E 28.038
Easternmost point:	16°7'40.85"S -16.201	31°2'49.64"E 31.049
Easternmost point with proposed addition of Mavuradonha area included:	16°29'32.55"S -16.521	31°12'14.70"E 31.217



Mavuradonha Musengezi River – Zambezi Society

2.2.2 If necessary, provide an updated map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve. Map(s) shall be provided in both paper and electronic copies. Shape files (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website).

See maps above.

2.2.3 Changes in the human population of the biosphere reserve

It has been very difficult to arrive at a reliable figure for the current human population of the reserve, and to compare it to 2010 figures for the following reasons:-

- The last official [Population Census of Zimbabwe](#) was taken in 2012. An [Inter-Censal \(mid-term\) Demographic Survey](#) was conducted in 2017 but this gives only estimates. No reliable figures are available since then, however, anecdotal evidence indicates that there has been an increase in the human population in rural areas since 2010 (largely due to urban-rural migration brought about by economic challenges).
- The boundaries of the Biosphere Reserve straddle many districts and do not necessarily coincide with the district boundaries used in the 2012 Census. This makes estimation of rural human population within the settled areas of the Biosphere Reserve very difficult to compute.
- There was no figure given for the human population of the Transition Zone area of the Biosphere Reserve in the original application document, and so we cannot quantify change from then.

The majority of the human population in the MZBR is found in those areas of the Buffer and Transition Zones which lie outside the wildlife Safari Areas and in the urban areas of Kariba and Chirundu. The Core Zones have only ZPWMA (ZimParks) staff and their families (with seasonal influx of tour operators, staff and visitors), while the Safari Areas contain at any time, less than 50 people, comprising mainly sport hunters, their hosts and staff.

Given the above, our CURRENT ESTIMATE of the human population of the whole Biosphere Reserve is at around 252,500.

This figure is based on the ZIMSTATS 2012 Census for the wards calculated to fall within the Biosphere Reserve (220,600) - see Table 10 below) plus estimates for Kariba Urban (26,450), Chirundu (4,000) and Makuti (500) towns as well as Core National Parks and Safari Areas administered by ZPWMA (Zimparks) (960).

Table 10: Population changes in the MZBR wards

NOTE: These are the official ZIMSTATS statistics from the last known census in the area (2012).

Province	District	Ward Number	Population in 2012	Estimated 2017 population
Midlands	Gokwe North	32	3203	4919
Midlands	Gokwe North	27	5814	4885
Mashonaland Central	Guruve	3	2259	1972
Mashonaland Central	Guruve	20	4338	1062
Mashonaland Central	Guruve	19	7311	5348
Mashonaland Central	Guruve	2	3400	2289
Mashonaland Central	Guruve	4	4675	5539
Mashonaland Central	Guruve	16	6737	4850
Mashonaland Central	Guruve	21	5902	6216
Mashonaland Central	Guruve	23	2799	4823

Mashonaland Central	Guruve	17	1550	2143
Mashonaland West	Hurungwe	8	15388	12151
Mashonaland West	Hurungwe	9	24474	21821
Mashonaland West	Hurungwe	4	8618	4926
Mashonaland West	Hurungwe	26	6585	12439
Mashonaland West	Hurungwe	23	7657	7357
Mashonaland West	Hurungwe	22	15133	11054
Mashonaland West	Hurungwe	16	16683	8059
Mashonaland West	Hurungwe	17	8390	9439
Mashonaland West	Hurungwe	24	11507	10498
Mashonaland West	Makonde	1	8092	5549
Mashonaland West	Makonde	2	12737	9280
Mashonaland West	Makonde	11	15617	14077
Mashonaland Central	Mbire	4	7113	6338
Mashonaland Central	Mbire	13	5765	4148
Mashonaland Central	Mbire	15	4727	4149
Mashonaland Central	Mbire	6	4124	3993
Mashonaland West	Nyaminyami (Kariba)	9		3752
Mashonaland West	Nyaminyami (Kariba)	3		5512
Mashonaland West	Nyaminyami (Kariba)	4		5059
Mashonaland West	Nyaminyami (Kariba)	11		3000
Mashonaland West	Nyaminyami (Kariba)	5		3046
Mashonaland West	Nyaminyami (Kariba)	10		2032
Mashonaland West	Nyaminyami (Kariba)	6		2388
Mashonaland West	Nyaminyami (Kariba)	8		5754
			220,598	219,867

**2.2.4 Update on conservation function, including main changes since last report.
(Note briefly here and refer to 4 below)**

Overall, the objectives outlined in the original Biosphere Reserve application document still stand with the following amendments, additions and comments:-

Section 1: Conservation of landscape and ecosystem biodiversity

Holistic planning at a landscape scale:

The Zambezi Society has long advocated for the preservation of the unique, and globally-recognised, wildlife and wilderness values of the Zambezi Valley within the context of holistic management planning for the entire mid-Zambezi Valley complex (including the World Heritage Site (Mana Pools/Sapi/Chewore) and the wider Middle Zambezi Biosphere Reserve). This should be

achieved initially for the Zimbabwean side of the Zambezi River, but ultimately for both sides of the river.

The African Wildlife Foundation (AWF) provided initial funding for this holistic planning process to start with a stakeholder meeting held in 2018. But lack of further funding stalled progress. However, the GEF-funded **Zambezi Valley Biodiversity Project** has now set aside funding for the development of a management plan which will cover the Mid and Lower Zambezi Valley (but excluding the western section of the Mid Zambezi Biosphere Reserve upstream of Kariba Dam, which is not included in the GEF project's focus).

Loss of natural woodland landscape:

Up to 330,000 ha (3,300 sq km) of Zimbabwe's indigenous woodland are estimated to be lost every year. Although no firm figures are available, parts of the Biosphere Reserve Transition Zone have suffered a corresponding loss of indigenous tree cover. This is most noticeable in the Transition Zone areas adjacent to the Mana Pools core area and Charara Buffer Zone, mostly attributable to the growth of small-scale tobacco-growing in marginal agricultural areas, and the initiation of community-level wood-fired tobacco curing. Some remedial action is taking place (see Section 4.3.2 below), but ongoing losses of this nature are almost certainly the major habitat change that has taken place since the Biosphere Reserve was gazetted.

Section 2: Conservation of species biodiversity

The **black rhinoceros** population can be regarded as locally extinct within the MZBR. However, plans exist for localised reintroductions when conditions permit. These conditions are, primarily:

- I) Improved security for a high-value species; and
- II) The availability of surplus animals in conservancies elsewhere in the region

Past black rhino populations were almost entirely confined to the Core and Buffer Zone areas of the MZBR. Security has been greatly improved within these areas due to the entry of numerous NGO's that have recognised illegal hunting as a major issue, and taken steps to supplement and reinforce ZPWMA's capability in this regard. However, great caution is advisable prior to undertaking any reintroductions of this species, as it could catalyse a renewed outbreak of illegal hunting due to the high value of rhino products in global markets. Even then, opportunities are likely to be significantly limited by availability, as noted in II above.

Furthermore, the impact of the coronavirus pandemic on rural and other livelihoods has not been quantified as yet, but is likely to be severe and may lead to renewed and intensified illegal hunting.

Wild dogs: The conservation NGO Painted Dog Conservation has noted a high mortality rate of wild dog pups in the population in Mana Pools in recent years and, in 2019 implemented a project to translocate animals from Hwange National Park into the Chikwenya area. This project did not meet with much success, and in late 2020, the remaining dogs were returned to Hwange.

Elephant population changes: In 2014, surveys undertaken within Zimbabwe for The Great Elephant Census estimated a 40% decline in elephant populations in the mid-Zambezi Valley and a 75% decline in elephant populations in the Sebungwe area (which includes Matusadona National Park). Acting on the results of this Census, the Zimbabwe Parks Authority established a collaborative working arrangement with private-sector NGOs, and together they developed a series of 5-year Regional and National Elephant Management Plans starting in 2015. These put in place a collaborative public/private-sector framework to strengthen anti-poaching and law-enforcement activities, and to tighten up on the legal processes to ensure more efficient, effective and appropriate sentencing for illegal wildlife trade offenders through the courts. Subsequently, according to wildlife stakeholders, between 2016 and 2017 the numbers of elephants known to have been poached for their ivory in the MZBR area dropped by 61% and by a further 36% between 2017 and 2018. During 2019 only a handful of elephant poaching cases occurred.



Deploying Rangers in Mana Pools, 2018. Photo by Zambezi Elephant Fund

Predator Species: In addition to the above, a local team from WildCru at the University of Oxford has been focusing on the conservation of predator species which are considered vulnerable in the region (particularly lion and leopard) via a long-term monitoring programme using spoor counts/camera-traps etc. Work as part of this project has been carried out in both Matusadona and Mana Pools National Parks. (Ref: [MANA POOLS NATIONAL PARK PREDATOR SURVEY, July – October 2015](#), J. L. Seymour-Smith and A. J. Loveridge). The project aims to advise ZimParks on possible interventions e.g. reduction of hunting quotas based on the findings of the monitoring.

Lion: The GWC Lion Recovery Fund has provided funding for protecting vulnerable habitat in the Charara Safari Area through collaboration, and for reinforcing lion conservation in the KAZA transfrontier area (which includes the Matusadona National Park).

The capacity of ZimParks to effectively fulfil their conservation mandate within the Parks Estate (which includes the Core and Buffer Zone areas of the MZBR) during the past decade was considerably hampered by a lack of full-time ecological expertise. Between 2010 and 2015 there were only two full-time ecologists to cover conservation issues in the entire valley from Matusadona to Dande. However, this situation has improved and since 2016, there are four full-time ecologists for the area.



Lion in Mana Pools. Photo by Wild Zambezi

Current conservation projects being undertaken by ZimParks within the MZBR area include:-

- Carnivore research
- Tuskless vs tusk elephants
- Study done on road kills
- Study on trophy quality

(For a more comprehensive list of research within the MZBR, see Section 2.2.6 of this report)

List of conservation stakeholders in the Middle-Zambezi Biosphere Reserve:

Government agencies:

- Ministry of Environment, Climate Tourism & Hospitality Industry (MECTHI)
- Zimbabwe Parks & Wildlife Management Authority
- Environmental Management Agency (EMA)
- MFFU Minerals Fauna & Flora and Border Control Unit of the Zimbabwe Republic Police
- Forestry Commission
- Zimbabwe Power Company
- Zambezi River Authority

International Agencies:

- African Wildlife Foundation
- Elephant Crisis Fund
- Global Wildlife Conservation (GWC)
- Lion Recovery Fund
- International Anti-Poaching Foundation (IAPF)
- MIKE-Minimizing the Endangered Killing of Elephants and other Endangered Species (CITES)
- Panthera

- REDD+ Project
- UNESCO World Heritage Centre & MAB
- Wildcru (University of Oxford)
- UNDP

Private Sector local:

- African Bush Camps, <https://www.africanbushcamps.com>
- African Wildlife Foundation, <http://www.awf.org>
- Birdlife Zimbabwe <https://www.birdlifezimbabwe.org>
- Bumi Hills Anti-Poaching Unit, <https://www.bumihillsfoundation.org/anti-poaching>
- Bushlife Support Unit, <https://bushlifeconservancy.org>
- CAMPFIRE (Communal Areas Management Programme for Indigenous Resources), <https://www.campfirezimbabwe.org>
- Carbon Green, <http://www.carbongreenafrica.net>
- Chewore Lodge and Campsite, <http://www.chewore.com>
- Chirundu www.iapf.org
- Kavinga Safari Camp, <https://kavingasafaris.com>
- Kariba Animal Welfare Fund Trust (KAWFT), <http://www.kawft.org>
- Matusadona Anti-Poaching Project (MAPP), <https://www.facebook.com/Matusadona-Anti-Poaching-Project-MAPP-199482320230811>
- Matusadona Lion Project, <https://www.facebook.com/Matusadonalionproject>
- Musango Island Safari Lodge, <http://musangosafaricamp.com>
- My Trees Project, <https://www.mytreeszim.org>
- Natureways Safaris, www.natureways.com
- Padenga, <https://www.padenga.com/environmental>
- Painted Dog Conservation, <http://www.painteddog.org>
- Phundundu Wildlife, <https://www.facebook.com/Phundundu-Wildlife-1583867188513288>
- Pro Safaris (RIFA), <http://www.pro-saf.com>
- Rhino Safari Camp, <http://www.rhinosafaricamp.com>
- Rhino Force, <http://rhino-force.org>
- Rifa Conservation Education Camp, <https://www.facebook.com/RifaEducationConservationCampZimbabwe>
- Robin Pope Safaris, <http://www.robinpopesafaris.net>
- Sino Zimbabwe Wildlife Foundation
- Tashinga Initiative, <https://www.tashinga.org> Elephant Programme, <https://www.facebook.com/Wildlife-Conflict-Management-Chirundu-Elephant-Programme-831221446928996>
- Community-based Conservation Alliance
- Dande Anti-Poaching Unit (DAPU), <http://dapuzim.com>
- Flying For Wildlife, <https://www.facebook.com/flyingforwildlife>
- Gache Gache Anti-Poaching Unit, <http://www.gachegachelodge.com>
- Stretch Ferriera Safaris (Goliath Camp), <http://www.stretchsafaris.com>
- Great Plains Conservation, <http://greatplainsconservation.com>
- IAPF (International Anti-Poaching Foundation) & Akashinga Programme, <https://www.iapf.org>
- Tikki Hywood Foundation, <http://www.tikkihywoodtrust.org>
- Wilderness Safaris, <http://www.wilderness-safaris.com>
- Zambezi Elephant Fund, <http://zambezielephantfund.org>
- Zambezi Society, <https://zamsoc.org>

Table 11: Major Management plans and strategies (species conservation)

Area	Species or habitat	Timeframe	Full title	Links

<i>International</i>	<i>Elephant</i>	2010-2020	<i>African Elephant Action Plan</i>	https://www.iucn.org/sites/default/files/import/downloads/e15i68.pdf
<i>International</i>	<i>Vultures</i>	2017-2029	<i>Multi-species Action Plan to Conserve African-Eurasian Vultures</i>	https://www.cms.int/raptors/manage/raptors/manage/raptors/sites/default/files/publication/vulture-msap_e.pdf
<i>Kavango Zambezi Transfrontier Conservation Area</i>	<i>Wild dog</i>	2014-2019	<i>Conservation Strategy and Action Plan for the African Wild Dog (Lycaon pictus) in the Kavango Zambezi Transfrontier Conservation Area, March 2014-March 2019</i>	http://www.cheetahandwilddog.org/WP/staging/9849/wp-content/uploads/2017/06/kaza-tfca-african-wild-dog-conservation-strategy_-1.pdf
<i>National</i>	<i>Elephant</i>	2015-2020	<i>Zimbabwe National Elephant Management Plan, 2015-2020</i>	https://static1.squarespace.com/static/59f67f86d74cff2410980eb1/t/5abf6a45aa4a998a3b5ef24a/1522494046827/ZIMBABWE-ELEPHANT-MANAGEMENT-PLAN-APPROVED-FINAL-1.pdf
<i>National</i>	<i>Rhino</i>	2011-2016 <i>Update published in 2018</i>	<i>Zimbabwe Rhino Policy and Management Framework 2011-2016</i>	http://www.rhinosourcecenter.com/pdf_files/137/1376469241.pdf
<i>National</i>	<i>All</i>	<i>Under development</i>	<i>ZimParks Scientific Services Unit Research Strategy</i>	

<i>Middle Zambezi</i>	<i>Elephant</i>	<i>2015-2020</i>	<i>Sebungwe Action Plan (Annex to Zimbabwe National Elephant Management Plan, 2015-2020)</i>	
<i>Lower Zambezi</i>	<i>Elephant</i>	<i>2015-2020</i>	<i>Lower Zambezi Action Plan (Annex to Zimbabwe National Elephant Management Plan, 2015-2020)</i>	
<i>Lower Zambezi</i>	<i>All</i>	<i>2017-2019</i>	<i>Zambezi Valley Law Enforcement Plan June 2017</i>	
<i>Mana Pools</i>	<i>All</i>	<i>Developed in 2005 but never endorsed.</i> <i>Update started in 2018.</i>	<i>Mana Pools National Park General Management Plan</i>	
<i>Mana Pools and neighbouring Safari Areas</i>	<i>All (but with an elephant focus)</i>	<i>2015</i>	<i>Draft Mana Pools National Park Anti-Poaching Plan</i>	

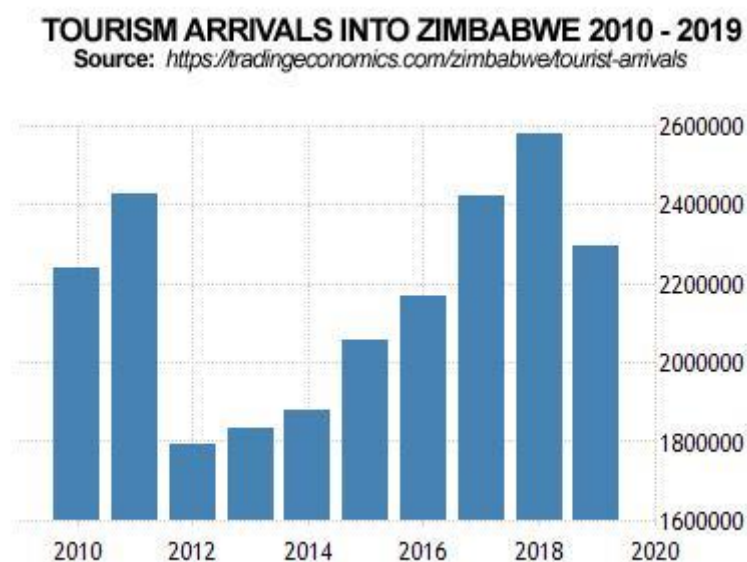
2.2.5 Update on the development function, including main changes since last report. (Note briefly here and refer to 5 below)

TOURISM

Tourism is a major activity in the Biosphere Reserve area, particularly in the Core National Park areas of the MZBR and also at Kariba town, Chirundu and in parts of the Buffer Zone e.g. Sapi and Chewore.

Unfortunately, The Zimbabwe Tourism Authority is unable to provide detailed arrivals or bed-night figures for the major tourism areas within the Biosphere Reserve described above. However, broad statistics for arrivals into Zimbabwe for the period 2010 - 2019 are available (see Figure 13 below) and give an indication of trends. These show a sharp rise between 2010 and 2011, a steep drop in 2012 and an increasing upwards trend until 2018, where arrivals peaked to just under 2 600,000 before dropping in 2019 to 2 300,000.

Figure 13: Broad statistics for arrivals into Zimbabwe, 2010-2019



It is important to note, however, that most visitors entering Zimbabwe visit the Victoria Falls, Harare and Bulawayo area and only a much smaller proportion reach the tourism destinations of the Middle Zambezi Biosphere Reserve.

The following statistics have been provided by the Zimbabwe Tourism Authority (ZTA) for tourism to hotels in the Kariba area within the Biosphere Reserve:-

Figure 14: Kariba hotels statistics provided by the Zimbabwe Tourism Authority (ZTA) for the period 2010 - 2019

Kariba Hotels Statistics 2010 to 2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
No of Rooms	447	447	447	447	447	447	447	447	447	447
Room Nights Available	69800	69800	69800	69800	69800	69800	69800	69800	69800	69800
Room Nights Sold	27920	27920	32108	30014	31410	34202	26524	30014	30712	23034
Annual Average Room Occupancy	40%	40%	46%	43%	45%	49%	38%	43%	44%	33%
No of Beds	834	834	834	834	834	834	834	834	834	834
Bed Nights Available	129437	129437	129437	129437	129437	129437	129437	129437	129437	129437
Bed Nights Sold	40125	46597	58247	49186	36242	49186	33654	40125	49186	33654
Annual Average Bed Occupancy	31%	36%	45%	38%	28%	38%	26%	31%	38%	26%

Although we have been unable to secure reliable statistics, anecdotal information obtained directly from most tourism stakeholders indicates that there was a notable decline in local and regional tourism activity to Kariba during the 2010-2020 period, because of a declining national economic

situation and a lack of affordable, scheduled air access for tourists into Kariba airport. ([Dube and Nyamo](#) have suggested that climate change, drought and low lake levels is one of the contributing factors to reduced tourism to Kariba, but this scenario is less quoted by tourism stakeholders than the other reasons given above.) However, international safaris and cruising tourism notably in the Core Areas of Matusadona and Mana Pools increased marginally during this period, on the back of the improved international popularity of Victoria Falls as a tourism hub in the region. High paying international visitors, who could afford air charter access from Victoria Falls or Harare, undertook safaris and cruises in these areas of the Biosphere Reserve, organised by tour companies.



Houseboat on Lake Kariba, March 2017. Photo by Wild Zambezi

Type(s) of tourism (in addition to those listed in the original application document):

- Luxury safaris
- Safari activities - guided & unguided walking
- Site-seeing
- Multi-day cruising/houseboating
- Day-trip or short trip boating activities
- Self-drive touring
- Camping
- Cultural dances

Tourist facilities and description of where these are located and in which zone of the proposed Biosphere Reserve (in addition to those listed in the original application document):

- New hotels/lodges at Kariba (3)
- Re-design of Bumi Hills Safari Lodge
- Private safari camps in Matusadona - 1 x new. Fothergill Safari Camp not operative during the reporting period, but currently under renovation)
- Public ZimParks Lodges & Campsites at Tashinga (Matusadona) very underutilised during the period due to poor road access into the Park (currently under renovation)
- Chirundu: Private - 1 x safari lodge, 2 x fishing camps, 2 campsites, 1 x tented camp, 1 x mobile river cruising operation, 1 x river transfer operation

- Private Safari camps/lodges in Mana Pools: 1 x safari lodge, 1 x fishing lodge, 7 x safari camps, 4 x “temporary extended tented safari camps, several mobile camps.
- Public chalets, tented camp & campsites in Mana Pools (ZimParks)
- Private Safari lodges/camps in Buffer zone - 2 in Sapi, 1 in Chewore with campsite. Several private fishing camps near Kanyemba (Dande)
- Public ZimParks fishing camps along the Zambezi river in Sapi-Chewore
- Public DDF chalets/campsite at Kanyemba



Canoeing the Zambezi River at Mana Pools. Photo by Wild Zambezi

List of tourism stakeholders in the Biosphere Reserve:

- Representatives of private tourism businesses, tour operators, lake houseboat harbours
- Tourism role players (including DMCs, travel agencies)
- Zimbabwe Parks & Wildlife Management Authority (ZPWMA or ZimParks) - non-consumptive division at Head Office, regional and station levels
- Government tourism officials - Minister of Environment, Tourism and Hospitality Industry, Zimbabwe Tourism Authority
- Private sector tourism bodies/NGOs - Tourism Business Council Of Zimbabwe (TBCZ), Safari Operators Association of Zimbabwe (SOAZ), Kariba Publicity Association, Kariba Tourism Business Council (KTBC), Kariba Tourism Revival Committee (KTRC); WildZambezi.com; VisitKariba.com
- Zambezi River Authority (Observations of Lake water level trends during various extreme weather events)
- Lake Kariba captain and Ministry of Transport officials to do with Lake Navigation
- Aviation sector officials (Min of Transport/CAAZ)
- Energy sector officials (visitors to the Kariba Dam)

- Traditional leaders (Custodians of cultural resources)
- Government immigration officers
- Policymakers (observations and policy-related issues)
- Meteorologists (Weather-related trends observations and their impact on tourism operations such as aviation)
- CAMPFIRE representatives (tourism in community areas)
- Local government representatives
- Members of civil society

Indicate positive and/or negative impacts of tourism at present or foreseen:

- Positive
 - Employment (many jobs are provided in the tourism sector - ranger/guides, drivers, tour guides, hospitality staff etc).
 - Conservation support/funding (many tour operations provide logistical support to ZimParks conservation activities).
 - Tourism also has a multiplier effect on the national economy.
- Adverse
 - Pollution of aquatic systems.
 - Impacts of over-tourism on ecosystems (e.g. Mana Pools 'floodplain'), on animal behaviour (e.g. wild dogs).
 - Increased boating activity causing impacts on Zambezi River sandbanks etc.

HUNTING:

Safari hunting has long been a major employment and revenue generating activity in the Buffer Zones of the MZBR. However, current trends indicate that hunting as a land-use is losing popularity worldwide. Some Buffer Zone Safari Areas have changed to non-hunting/tourism concessions (this has already happened in Sapi and Rifa Safari Areas) and some hunting areas are showing signs of diminished wildlife populations (e.g. Charara and Doma Safari Areas). In 2019, The Zambezi Society began a support project to assist ZimParks in protecting wildlife populations in the Charara Safari Area. Their findings so far indicate that bushmeat poaching from the neighbouring communities, which has been continuing unchecked for some time because ZimParks did not have the resources to patrol this area effectively, is one of the reasons for diminishing wildlife resources, and it is likely to be the same in places like Doma.

FISHING:

Is a major employment and revenue generating activity on Lake Kariba, and also supplies an important source of protein as a benefit to local communities. In an attempt to address the recent decline in the commercial kapenta catches (largely due to overfishing and the issuing of licenses to too many fishing rigs), in 2014, the authorities introduced a monthly ban on fishing for a week during full-moon periods. This has gone some way to ensuring more sustainability in the commercial fishing industry. In addition, there is a major thrust by the law-enforcement authorities and conservation organisations to stop artisanal fishermen on Lake Kariba and the Zambezi River using illegal monofilament twine fishing nets (which are very destructive to the aquatic eco-system) and to ensure that they use only legal gill nets. Work is ongoing on this through the Lake Kariba Fisheries Research Institute at Kariba.

AGRICULTURE:

The **Mid-Zambezi Rural Development Project** taking place in Muzarabani, Mbire and Hurungwe districts offers opportunities to combine both resettling and development of the growing rural population in order to exploit the agricultural potential of the area. The project aims to settle 3,000 families thereby providing them with a gainful livelihood as well as easing the pressure of population in the overcrowded neighbouring communal areas. These families will be settled in some 130

villages of between 20 and 25 households, each depending on the availability of water supplies. The project aims to provide agricultural support for on-farm development, mechanization, credit, extension, co-operative and natural resource development. Together with social and physical infrastructure, including rural service centers with clinics, feeder and access roads, classrooms and village water supplies. The project will also provide office facilities, vehicles and housing for staff. As a result of the project then, there will be a total cultivated land of 231 sq km, and an additional 323.4 sq km of marginally arable land available to support livestock production. The project aims to result in incremental production of cotton and food crops such as maize, sorghum and millet.

SUSTAINABLE FORESTRY PROJECTS:

Two important projects within the Biosphere Reserve are aimed at reducing deforestation and re-forestation degraded land. These are the Kariba REDD+ project and the My Trees Project. Both apply sustainable practices and provide employment for local communities (particularly women).

Rural communities in Hurungwe currently have very limited employment opportunities. My Trees offers an important step in income diversity, particularly within fringe populations bordering the protected areas of the Zambezi Valley.

From 2025, My Trees aims to be Hurungwe District's largest employer, providing jobs for hundreds of people through tree planting activity, as well as providing additional income for tobacco growers to help pay for sustainable wood fuel.

The impact localised employment for over 500 people will have on this area is significant. Once project scale is reached, a steady inflow of over \$750,000 per annum to local households will make a meaningful contribution to the resilience of these communities.

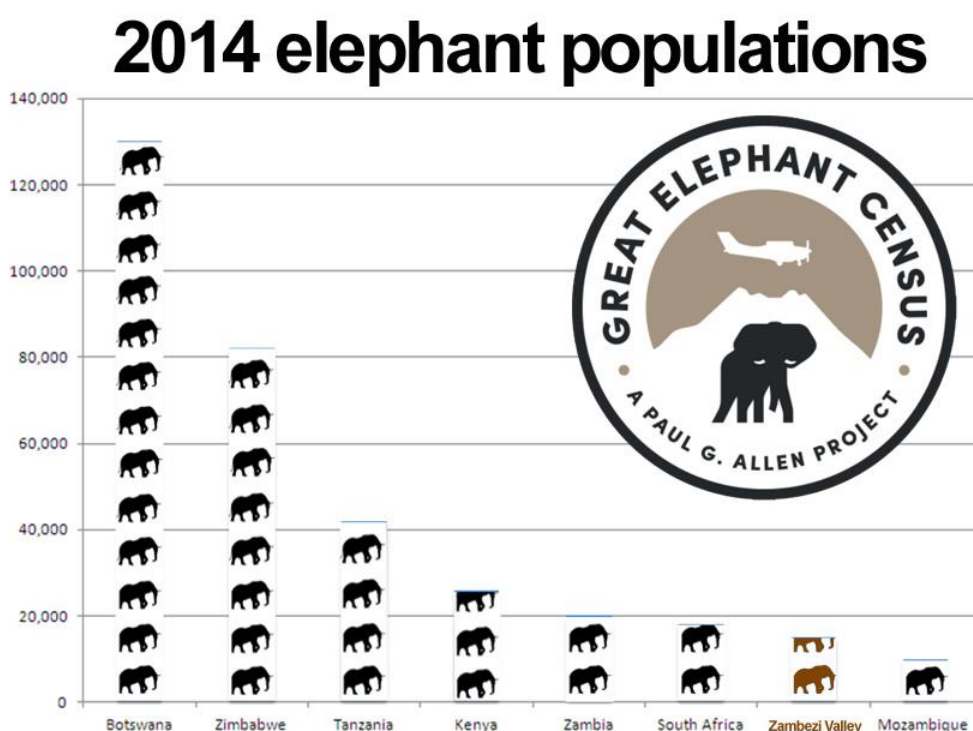
OTHER:

Power supply at Kariba Dam - additional 300 Megawatts added to the pre-review period 600 Megawatts. More details of other employment opportunities available to communities throughout the MZBR were captured in the local household surveys carried out in 2019.



Elephant and Power Lines in Kariba. Photo by Wild Zambezi

**2.2.6 Update on logistic support function, including main changes since last report.
(Note briefly here and refer to 6 below)**



Comparative African elephant populations including the Zambezi Valley (The Zambezi Society).

Research

Research projects undertaken within the MZBR area include the following:

- [National Summary of Aerial Survey Results for Elephant in Zimbabwe: 2014](#) - Kevin Dunham Oct 2015 for Great Elephant Census.
- [Biodiversity, Conservation and Cultural Heritage Importance of the Mavuradona Wilderness Area in the Muzarabani district, northern Zimbabwe - Oct 2016](#) Black Crystal Consulting (Pvt) Ltd on behalf of Varden Safaris).
- [MANA POOLS NATIONAL PARK PREDATOR SURVEY, July – October 2015](#). L. Seymour-Smith and A. J. Loveridge.
- [Rangers and modellers collaborate to build and evaluate spatial models of African elephant poaching](#). Biological Conservation. Kuiper, T., Kavhu, B., Ms, N. A. N., Mandisodza-Chikerema, R., & Milner-Gulland, E. J. (2020). 243, 108486
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- [The decline of Kapenta fish stocks in Lake Kariba – a case of climate changing?](#) M R Ndebele-Murisa, E Mashonjowa, T R Hill - Transactions of the Royal Society of South Africa 66(3):219 – 223
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- [*Environmental Flow Analysis of the Zambezi River Basin. Ecological Changes in the Zambezi River Basin*](#), p.183. Tamatamah, R. and Mwedzi, T.
- [*Mapping floods in the Middle Zambezi Basin using Earth observation and hydrological modeling techniques.*](#) Physics and Chemistry of the Earth, Parts A/B/C, 114, p.102787. Nharo, T., Makurira, H. and Gumindoga, W., 2019.
- [*A cascade of biological invasions and parasite spillback in man-made Lake Kariba.*](#) *Science of the Total Environment*, 659, pp.1283-1292. Carolus, H., Muzarabani, K.C., Hammoud, C., Schols, R., Volckaert, F.A., Barson, M. and Huysse, T., 2019.
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- [*Size at maturity, maturity stages and sex ratio of tigerfish Hydrocynus vittatus Castelnau, 1861 in Lake Kariba, Zimbabwe: assessing the influence of decades of fisheries exploitation.*](#) African Journal of Aquatic Science, pp.1-7. Magqina, T., Dalu, T., Mhlanga, L. and Nhiwatiwa, T., 2020.
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- [*A comparative analysis of maximum entropy and analytical models for assessing kapenta \(Limnothrissa miodon\) stock in Lake Kariba.*](#) Environmental and Resource Economics Review, 26(4), pp.613-639. Tendaupenyu, I.H. and Pyo, H.D., 2017.
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ONGOING RESEARCH:

- [Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe](#)". UNDP/MECTHI GEF-funded Zambezi Valley Biodiversity Project (ZVBP) (2018-2023) This project aims to target monitoring: research, resource management, wildlife management and anti-poaching. It is acknowledged that the information base for National Park areas needs to be improved and details of areas in which urgent management related research is needed are being identified. The programme will also focus on management of key habitats. Supplemented water and fire are two management strategies that could be used to achieve this, but care needs to be taken with both. The impact of roads and river crossings on the environment is also dealt with under the biodiversity programme.
- *Spatial Analysis of the Frequency and Distribution of Elephant Poaching Events in Matusadona National Park.*
- *Elephant (*Loxodonta africana*) Natural Mortality Patterns and Trends in Matusadona National Park* - Matusadona National Park has been experiencing an exceptionally high number of elephant deaths which have been assumed to be natural. A total of 127 natural elephant deaths have been recorded in NP from 2005-2016. This study focuses on seasonal and spatial variation of the recorded elephant mortalities as well as analysing the relationship between age-group and number of natural mortalities recorded from 2005 to 2016 in Matusadona National Park (MNP).
- *Conflicts and Synergies between Conservation and Commercialisation in Protected Area Management in Zimbabwe: A Case of Matusadona National Park* - To effectively achieve the twin objectives of conservation and commercialisation of natural resources in PAs does not only require the active participation of multiple stakeholders who sometimes have divergent interests but also the integration in both space and time of various potentially conflicting activities. In this study we use a realistic appraisal of on-the-ground management issues in Matusadona National Park to identify and quantify some of the key ecological, socio-economic and institutional factors which constitute the conservation-commercialisation paradox in Matusadona and which also require that key stakeholders involved in the management of the Park harmonize their efforts and build on the existing synergies so that the seemingly conflicting conservation and commercialization goals can be reconciled in an economically viable and ecologically sustainable way.
- *Regional Sustainability Monitoring: A Focus on Land-Use Change and Biodiversity Trends in the Sebungwe Region, Zimbabwe* - This study is aimed at quantifying the extent and patterns of land use changes and their impacts on biodiversity trends in the socio-ecological production landscapes (SEPLs) (Bélair et al., 2010) of the Sebungwe Region, Zimbabwe. It examines the linkage between human-influenced landscape structural dynamics, ecological processes, social and economic dimensions and how they interact to influence biodiversity trends and socio-ecological sustainability in the Sebungwe Region, Zimbabwe.
- *A comparative study of the behavioral ecology of impala *Aepyceros melampus* in lion and non-lion territories of Matusadona National Park.*
- *A Comparative Analysis of Nile Crocodiles (*Crocodylus niloticus*) Egg Fertility and Clutch Size in the Wild and Captive Bred.*
- *Habitat use by African elephants in the Zambezi Valley, Zimbabwe* - The study will assess the movement of elephants, distribution, home ranges and effectiveness of corridors in the area which shares its border with Zambia; forming the Lower Zambezi Transfrontier Conservation Area. The greater part of the Zambezi Valley elephant population is concentrated in Mana Pools National Park, which is a core area of the Man and Biosphere Reserve flanked, by Safari Areas and communities.

- *Elephant tusk condition in hunting and non-hunting areas in Zimbabwe* - Tusklessness in elephants has been noted to be a future trend for elephants. In Zimbabwe, elephants have both consumptive (hunting) and non-consumptive (photographic tourism) values. Conservation management seeks to balance these values and ensure the sustainability of populations in the country.
- *African wild dog project - ongoing monitoring programme of the ecology and behaviour of African wild dogs in relation to other sympatric carnivores and prey*. The perceptions and relations to people are also a focus of the research and monitoring work.
- *Effects of reintroduced matriarch elephants on seasonal habitat, browse selection and home range sizes in Hurungwe Safari Area, Mid Zambezi Valley* -
- *Perceptions assessment on Human-Wildlife Conflicts (HWC): Case of Nyamakate resettlement and Chundu communal areas, Zimbabwe*.
- *Large carnivore population survey in the Mid Zambezi valley, Zimbabwe*.
- *An assessment of vegetation mortality in the Mana Pools National Park floodplain*.
- *Effectiveness of early burning as a fire management tool in the Zambezi Valley*.

Monitoring Activities

Monitoring activities in the Biosphere Reserve area:

- Great Elephant Census aerial survey of elephant - Zambezi Valley & Sebungwe area (2014).
- Flying for Wildlife - ongoing aerial surveillance and monitoring for ZimParks.
- Monitoring of poaching and Illegal Wildlife Trade reports and cases through the legal system (Illegal Wildlife Trade Initiative by various NGOs, Tikki Hywood Trust, Zambezi Society IAPF, etc).
- Monitoring of lion/leopard/predators in Matusadona, Mana Pools and Charara - WildCru/Panthera/Matusadona Lion Project.
- Monitoring of deforestation - Hurungwe District - African Wildlife Foundation (Ref: [Mapping The Human-wildlife Buffer Zone and Adjacent Landscape of Ward 8, Hurungwe - District, Zimbabwe](#) – AWF Project report Feb 2019).
- Monitoring of fisheries - Lake Kariba Fisheries Research Institute (ZimParks).

Specialist Training

- As part of the collaborative strategy for improving anti-poaching efforts throughout the Zambezi Valley, various specialist training activities have been carried out with support from private-sector conservation entities as follows:
 - Weapons training and anti-poaching refresher courses for ZimParks rangers.
 - Training on firearms safety and rules of engagement for ZimParks rangers.
 - Training for law-enforcement officers on protocols for arrest and legal follow-ups for wildlife crime offences.



Illegal Wildlife Trade. Photo by MAPP

Collaboration with existing Biosphere Reserves at National, Regional and International level:

There are no other Biosphere Reserves nationally. The nearest regional Biosphere Reserves are in South Africa and Malawi. No formal collaboration takes place with regional, other African or international Biosphere Reserves, but exchanges are made at an informal level.

2.2.7 Update on governance management and coordination, including change since last report (if any) in hierarchy of administrative divisions, coordination structure:

(Note briefly here and refer to 7 below)

There have been no significant changes in the governance, management and coordination of the Mid-Zambezi Biosphere Reserve in hierarchy of administrative divisions, coordination structure etc.

There appears to have been a lack of synergy between the ZIM NATCOM Committee and the MAB Committee. As a result, little progress has been made. As stated previously:-

- There appears to be little shared understanding about the value of a global UNESCO Biosphere Reserve designation. This has resulted in very little 'buy in' from authorities currently responsible for the management of the MZBR area and from other stakeholders (in some cases, almost active resistance to the concept).
- The Reserve has no legislative standing in the statutes of Zimbabwe as yet (a [Draft Statutory Instrument](#) was prepared by the MAB Committee in 2017 and submitted to ZIM NATCOM for onward transmission to the Ministry of Environment, but no progress has been made since).
- There has been no progress in the creation of a MZBR Management Plan to provide direction.
- No funding appears to have been made available/accessed for any of the above.
- Absence of a coordinating structure and 'point person' to lead the process.

2.3 The Authority/authorities in charge of coordinating/managing the biosphere reserve: (Comment on the following topics as much as is relevant).

2.3.1 Updates to cooperation/management policy/plan, including vision statement, goals and objectives, either current or for the next 5-10 years.

The Zimbabwe Parks and Wildlife Management Authority (ZPWMA - a quasi-government authority) is responsible for the management of the Core and Buffer Zone areas in the MZBR. Central government, through the local government Rural District Councils and traditional leaders are responsible for the management of the Transition Zone (communal) areas. Zimbabwe government structures have been under considerable economic constraints for the past two decades, and struggle to fulfil their management roles.

Private-sector organisations and NGOs have no formal role in (nor any influence over) management decisions affecting any of these areas in the MZBR, despite providing considerable funding and logistical support for activities happening within these areas. Similarly, they have no direct access to any funding from UNESCO for progressing the vision and future management of the Biosphere Reserve. This is a problem.

UNESCO requires regular reporting on the state and management of its designated Biosphere Reserves and other protected areas. The Zambezi Society (a private-sector conservation NGO) has been called in to assist Zimbabwe's MZBR committee with reporting for the Middle Zambezi Biosphere Reserve in the absence of any management structure.

The UNESCO-EU-Government of Spain Consultative meeting on strengthening the Middle Zambezi Biosphere Reserve (MZBR) in Zimbabwe (Ref: [UNESCO-EU-Government of Spain Consultative meeting on Strengthening the Middle Zambezi Biosphere Reserve \(MZBR\) in Zimbabwe, July 2017](#)), noted the EU-Government of Zimbabwe survey on effective operations of National parks to promote conservation, cohabitation of human-wildlife and green jobs. The meeting proposed the need to have the MZBR supported by a legal instrument to ensure the designated zones are maintained and encroachment on the core zones is prevented, in order for the MZBR to retain its international significance. There is an urgent need to mobilise funding resources to establish this legal instrument and to ensure that channels are opened up so that progress can be made in the future management of the MZBR. The Zimbabwe Ministry of Environment, Climate, Tourism and Hospitality Industry (MECTHI) has offered to assist with any institutional arrangements that need to be addressed, through their Legal Director.

2.3.2 Budget and staff support. Including approximate average annual amounts (or range from year-to-year); main sources of funds (including financial partnerships established (private/public), innovative financial schemes); special capital funds (if applicable); number of full and/or part-time staff; in-kind contribution of staff; volunteer contributions of time or other support.

There is an urgent need to mobilise funding resources to establish a coordinating framework for the MZBR, which can identify priority actions, take the necessary steps towards the creation of a Management Plan for the area, assist with the establishment of a legal instrument to protect the MZBR, and engage the necessary staff (and budget) for future actions.

2.3.3 Communications strategy for the biosphere reserve including different approaches and tools geared towards the community and/or towards soliciting outside support.

The communications strategy for the MZBR needs improvement. A [simple pamphlet](#) was designed to raise awareness and educate stakeholders about the biosphere reserve when awareness workshops were held in key districts of the MZBR by ZimNATCOM in 2017. A plan to erect billboards creating awareness about the Biosphere Reserve along main roads through the reserve (funded through WWF) has not yet been achieved.

The UNESCO Programme communication strategy can assist NATCOM/MAB in highlighting different approaches to creating community awareness e.g. AWF Projects. Lessons can also be learned from other key stakeholders regarding fundraising for communication and awareness.

However, lack of direct management and funding hampers progress in this regard. There is an urgent need to mobilise funding resources to increase communication about the meaning and benefits of Biosphere Reserve. This needs to be done with a 'bottom-up' (rather than 'top-down') approach so that stakeholders feel fully engaged from the start without having something 'imposed' upon them.

MAB Germany provided funding assistance to MAB Zimbabwe for community research to inform this first 10-year reporting. As a result of this, householders and key stakeholders in four key districts were interviewed on various relevant topics. However, it was evident that there is very little real awareness about the Biosphere Reserve or its potential benefits among stakeholders.

2.3.4 Strategies for fostering networks of cooperation in the biosphere reserve that serve as connections ('bridging') among diverse groups in different sectors of the community (e.g. groups devoted to agricultural issues, local economic development, tourism, conservation of ecosystems, research and monitoring):

Since 2015, significant progress toward cooperation has been made in the conservation arena between different sectors whose work focuses within the MZBR area - ZimParks, Police/Minerals., Fauna & Flora Unit, conservation NGOs, tourism operators, legal entities etc. A collaborative approach to tackling anti-poaching and the Illegal Wildlife Trade has resulted in significant reductions in poaching for ivory and other wildlife products in the MZBR area and significant efficiency in the capturing and sentencing of poachers and wildlife offenders on a nationwide basis.

It is hoped that the formation in 2020 of the private-sector [Zambezi Valley Conservation Network](#) (a group of collaborating conservation support organisations (CSOs)) will assist with creative and collaborative awareness and fundraising which will benefit the MZBR in the next decade.

In the agricultural sector, conservation NGOs have been working with tobacco companies and communities to try to find solutions to mitigate the impacts of increasing small-scale tobacco growing in the Buffer Zones of the MZBR, often in areas adjacent to the Core Protected Areas.

Bridging work in the community sector began with awareness/outreach workshops held by ZIM NATCOM in 2017 ([MZBR Outreach Awareness Workshops Report Oct-Dec 2017](#)) and was continued with meetings/workshops with local communities held in 2019 by the German-funded research team in [Gokwe](#), [Nyaminyami/Kariba](#), [Mbire](#) and [Chinhoyi](#). But as noted above, future approaches need to be undertaken with a 'bottom-up' (rather than 'top-down') approach so that stakeholders feel fully engaged from the start without having something 'imposed' upon them.

2.3.5 Particular vision and approaches adopted for addressing the socio-cultural context and role of the biosphere reserve (e.g. promotion of local heritage resources, history, cultural and cross-cultural learning opportunities; cooperation with local population; reaching out to recent immigrant groups, indigenous people etc.)

Zimbabwe has signed and ratified the following: the AU Cultural Charter for Africa (1976), Protection of Underwater Cultural Heritage (2001), Protection of the World Cultural and Natural Heritage (1972), Fighting Against Illicit Trafficking of Cultural Property (1970), Protection of Cultural Property in the event of Armed Conflict (1954), Protection of Copyright and Neighbouring Rights (1952/71), SADC Protocol on Culture, Information and Sport (2000), The African Cultural Charter (Port Louis 1976), the African Charter for Cultural Renaissance (Nairobi 2005), and Cultural and Creative Industries in Africa (Algiers 2008).

In 2017, the Mavuradonha Wilderness Area was officially designated as a National Monument (because of the presence of San art and other cultural/historical values). This designation was aimed at protecting it from mining encroachment, but it also serves to promote the value of local heritage in the area. Although the Wilderness Area was not originally included within the MZBR, it is proposed in this report that it be added as a Core Area Extension.

2.3.6 Use of traditional and local knowledge in the management of the biosphere reserve.

Unquantified as yet – the traditional leaders have this knowledge which they are prepared to share with the authorities within the Biosphere Reserve. Some ZimParks employees are also from within the Biosphere Reserve and have local knowledge. But until such time as a proper management structure is established for the MZBR it is difficult to access or use this knowledge to the benefit of the reserve.

A study undertaken in March 2019 in a Transition, Buffer and Core Zone of the Biosphere Reserve area, indicated that the degree of Indigenous Local Knowledge (ILK) is higher in the transition zone areas, than in the Core or Buffer Zones. However, there is no mainstreaming of ILK in the formulation of key environmental laws which are pivotal in biodiversity conservation.

The harnessing of local knowledge to help guide management approaches to conservation and sustainable development offers the future management of the Biosphere Reserve a unique opportunity to implement a ‘bottom-up’ stakeholder approach to conservation which will serve to create much greater awareness and appreciation of the benefits of the MZBR than previously.

2.3.7. Community cultural development initiatives. Programmes and actions to promote community language, and, both tangible and intangible cultural heritage. Are spiritual and cultural values and customary practices promoted and transmitted?

The government has embarked on promotion of culture by appointing cultural officers through the Ministry of Home Affairs and Cultural Heritage. The [Draft Cultural Policy for Zimbabwe](#) contains the following as key strategic areas of focus (priority areas) aimed at promoting community cultural development initiatives:

- Safeguarding Zimbabwean Cultural Identity
- Appreciation and Respect for Indigenous Zimbabwean Identities and Cultural Diversity
- Safeguarding Zimbabwean Heritage
- Promotion of Indigenous Knowledge
- Cultural and Creative Industry Development
- Infrastructure Development
- Education and Training and
- Culture and International Relations.
- Resource Mobilisation

For example, the NyamiNyami Festival which was hosted by the Zimbabwe Tourism Authority (ZTA) in Kariba town played an important role in nation-building; bringing people from every religious, economic and social background together. Economic benefits may also accrue through, for example, improved economic stability in the area and improved infrastructure and amenities, which are important for developing destinations. The thrust of festivals and cultural events is to generate or grow the local economy through attracting inward investment, new businesses or expenditure and increased tourist arrivals. For instance, revelers come from outside Kariba and neighbouring Zambia thus, everyone in the tourism value chain benefits. The MZBR management (once established) could play a part in reviving such events and creating awareness of their importance.

2.3.8 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the Biosphere Reserve. Has there been a change in the number of spoken and written languages? Has there been a revitalization programme for endangered languages?

To date, there hasn't been any change in as far as spoken and written languages are concerned. Findings from the household survey (Table 12) revealed that Shona (88.4%) remains the major language followed by Tonga (55.3%) whilst Ndebele and Ndau are some of the minority languages.

Table 12: Proportion of respondents speaking different languages

Language	Frequency	Percentage
Shona	326	88
Tonga	204	55
Korekore	177	48
Other*	114	31
Ndebele	49	13
Ndau	8	2

*Detailed data is available in the [Household Survey Questionnaire responses – database](#)

Table 13: Programmes to promote local languages

Programme	Frequency
Primary and secondary education	19
Radio	27
None	9

2.3.9 Management effectiveness. Obstacles encountered in the management/coordination of the Biosphere Reserve or challenges to its effective functioning:

- There appears to be little shared understanding about the value of a global UNESCO Biosphere Reserve designation. This has resulted in very little ‘buy in’ from authorities currently responsible for the management of the MZBR area and from other stakeholders (in some cases, almost active resistance to the concept).
- The Reserve has no legislative standing in the statutes of Zimbabwe as yet (a [Draft Statutory Instrument](#) was prepared by the MAB Committee in 2017 and submitted to ZimNATCOM for onward transmission to the Ministry of Environment, but no progress has been made since).
- There has been no progress in the creation of a MZBR Management Plan to provide direction.
- No funding appears to have been made available/accessed for any of the above.
- Absence of a coordinating structure and ‘point person’ to lead the process.

These matters need to be addressed urgently in order that the MZBR can start to function effectively.

2.4 Comment on the following matters of special interest in regard to this biosphere reserve: (refer to other sections below where appropriate):

2.4.1 Is the biosphere reserve addressed specifically in any local, regional or/and national development plan? If so, what plan(s)? Briefly describe such plans that have been completed or revised in the past 10 years.

The general lack of awareness of the MZBR means that it is unlikely that the Reserve has been specifically addressed in any local, regional or national development plans (mentioned below) as yet. Certain conservation NGOs know the latent value of the MZBR and bring it to the attention of their international audiences in their communications. It is hoped that when a management structure is in place, awareness will improve.

- Transfrontier Conservation Areas:
 - a) KAZA/ Matusadona National Park
 - b) Mana Pools/Lower Zambezi Transfrontier Conservation area agreements.
- Current ZIMPARKS 5-year National Strategy - 2019 - 2023 (Ref: [ZIMPARKS-STRATEGIC-PLAN-2019-2023 \(pdf\)](#)).
- ZimParks yearly Management Plans.
- ZimParks' report to UNESCO on the status of the Mana/Sapi/Chewore to the World Heritage Site.
- ZIMPARKS Management Plans (e.g. The Mana Pools Management Plan).
- ZIMPARKS Elephant Management Plans.
- The National Biodiversity Strategic Action Plan (NBSAP).
- Local RDC Development Plans (Hurungwe and Mbire Natural Resources Management Plan 2019).

2.4.2 Outcomes of management/cooperation plans of government agencies and other organisations in the biosphere reserve.

The following are potential outcomes of various management/cooperation plans which have relevance to the Biosphere Reserve:-

KAZA is promoting transboundary collaboration and could provide some funding inputs to the Matusadona Core Area of the Biosphere Reserve.

Similarly AWF is involved in transboundary collaboration in the Mana Pools/Lower Zambezi area and could assist with providing funding inputs to the Mana Pools/Sapi area of the Biosphere Reserve.

The Zimbabwe National Elephant Management Plan (and its regional sub-plans) which were developed following the surveys conducted by the Great Elephant Census 2014 have already enabled public and private-sector stakeholders to attract funding to assist with combating elephant poaching.

Mana Pools Management Plan - this was developed with stakeholder consultation in 2005, but has not been revised since then. As a result there is a danger of uncontrolled development initiatives (tourism/mining etc) providing threats to the Park's ecosystems. There is an urgent need for funding to be found to revise this plan (ideally in the context of the Biosphere Reserve).

The six-year UNDP-GEF-funded project Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe, known as the Zambezi Valley Biodiversity Project is likely to have significant synergies with the Mid-Zambezi Biosphere Reserve (e.g. development of a Management Plan for the Mid-Lower Zambezi Valley area as a whole).

2.4.3 Continued involvement of local people in the work of the biosphere reserve. Which communities, groups, etc. How are they involved?

Local people are involved in a variety of conservation related projects across the MZBR rural districts (although this is not necessarily directly associated with the 'work of the biosphere reserve').

Local community participation is fairly well distributed, with all groups or segments of communities such as the youth, women and the elderly and minority groups being involved. Projects being supported by the Environmental Management Authority (EMA) across all districts include hay bailing, firefighting, grass thatch combing and preparation of fire guards. These activities are being further supported by funding from the GEF 6 project 'Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe' being implemented by the Government of Zimbabwe, through the Ministry of Environment, Climate, Tourism and Hospitality Industry (MECTHI) and in partnership with the UNDP. The project is part of a global programme entitled 'Global Partnership on Wildlife Conservation and Crime Prevention for

Sustainable Development' also known as the Global Wildlife Programme (GWP). The GEF 6 project engages a number of development agencies in the implementation of small grants. These include the EMA, Forestry Commission, Lower Guruve Development Association, ADRA; SAFIRE; Campfire Association; National Parks and Wildlife Management (ZimParks), as well as others that are operating outside GEF - 6 e.g., Africa Wildlife Trust. In Mbire District, small grants projects have been provided to the following local organisations:

- i) Lower Guruve Development Association - Conservation Agriculture and bee keeping.
- ii) Environment Africa tsootso stoves; solar energy and biogas.
- iii) Zimbabwe Apiculture Trust- beekeeping - compliments efforts by Carbon Green Africa to safeguard apiaries from fire.
- iv) Forestry Commission - supports Sustainable Forestry Management projects across all districts- such as local indigenous tree nurseries e.g. masawu, baobabs and borehole drilling for water provision.

The small grants projects also include the now popular Pfumvudza Programme or Conservation Agriculture (CA) which is now supported by government and donors (non-governmental organisations) across all the districts in the MZBR. Communities dig holes and plant seeds of all types of crops, including small grains while government and donors provide inputs and technical skills. In Mbire District the project is being spearheaded by the Lower Guruve Development Association (LGDA).

Local communities also participate in Campfire Committees and take part in environmental monitoring activities such as anti-poaching. Kariba Redd+ also indirectly benefit the local people through the Hurungwe and Mbire Rural District Councils. For example, the funds from Kariba Redd+ have reported to have been used in the construction of a classroom block in Masoka Ward 11 (Mbire).

Local people are randomly selected to serve in the environmental committees so they can help enforce the laws as guided by the Local Environment Action Plan (LEAP).

2.4.4 Women's roles. Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration within the biosphere reserve? What incentives or programmes are in place to encourage their representation and participation? (e.g. was a "gender impact assessment" carried out?). Are there any studies that examine a) whether men and women have different access to and control over sources of income and b) which sources of income do women control? If so, provide reference of these studies and/or a paper copy in an annex.

Table 14: The following show the responses received from the field questionnaire exercise carried out in 2019 by the research team

Ranking Women's participation	Frequency	Percentage
Bad	127	34.42
Good	114	30.89
Very bad	74	20.05
Excellent	18	4.88
Extremely excellent	3	0.81

Women are not generally given equal consideration (traditionally) in organisations and decision-making processes, but there is some government support (Ministry of Women's Affairs) and a lot of international NGO support being provided (e.g. Red Cross, World Vision, Action Aid etc.) to boost women's roles in the community throughout Zimbabwe, including within the community areas of the MZBR. No 'gender impact assessment' has been carried out other than that included in the Zambezi Society-led community survey research.

Table 15a: Programmes and projects involving women

Programmes and projects involving women	Frequency	Percentage
Other*	220	59.62
Community gardening	87	23.58
Environmental clubs	64	17.34
Awareness campaigns	55	14.91
Rangers in parks	17	4.61

*Detailed data is available in the [Household Survey Questionnaire responses – database](#)

Table 15b: List of activities and projects for women

List of activities and projects for women
Cookery training
Women were given US\$5 by Women Coalition to participate in poultry projects, sewing projects like recyclable pads sponsored by Carribea Bay
But incentives are not evenly distributed
Red Cross giving capital
Funds for gardening
Projects for making pads and detergents
Women were donated 1000 US for soap making project
Red cross offers women start-up capital
Given money to start projects like goat and chicken keeping
Money to start businesses
CAMPFIRE projects but it has stopped now
World Vision provides women with start ups
Action Aid goat keeping projects
Do gardens and take care of family
Woman bank
Gardening
Benefits from proceeds
Worldvision gives residents incentive
Environmental clubs from the DA
Government gender equality
Worldwide gives women incentives
World vision through council
Given money for fish groups
Through the local council
Patsaka college
Poultry and sewing
Gender equality campaigns
Patsaka Trust encourages women with business startups. Ministry helps empower women
Food and nutrition projects
Reserve bank loans
Ministry of gender
Market gardening
Red Cross
Red Cross teaching women gardening
To unite and income generating projects

Some programmes for empowerment of women in certain limited areas. Other programmes noted in the area.

- Women activities being facilitated by Ministry of Women Affairs
- Women's bank provide funding for women
- Internal sewing and lending systems (Mikando)
- Entrepreneurship trainings
- Conflict resolution trainings
- Bee keeping projects in partnership with AWF as a HWC mitigation strategy
- Sesame and paprika farming
- Goat keeping groups - management training
- Value addition and food processing e.g baking, vegetable drying
- Project proposal writing - to access funds and loans from Women's bank
- Community gardens (Crop and livestock centre)
- Gender mainstreaming with Action Aid
- Awareness campaigns against gender violence

The Akashinga Programme for anti-poaching in Phundundu, Hurungwe District has made great strides in empowering women. Akashinga is a community-driven conservation model, empowering disadvantaged women to restore and manage a network of wilderness areas as an alternative economic model to trophy hunting. The programme aims to employ 1000 female rangers by 2025 protecting a network of 20 nature preserves under International Anti-Poaching Foundation (IAPF) management.

2.4.5 Are there any changes in the main protection regime of the core area(s) and of the buffer zone(s)?

a. Matusadona National Park: On 1 November 2019, the Government of Zimbabwe and conservation NGO **African Parks** signed a 20-year co-management agreement for this Park. African Parks in partnership with the Zimbabwe Parks and Wildlife Management Authority (ZPWMA/ZimParks) will implement management strategies to secure the park and restore wildlife populations, unlocking its ecological, social and economic value, enabling communities to derive long-term benefits.



Matusadona National Park in Summer. Photo by Wild Zambezi

b. **Sapi and Rifa/Hurungwe Safari Areas** previously designated for hunting, now have new management agreements with non-hunting concessionaires as follows:-

Sapi: Great Plains Conservation took over the concession of the Sapi Safari Area in 2016 for photographic tourism, renaming it the Sapi Private Reserve.

Rifa: Hemmersbach Rhino Force took over the concession of the Rifa Safari Area in 2017 for the Zambezi Black Rhino Project which aims to establish an anti-poaching presence and make the area safe for the reintroduction of the black rhino species to the Zambezi Valley.

c. Greater **collaboration** between public sector (ZimParks, ZimPolice etc) and private sector NGOs has seen reduction in poaching and greater efficiency in dealing with Illegal Wildlife Crime throughout the area.

2.4.6 What research and monitoring activities have been undertaken in the biosphere reserve by local universities, government agencies, stakeholders and/or linked with national and international programs?

See the detailed list of research documents in Section 2.2.6. The table below summarises:

Table 16: Research and Monitoring Focus

Research and Monitoring Focus	Stakeholders involved
Monitoring of poaching and illegal wildlife trade and legal processes associated with these in the Zambezi Valley & elsewhere in Zimbabwe	Zambezi Society/IAPF Illegal Wildlife Crime Initiative, Tikki Hywood Foundation and other Conservation NGOs
Aerial monitoring of elephant populations in the Zambezi Valley	Great Elephant Census (2014) Flying for Wildlife (ongoing)
Collaring and monitoring of elephant and other species (Mana Pools)	ZimParks with Bushlife Conservancy
Monitoring of lion, leopard and other predator populations by (spoor counts/camera traps) in Matusadona,	WildCru, Panthera, Matusadona Lion Project, Painted Dog Conservation

Mana Pools and Charara	
<ul style="list-style-type: none"> ● Carnivore research ● Tuskless vs tusked elephants ● Study on road kills ● Study on trophy quality 	ZimParks
Monitoring of deforestation and habitat loss, Hurungwe District	African Wildlife Foundation, REDD+, Carbon Green
Monitoring of fisheries	UZ Lake Kariba Fisheries Research
Monitoring of tourism stats and revenue	Zimbabwe Tourism Authority
Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe	UNDP programme funded by the Danish Govt and Global Environment Fund (GEF)
Human wildlife conflict (HWC)	Local Universities (Chinhoyi University of Technology, University of Zimbabwe, Bindura University)
Monitoring of climate change and consequences	Local Universities (Chinhoyi University of Technology, University of Zimbabwe, Bindura University)

Production & Conservation in Partnership (Lower Zambezi/Mana Pools)	EU Dream Project (RP-PCP) Local universities
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2.4.7 How have collective capacities for the overall governance of the biosphere reserve (e.g. organization of new networks of cooperation, partnerships) been strengthened?

Since the results of elephant population surveys undertaken in 2014 for the Great Elephant Census showed considerable declines of 40% and 75% respectively in the Zambezi Valley and Sebungwe areas of Zimbabwe, there has been a ground-swell of change in terms of greater collaboration between public and private stakeholders in seeking to find collective solutions to such conservation challenges. An acceptance of the need for close collaboration and NGO support for strengthening ZimParks' capacity has been achieved within the Parks Estate areas (Core and Buffer Zones of the Biosphere Reserve), leading to considerably improved and effective management of ground operations, and a noticeable reduction in poaching and illegal wildlife crime.

There has also been a growing acceptance of the need for holistic, long-term, management planning for the whole Zambezi Valley (the greater part of the MZBR) – long advocated for by organisations like the Zambezi Society – although currently availing the funds required for such an exercise is a challenge.

Some partnerships between the private and public sectors within community areas in the Buffer and Transitional Zones through Rural District Councils/traditional leaders are taking place, but truly meaningful collaboration to the long-term benefit of people in these communities has yet to be achieved.

2.4.8. Please provide some additional information about the interaction between the three zones:

- A. Current trends indicate that hunting as a land-use is losing popularity worldwide. Hunting revenues are down, and some Buffer Zone Safari Areas are looking to change to non-hunting/tourism revenues (this has already happened in Sapi and Rifa Safari Areas). But there are challenges with this because many of the Safari Areas set aside for hunting have VAST landscapes which are located in remote areas with rugged terrain and marginal soil-types which are completely unsuitable for tourism or agriculture.
- B. Economic hardships are encouraging quick fix agriculture (e.g. tobacco) and other cash crops which are detrimental to the habitat in the Buffer and Transitional Zones, and are impacting on the Core Areas.

2.4.9 Participation of young people. How were young people involved in the organizations and community decision-making processes? How were their interests and needs considered within the biosphere reserve? What are the incentives or programs in place to encourage their participation?

Specific questions addressing this issue were included in the household questionnaires that were conducted during the 2019 community research exercise. The results can be summarised as follows:-

Table 17: How are the youth's interests and needs considered in the Biosphere Reserve?

Value	Frequency	Percentage
Not represented	185	50
Neutral	70	19
Represented	56	15
Somewhat represented	49	13
Extremely represented	3	1

Table 18: Incentives for young people

Incentives or programmes for young people (youth)	Frequency	Percentage
None	238	65
Awareness campaigns	58	16
Recycling programs	55	15
Environmental clubs	35	9
Other	34	9

Established on 26 October 2017, the Zimbabwe Youth Biodiversity Network (ZYBN) is a registered national chapter of the Global Youth Biodiversity Network (GYBN). ZYBN was created out of the need to advocate for biodiversity protection and to create a platform for young people and communities to engage and actively participate in biodiversity conservation. However, the research indicated that in most districts, youth participation is said to be at a low scale in the Biosphere Reserve.

Private sector NGOs (Zambezi Society and the Zambezi Elephant Fund) are piloting a Young Influencers and Young Guides education programme in Hurungwe District. The Young Influencers forum is designed to link those in a range of leadership positions interested in conservation to issues, activity and impact on the ground. To date the forum attracts over 30 participants.

3. ECOSYSTEM SERVICES:

3.1 If possible, provide an update in the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services:

(As per previous report and with reference to the [Millennium Ecosystem Assessment Framework](#) and [The Economics of Ecosystems and Biodiversity \(TEEB\) Framework](#))

Residents in the Transitional Zone south of the Mana Pools/Hurungwe core and buffer zone recently noted the following goods and services as being of significant importance to their wellbeing. This portion of the transition zone lies predominantly within the 'miombo' savannah woodland habitats characteristic of the Zimbabwean plateau.

Table 19: Overview of ecosystem goods and services in the Biosphere Reserve

Ecosystem goods and services in the Biosphere Reserve	Responses	Percentage
Food and Fibre	261	70
Wood	261	71
Livelihood alternatives	202	54
Clean water	163	44
Biodiversity conservation	72	20
Medicinal	54	15
Employment creation	51	14
Education	36	10
Recreation	31	8
Aesthetic	17	4

Other than this, no new research is available to provide the requested update.

3.2 Specify if there are any changes regarding the indicators of ecosystem services that are being used to evaluate the three functions (conservation, development and logistic) of the Biosphere Reserve. If yes, which ones and give details and update:

No changes. Structures are not yet in place to provide for such indicators.

3.3 Update description on biodiversity involved in the provision of ecosystems services the biosphere reserve (e.g. Species or groups of species involved).

There appears to be no significant change in overall species diversity other than possible losses due to deforestation in some Transitional Zone components. One point worth noting, however, is that there are no known studies within the area of the species and abundance of plants of medicinal value, of the utilization of such species by local communities or of attempts (legal or otherwise) to remove genetic resources from the area. This may be a key area for future attention, as 'medicinal' benefits are noted as being of importance to a significant number of respondents noted in 3.1 above; and these attributes have received growing attention in wider conservation circles.

3.4 Specify whether any recent/updated ecosystem services assessment has been done for the biosphere reserve since its nomination/last report. If yes, please specify and indicate if and how this is being used in the management plan.

Not done for Biosphere Reserve since nomination. At this point we should note that although the MAB committee is acutely aware of the need for an overall MZBR management plan and detailed subcomponents, and has consulted with relevant stakeholders at District levels, implementation has so far been hampered by the decision-making process lying elsewhere and by a lack of resources.

The document describing the 2017 outreach activities carried out by a team of ZimNATCOM representatives in the six main settled districts of the Biosphere Reserve (*Ref: [MZBR Outreach Awareness Workshops Report Oct-Dec 2017](#)*) provides some useful insights into understanding opportunities, issues and constraints currently involved in establishing a management framework for the Middle-Zambezi Biosphere Reserve.

4. THE CONSERVATION FUNCTION:

[This refers to programmes that seek to protect biodiversity at landscape and site levels and/or ecological functions that provide ecosystem goods and services in the biosphere reserve. While actions to address this function might be focused on core area(s) and buffer zone(s), ecosystem dynamics occur across a range of spatial and temporal scales throughout the biosphere reserve and beyond.]

4.1 Significant changes (if any) in the main habitat types, ecosystems, Species or varieties Of traditional or economic importance identified for the Biosphere Reserve, including natural processes or events, main Human impacts, and/or relevant management practices (since the last report).

a. At a national level, up to 330,000 ha of Zimbabwe's indigenous woodland are estimated to be lost every year. Although no firm figures are available, parts of the Biosphere Reserve transition zone have suffered a corresponding loss of indigenous tree cover, and ongoing losses of this nature are almost certainly the major habitat change that has taken place since the Biosphere Reserve was gazetted.

This is most noticeable in the Transition Zone areas adjacent to the Mana Pools core area and Charara buffer zone, mostly attributable to the initiation of community-level wood-fired tobacco curing. Remedial action has taken the form of *Eucalyptus* plantations as a substitute, and indigenous tree growing in deforested areas by the 'My Trees' project and others (see Section 4.3.2 below).

b. The small black rhino population surviving in the Matusadona National Park at the time of the Biosphere Reserve nomination has become extinct.

c. The extinction of black rhinoceros in the Zambezi Valley prior to the Biosphere Reserve nomination has generated minor vegetation changes in some areas, notably the spread of *Croton megalobotrys* on the Mana Pools alluvium. The species was formerly browsed extensively by black rhinoceros.

d. The most recent elephant survey revealed an overall loss of 75% of the elephant population in the Sebungwe region and 40% of the elephant population in the Zambezi Valley since 2001 ([National Summary of Aerial Survey Results for Elephant in Zimbabwe: 2014](#) - Kevin Dunham Oct 2015 for Great Elephant Census). Both these regions include portions of the Biosphere Reserve. The proximate cause was illegal ivory hunting; the ultimate cause is thought to be the rapid decline of the Zimbabwean economy since the 2000-2001 land redistribution exercise and human population displacements resulting from this.

e. Early in the report period, the accidental release of Australian red claw crayfish (*Cherax quadricarinatus*) into Lake Kariba resulted in a population explosion of this species, with severe impacts on native fish species. The situation has since improved through 'learnt' predation by tigerfish and aquatic birds.

f. Lake Kariba's population of introduced *Limnothrissa miodon* (Tanganyika sardine) has been severely depleted by overfishing during the report period. This has impacted on livelihoods on the Kariba shoreline.

g. Lake Kariba's population of tigerfish (*Hydrocynus vittatus*) is believed to have been reduced significantly by the reduction in the *Limnothrissa* populations and also, anecdotally, by the siltation of tributary river spawning-grounds due to upstream alluvial mining.

4.2 Describe the main conservation programmes that have been conducted in the Biosphere Reserve over the past ten years as well as current on-going ones. Note their main goals and the scope of activities, e.g. biotic inventories, species-at-risk, landscape analyses,

conservation stewardship actions. Cross reference to other sections below where appropriate:

A wide range of conservation programmes and activities have historically been implemented in the area now included in the MZBR, because of its long-standing importance to Zimbabwean wildlife, biodiversity and wilderness conservation. The Zambezi Society, for example, was established shortly after Zimbabwean Independence in 1980, in response to threatened hydroelectric development that would have seriously impacted on what are now MZBR core and buffer zones. The Society drafted the successful application for World Heritage status in 1984, and has been continuously active within the overall area ever since.

Other long-standing conservation NGOs in the Reserve include The Tashinga Initiative (TTI) which has, for many years, focused on the improvement of conditions of service, construction of ranger stations and provision of equipment to the Zimbabwean Parks & Wildlife Management Authority (ZPWMA).

Over the years, there have been two major thrusts by conservation agencies and safari operators within areas that now form parts of the Biosphere Reserve. One has focused on the improvement of conditions of service for ZPWMA staff (housing, food, uniforms) and on supplementing and reinforcing field anti-poaching operations. The other – notably by the CAMPFIRE Association and its members – originally focused on sustainable wildlife and natural resource utilisation among communities on the boundaries of the ZPWMA-managed Core and Buffer zones. The CAMPFIRE schemes, however, have become less effective over the past decade and have recently undergone a substantial review, with the introduction of a new framework and approach in 2020.

Since 2001, declines in the Zimbabwean economy and in external donor funding have had several major adverse impacts including much reduced funding for ZPWMA. There has been a corresponding decline in ZPWMA's capacity to manage what are now the MZBR core and buffer zones. This, in turn, catalysed growing NGO involvement in the area in order to assist and supplement ZPWMA's capacity and capability.

The most visible impact arising from the economic scenario has been an increase in illegal wildlife hunting as noted in Section 4.1 above, and also including subsistence and commercial bushmeat hunting, the latter occurring largely on the interface between Core/Buffer zones and the Transition Zone.

1. The Zimbabwe Parks & Wildlife Management Authority (ZPWMA) is the responsible overall management agency within the Core and Buffer Zones. However, ZPWMA's financial and manpower capacity is severely limited due to Zimbabwe's economic problems. They are therefore assisted by a range of supplementary NGO and safari operator conservation activities, all of which are guided by and report to the Authority. These activities are now also guided by the [Zimbabwe National Elephant Management Plan \(2015-2020\)](#) and the [ZIMPARKS-STRATEGIC-PLAN-2019-2023 \(pdf\)](#).

a. Anti-poaching support:



Ranger weapons training. Photo by Zambezi Society

- i. ZPWMA ranger training, anti-poaching and firearms use - The Zambezi Society
- ii. Training of undercover intelligence operatives under a collaborative Illegal Wildlife Crime Initiative - The Zambezi Society and the International Anti-Poaching Foundation, working with ZPWMA and other law-enforcement authorities.
- iii. Improvement of living and working conditions for ZPWMA anti-poaching staff including housing, field equipment and other essentials - The Tashinga Initiative, Bushlife Conservancy, The Zambezi Society, tourism operators.
- iv. Regular aerial monitoring, including carcass counts, using low-cost Light Sport Aircraft equipped with advanced GPS navigation, tracking and data recording equipment - Flying for Wildlife.
- v. Control of fish poaching on the Lake Kariba shoreline of the Matusadona National Park and other vulnerable sections of the Lake Kariba and Zambezi River components of the Biosphere Reserve - Ref: Matusadona Anti-Poaching Project (MAPP) and Conservation Lower Zambezi.

b. Research into species at risk:

- i. The major species of concern within the area are wild dog, cheetah, lion, pangolin and elephant. At present, much of this work is focused on population survey and the monitoring of movements and ranges, with a view to identifying what - if any - remedial conservation activities are required - WildCru, Zambezi Society, Tikki Hywood Foundation, Painted Dog Conservation, Cheetah Conservation Project, Bushlife Conservancy.



Wild Dogs in Mana Pools. Photo by Wild Zambezi

Table 20: Major Management plans and strategies (species conservation)

Area	Species or habitat	Timeframe	Full title	Links
<i>International</i>	<i>Elephant</i>	<i>2010-2020</i>	<i>African Elephant Action Plan</i>	https://www.iucn.org/sites/dev/files/import/downloads/e15i_68.pdf
<i>International</i>	<i>Vultures</i>	<i>2017-2029</i>	<i>Multi-species Action Plan to Conserve African-Eurasian Vultures</i>	https://www.cms.int/raptors/manage/raptors/manage/raptors/sites/default/files/publication/vulture-msap_e.pdf
<i>Kavango Zambezi Transfrontier Conservation Area</i>	<i>Wild dog</i>	<i>2014-2019</i>	<i>Conservation Strategy and Action Plan for the African Wild Dog (Lycaon pictus) in the Kavango Zambezi Transfrontier</i>	http://www.cheetahandwilddog.org/WP/staging/9849/wp-content/uploads/2017/06/kaza-ftca-african-wild-dog-conservation-strategy-1.pdf

			Conservation Area, March 2014-March 2019	
National	Elephant	2015- 2020	Zimbabwe National Elephant Management Plan, 2015-2020	https://static1.squarespace.com/static/59f67f86d74cff2410980eb1/t/5abf6a45aa4a998a3b5ef24a1522494046827/ZIMBABWE-ELEPHANT-MANAGEMENT-PLAN-APPROVED-FINAL-1.pdf
National	Rhino	2011- 2016 Update publish ed in 2018	Zimbabwe Rhino Policy and Management Framework 2011-2016	http://www.rhinoresourcecenter.com/pdf_files/137/1376469241.pdf
National	All	Under develo pment	ZimParks Scientific Services Unit Research Strategy	
Middle Zambezi	Elephant	2015- 2020	Sebungwe Action Plan (Annex to Zimbabwe National Elephant Management Plan, 2015-2020)	
Lower Zambezi	Elephant	2015- 2020	Lower Zambezi Action Plan (Annex to Zimbabwe National Elephant Management Plan, 2015-2020)	
Lower Zambezi	All	2017- 2019	Zambezi Valley Law Enforcement Plan June 2017	

<i>Mana Pools</i>	<i>All</i>	<i>Developed in 2005 but never endorsed.</i> <i>Update started in 2018.</i>	<i>Mana Pools National Park General Management Plan</i>	
<i>Mana Pools and neighbouring Safari Areas</i>	<i>All (but with an elephant focus)</i>	<i>2015</i>	<i>Draft Mana Pools National Park Anti-Poaching Plan</i>	

2. Within the transitional zones, and therefore outside the boundaries of the Core and Buffer Zones, ZPWMA retains an overall and nationwide supervisory mandate as regards legislation and management, but has the power to delegate management authority to local District Councils and other landholders.

a. Wildlife management

The major force for wildlife management within the Transition Zones was the Communal Areas Management Programme For Indigenous Resources (CAMPFIRE) programme, which became active in the area in the 1990s. Briefly, the Association's members are Rural District Councils empowered to manage and utilise wildlife resources for community benefit as 'appropriate authorities' in terms of Zimbabwe's 1975 Parks Act and its amendments. The 'Masoka model' – which takes its name from a community within the area – provided a model for similar schemes, not only in Zimbabwe, but also elsewhere in Africa. However, as these schemes rely entirely on sport hunting and tourism, and decision-making does not necessarily rest directly with the community, their effectiveness has been severely impaired during the report period. A comprehensive review of the CAMPFIRE programme undertaken with EU funding has resulted in a proposed new framework and direction in 2020.

b. Forestry & related issues

Deforestation has become an important issue in the Biosphere Reserve Transition Zone, notably in the areas on the southern boundaries of the Mana Pools and Hurungwe Core and Buffer Zones. This has largely resulted from the rapid development of wood-fired tobacco curing technologies at community levels. The key activities currently under way in these areas involve the development of *Eucalypt* spp. plantations to provide an alternative wood source; the rejuvenation of deforested areas by planting indigenous seedlings (My Trees Project); the development of alternative means of curing tobacco (African Wildlife Foundation); and the establishment of a carbon credit scheme for Transitional Zone residents (Kariba REDD).

List of conservation stakeholders in the Middle-Zambezi Biosphere Reserve:

Government agencies:

- Ministry of Environment, Climate Tourism & Hospitality Industry (MECTHI)
- Zimbabwe Parks & Wildlife Management Authority
- Environmental Management Agency (EMA)
- MFFU Minerals Fauna & Flora and Border Control Unit of the Zimbabwe Republic Police
- Forestry Commission

Private Sector International:

- African Wildlife Foundation
- Elephant Crisis Fund
- Global Wildlife Conservation (GWC)
- Lion Recovery Fund
- International Anti-Poaching Foundation (IAPF)
- MIKE-Minimizing the Endangered Killing of Elephants and other Endangered Species (CITES)
- Panthera
- Wildcru (University of Oxford)

Private Sector local:

- African Bush Camps, <https://www.africanbushcamps.com>
- African Wildlife Foundation, <http://www.awf.org>
- Bumi Hills Antu-Poaching Unit, <https://www.bumihillsfoundation.org/anti-poaching>
- Bushlife Support Unit, <https://bushlifeconservancy.org>
- CAMPFIRE (Communal Areas Management Programme for Indigenous Resources), <https://www.campfirezimbabwe.org>
- Carbon Green, <http://www.carbongreenafrica.net>
- Chewore Lodge and Campsite, <http://www.chewore.com>
- Chirundu Elephant Programme, <https://www.facebook.com/Wildlife-Conflict-Management-Chirundu-Elephant-Programme-831221446928996>
- Community-based Conservation Alliance
- Dande Anti-Poaching Unit (DAPU), <http://dapuzim.com>
- Flying For Wildlife, <https://www.facebook.com/flyingforwildlife>
- Gache Gache Anti-Poaching Unit, <http://www.gachegachelodge.com>
- Stretch Ferriera Safaris (Goliath Camp), <http://www.stretchsafaris.com>
- Great Plains Conservation, <http://greatplainsconservation.com>
- IAPF (International Anti-Poaching Foundation) & Akashinga Programme, <https://www.iapf.org>
- Kavinga Safari Camp, <https://kavingasafaris.com>
- Kariba Animal Welfare Fund Trust (KAWFT), <http://www.kawft.org>
- Matusadona Anti-Poaching Project (MAPP), <https://www.facebook.com/Matusadona-Anti-Poaching-Project-MAPP-199482320230811>
- Matusadona Lion Project, <https://www.facebook.com/Matusadonalionproject>
- Musango Island Safari Lodge, <http://musangosafaricamp.com>
- Natureways Safaris, <www.natureways.com>
- Painted Dog Conservation, <http://www.painteddog.org>
- Phundundu Wildlife, <https://www.facebook.com/Phundundu-Wildlife-1583867188513288>
- Pro Safaris (RIFA), <http://www.pro-saf.com>
- Rhino Safari Camp, <http://www.rhinosafaricamp.com>
- Rhino Force, <http://rhino-force.org>
- Rifa Conservation Education Camp, <https://www.facebook.com/RifaEducationConservationCampZimbabwe>
- Robin Pope Safaris, <http://www.robinpopesafaris.net>
- Sino Zimbabwe Wildlife Foundation

- Tashinga Initiative, <https://www.tashinga.org>
- Tikki Hywood Foundation, <http://www.tikkihywoodtrust.org>
- Wilderness Safaris, <http://www.wilderness-safaris.com>
- Zambezi Elephant Fund, <http://zambezielephantfund.org>
- Zambezi Society, <https://zamsoc.org>

3. The Zambezi Valley Conservation Network has recently been established as a communications and liaison “forum of equals” encompassing all major conservation NGO players in the Middle Zambezi Valley, including the UNESCO Biosphere Reserve. The Network is intended to avoid duplication of effort, identify gaps in required activities, and promote collaboration and co-operation among its member agencies.

4.3 In what ways are conservation activities linked to, or integrated with, sustainable development issues (e.g. stewardship for conservation on private lands used for other purposes)?

- The Communal Areas Management Programme For Indigenous Resources (CAMPFIRE) programme became active in Middle Zambezi Valley communal lands in the 1990s. Briefly, the Association’s members are Rural District Councils empowered to manage and utilise wildlife resources for community benefit as ‘appropriate authorities’ in terms of Zimbabwe’s 1975 Parks Act and its amendments. The ‘Masoka model’ – which takes its name from a community within the area – has over the years provided a model for similar schemes, not only in Zimbabwe, but also elsewhere in Africa. These schemes are currently under stress due to declines in hunting and tourism activity but should be relatively quick to revive in an improved macroeconomic environment.
- Deforestation rates in Zimbabwe have reached unprecedented levels. Zimbabwe’s Forestry Commission cites an annual loss of 330,000 hectares of natural woodland and 10 million trees.

My Trees is an initiative between the Zambezi Society and members of the tobacco industry, which aims to replant, restore, and protect indigenous forest in tobacco growing areas, and provide alternative sources of income to affected communities. The objective is to reduce the net rate of natural forest loss in rural Zimbabwe via three interwoven strands of activity:

- Restoration:** Increasing contiguous natural woodland cover by replanting, maintaining and restoring affected areas. My Trees has been carrying out experimental work in the Hurungwe district portion of the Biosphere Reserve. In the first season of operations, My Trees’ focus was on community engagement and establishing the nurseries to grow trees for the 2020/2021 season. Their seven nurseries have germinated over 100,000 tree seedlings which are now ready for planting. In addition, a small site (40 ha) was established to test some of the concepts and logistical assumptions. My Trees has employed eleven growers, six nurserymen and three supervisory staff. Two sites are at schools, one on a titled farm and others allocated by headmen at degraded sites in their area. There is a strong demand for further activity in 2021, when My Trees expects to add two further nurseries and another 300 growers.
- Preservation:** Protecting large areas of remaining intact woodland by enforcing existing legislation and working with national institutions and agencies with a mandate for conservation. My Trees is exploring opportunities to manage over 100,000 ha of intact woodland habitat in the Biosphere Reserve Transition Zone bordering the Core and Buffer Zones. Their aim is to lease these concessions and protect them from further encroachment by communities on their borders, with the medium-term goal of developing their sustainable commercial potential.
- Providing alternatives:** Providing rural communities affected by deforestation with alternative sources of income, technology and fuels. My Trees is providing communities with innovative stoves for tobacco curing that are capable of reducing domestic firewood consumption by up to

75% (or an even larger saving when using woodlot-grown bamboo as fuel). This should facilitate an immediate reduction in deforestation by up to 10,000 ha per annum, greatly reducing pressure on natural woodland. My Trees plans to expand its stove project (trial commenced August 2020) significantly throughout 2021, with a target of 100,000 stoves in use by mid 2022.

The Kariba REDD+ project (see Section 5.7) is also active in this regard, for example by encouraging tobacco farmers to use alternative sources of fuel for tobacco curing. REDD also provides limited funding and technical support for local community gardens and conservation agriculture initiatives. A fund has also been established to support the most vulnerable members of the communities; to promote conservation education on topical issues such as climate change within local schools; and to improve health facilities.

Overall, the MZBR is seen as playing a key role to tackle climate change and other threats to biodiversity thereby contributing towards the achievement of the UN Sustainable Development Goals (SDGs).

The MZBR targets three of these SDGs:

SDG 1 (poverty eradication);

SDG 13 (combating climate change and its impacts; and

SDG 15 (protection, restoration and sustainable use of terrestrial ecosystems, (UN 2015).

4.4 How do you assess the effectiveness of actions or strategies applied? (Describe the methods, indicators used)

In recent years, the major threats to the integrity and biodiversity of the Middle Zambezi Valley conservation areas have come from two sources: illegal hunting, and the impacts of elephants and other large herbivores on woodlands and on sensitive habitats such as alluvial woodlands adjacent to the Zambezi River. However, there is a shortage of adequate management information, notably in respect of large mammal populations and overall biodiversity maintenance.

As already noted, the region's elephant population was reduced by some 40% between 2001 and 2010 by widespread and intensive ivory poaching. In one sense, this has not been catastrophic as it merely reduced a serious overpopulation to more sustainable levels. However, such poaching levels would clearly be ultimately unsustainable, and the intense focus on anti-poaching measures during the past five years has been successful in achieving a significant reduction in ivory poaching.



Anti-poaching Deployments with Rangers in Mana Pools. Photo by Zambezi Society

The inhabited Transition Zones are – equally clearly – key to reducing and hopefully eliminating, not only the commercialised ivory and meat poaching, but also the subsistence hunting and possible encroachment of settlement into the area.

Although we do not as yet have formal data to support it, our subjective opinion is that the measures noted above as being undertaken in the transition zone are laying sound foundations for a future reconciliation between the area’s biodiversity and the surrounding human settlement.

4.5 What are the main factors that influenced (positively or negatively) the successes of conservation efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective for conservation for sustainable development?

The prime factor throughout has been the adverse impact of Zimbabwe’s isolation from the global community since 2001 and the accompanying decline in the national economy and external donor support.

The formally protected Core and Buffer areas under ZPWMA management depend entirely on their income from tourism and sport hunting. Both sources have undergone severe declines since 2001, including the past 10 years that are the subject of this report. NGO activity has been able to focus on a limited number of key issues, but cannot reasonably be expected to fully counter the economic decline that has taken place – especially when these NGO’s are themselves affected by the same factors. Similar observations apply to the effectiveness of community natural resource management schemes.

The main factor that has influenced the remarkable, albeit limited success of the NGO movement in supporting the MZBR and other Zambezi Valley areas, has been the dedication of their constituent members, whose support is unshackled by political fashions and altruistic by nature. Many have not even heard of the UN Biosphere Reserve; most are motivated by a deep personal love of the Zambezi Valley's wildlife and 'wilderness quality'.

4.6 Other comments/observations from a biosphere reserve perspective.

The Biosphere Reserve does not currently enjoy any formal designation or legal status in Zimbabwe. Urgent requirements include the establishment of a coordinating framework, the development of a detailed management plan, consideration of an appropriate legal status for the MZBR in Zimbabwean legislation and appointment of an appropriate coordinator to lead the process.

However, the actual and perceived impacts of any such designation require careful prior assessment and attention. The proclamation of 'protected areas' has historically carried negative connotations for human communities in Zimbabwe. These perceptions and prejudices still persist among some communities, notably those that were forcibly evicted and resettled to make way for such areas. Therefore, genuine benefits must not only accrue to human communities within the Biosphere Reserve, but need to be carefully identified before any such designation or legal status is contemplated, and will need extensive consultation and discussion with these communities. Some progress has been made in attempting to create awareness of the existence (and potential benefits) of the Biosphere Reserve to its communities through outreach visits, workshops and household questionnaire research which took place in 2017 and 2019. But reach for these exercises was limited and constrained by lack of available funds. A much wider and more comprehensive awareness programme needs to be undertaken if perceptions and prejudices are to be overcome.

5. THE DEVELOPMENT FUNCTION:

[This refers to programmes that address sustainability issues at the individual livelihood and community levels, including economic trends in different sectors that drive the need to innovate and/or adapt, the main adaptive strategies being implemented within the biosphere reserve, and initiatives to develop certain sectors such as tourism to complement and/or compensate for losses in other markets, employment, and community well-being over the past ten years]

.....

5.1 Briefly describe the prevailing trends over the past decade in each main sector of the economic base of the biosphere reserve (e.g. Agriculture and forest activities, renewable resources, nonrenewable resources, manufacturing and construction, tourism and other service Industries):

As already noted, the Biosphere Reserve's lifetime to date has coincided with poor overall performance of the broader Zimbabwean economy, and declines in key economic sectors including tourism, trophy hunting, and investment in infrastructure. One recent and adverse manifestation of this scenario has been a rise in interest in the utilisation of valuable and easily accessible mineral resources – notably gold and coal – within national lands technically reserved for biodiversity maintenance and wildlife conservation.

Although some coal reserves are located within the Biosphere Reserve, they are not extensive or easily accessible, and coal exploitation is currently focused on the Hwange National Park, in northwestern Zimbabwe. However, a number of Zambezi rivers originating on the Zimbabwean plateau and flowing through the Biosphere Reserve have a high alluvial gold content and recent rises in world gold prices have catalysed an increase in their exploitation.

Formal sector gold mining is currently taking place under the guise of a 'desiltation project' on a limited stretch of the Angwa River, on the eastern boundary of the Chewore Safari Area buffer zone. However, the resource is easily accessible by low-technology artisanal methods, notably gold

panning, and the past two years have seen a rapid rise in the extent and intensity of this practice, notably in the upper reaches of river systems within the Chewore Safari Area, the Matusadona National Park (Sanyati and Ume Rivers) and Charara Safari Area (Nyodza River). Damage is currently relatively limited, but such deposits represent a 'low-hanging fruit' capable of threatening, in particular, river flows and water quality, and likely to be accompanied by an increase in illegal wildlife hunting.

1. Negative impacts of changes in the Biosphere economic base. Indications include:

- a. Complaints from rural communities in Transition Zones concerning perceived marginalisation including poor road networks, the absence of connections to the national electrical grid, and impacts on water quality due to alluvial mining operations in some areas.
- b. Continuing absence of formal transport such as regular bus services.
- c. Similar absence of lake-borne transport in respect of Lake Kariba, mainly affecting communities in western Transition Zones for whom Kariba town is the nearest urban centre.
- d. Declines in rural incomes from reduction in tourism and safari hunting.
- e. Increased occurrences of human-wildlife conflict including the loss of crops and, in some cases human injury or deaths.
- f. Degradation of protective measures, notably electric fences designed to maintain separation between human and wildlife populations (including fence lines primarily intended to confine the spread of tsetse fly (*Glossina morsitans*)).

2. Actual and potential positive impacts:

- a. Planned improvements in road access, including the tarring of important lines of communication with local centres such as Kanyemba, on the Zambezi River adjacent to the border with Mozambique.
- b. Urban development and increased employment opportunities, notably at Kariba, where, for example, Lake Harvest now employs over 800 people, and construction of several middle-income housing developments is currently underway. Although as yet largely unrealised, the potential for growth in tourism both in centres such as Kariba and Chirundu, and in respect of Transition Zone rural community areas. However, debates over appropriate land use – notably tourism versus agriculture – continue in some parts of the Transition Zone.
- c. It should be noted here that the issue of mining within areas of importance to biodiversity maintenance has recently been the subject of conflicting (and sometimes acrimonious) high-level policy debates. There have, over recent decades, been several such proposals including oil exploration and possible exploitation across a wide area now included in the Biosphere Reserve, and sand mining in several important riverbeds within Core and Buffer Zones. These have been averted, largely due to timely interventions by local conservation NGOs. The outcome of the current policy debates may therefore be critical to the integrity of the Reserve.

5.2 Describe the tourism industry in the biosphere reserve. Has tourism increased or decreased since nomination or the last periodic review? What new projects or initiatives have been undertaken? What types of tourism activities? What effect have these activities had on the economy, ecology and society of the biosphere reserve? Are there any studies that examine whether designation of the area as a biosphere reserve has influenced the number of tourists? Please provide the bibliographic information of any studies and/or a paper copy in an annex.

General

We are not aware of any formal studies concerning the influence of the Biosphere Reserve designation in respect of consumptive or non-consumptive tourism in the area. However, as the

nature and purpose of the designation are relatively little known or understood within Zimbabwe, our subjective view would be that it has had little or no influence over these activities.

Trophy hunting activity has almost certainly declined significantly due to several factors, notably the United States ban on the import of hunting trophies. However – despite overall national trends, and not linked to the Biosphere Reserve designation – there are some positive signs in respect of photographic safari operations, as follows.

- A number of new houseboats and photo safari lodges have been constructed in the Kariba Town area.
- Two new safari camps, totalling 55 beds, and a 9-site campsite have been built along the Zambezi River in the Chirundu area.
- The Mana Pools National Park has, to some extent, become a ‘vogue’ destination as a result of international publicity, notably in respect of its wild dog (*Lycaon pictus*) population which was the subject of a BBC documentary. Recent additional tourism properties include 1 x new lodge; 5 x new safari camps, 3 new ‘temporary extended camp’ sites along the Zambezi River; and 5 x new inland safari concessions.
- The Sapi Safari Area, which lies within the Biosphere Reserve Buffer Zone, is no longer a hunting area and has become a photo tourism concession. To date, 2 x small safari camps have been built and a luxury lodge is planned.
- One new 20-bed tented camp has been developed in the Matusadona National Park.

Positive impacts

Broadly speaking, the positive impacts of these developments take the following forms:

- a. Increased revenue for the Zimbabwe Parks and Wildlife Management Authority, whether from concession fees or Park visitor fees, as all the noted developments are either located on, or depend on, ZPWMA protected areas.
- b. Ongoing and significant local and international media coverage, particularly in tourism-related publications.
- c. Increased and benign human presence in areas vulnerable to illegal ivory and meat hunting.

Negative impacts

- a. Loss of ‘wilderness value’ in areas favoured by photo safari operators, largely due to increased vehicle traffic on limited viewing road networks, but also - in some cases - by inappropriate siting in formerly pristine landscapes, noise from generators etc.
- b. Adverse changes in wildlife behaviour due to tourist pressure.
- c. Increased boating activity, resulting in disturbance of breeding sites for important avian species, notably African Skimmers (*Rynchops flavirostris*).
- d. Increases in air traffic, often aggravated by the use of one airstrip by several camps and lodges.

5.3 When applicable, describe other key sectors and uses such as Agriculture, fishing, forestry. Have they increased or decreased since the nomination or the last periodic review? What kind of new projects or initiatives have been undertaken? What effect have they had on the economy and ecology of the biosphere reserve, and on its biodiversity? Are there any studies that examine whether designation as a biosphere reserve has influenced the frequency of its activities? If so, provide the bibliographic information of these studies and/or a paper copy in an annex.

We are not aware of any studies that examine the influence of Biosphere Reserve designation on the above activities. Although not formally quantified, we have already noted the increase in interest in alluvial and other mining operations within wildlife areas in general, which has had some hitherto limited impact on parts of the Reserve. Other probable factors include:

- a. Increases in small-scale agriculture in Transition Zones, largely due to Zimbabwe's declining economy.
- b. Increases in illegal netting on Lake Kariba and parts of the Zambezi River, with apparent declines in fish populations in affected areas.
- c. A decline in legal fish catches, partly linked to b. above but also resulting from the overfishing of some species, notably kapenta (*Limnothyssa miodon*) caused by the over-issue of fishing licences.

5.4 How do economic activities in the biosphere benefit local communities?

Limited benefits arise in the form of local employment in the fishing and tourism industries. However, such opportunities are often of a menial nature. Ownership and management is, as a general rule, externally-based and professional staff recruited from outside.

5.5 How do you assess the effectiveness of actions or strategies applied? (Describe the methods, indicators)

There are currently no formal evaluations of the effectiveness of these strategies. Our evaluation is therefore necessarily subjective, although based on considerable knowledge and information exchanges with key actors in these sectors.

5.6 Community economic development initiatives. What programmes exist to promote comprehensive strategies for economic innovation, change, and adaptation within the biosphere reserve, and to what extent are they implemented?

[Ngwerume and Muchemwa \(2011\)](#) noted that local communities in Chundu Communal Land formerly accrued marginal benefits from the operation of CAMPFIRE in the area. These benefits were mainly in the form of wildlife revenues derived from trophy hunting to finance infrastructural development projects such as construction of dip tanks, clinics, roads, classrooms and boreholes. Individual households also received cash dividends. In 1992, for instance, Z\$213,349 was received by the ward as its share of CAMPFIRE revenues. Each household received a cash dividend of Z\$224. The remainder was deposited for a grinding mill which was finally paid off in 1993 when the ward got Z\$188,007 from the HRDC. However, key informants concurred that these benefits ceased from around 2000 due to the prevailing economic and political crisis.

These activities are monitored by HRDC departments such as the Department of Agriculture and Natural Resources and Social Services (Hurungwe Rural District Council, HDRC 2014) whose activities aim to promote green economy initiatives. The Department of Agriculture and Natural Resources further coordinates issues related to problem animal control (PAC) and monitoring of natural resources such as wildlife, and also conducts stray stock auction and awareness campaigns related to nature conservation.

As previously noted the document, **Awareness Programme aimed at strengthening management of the Middle Zambezi Biosphere Reserve through community involvement for sustainable development** which describes the community outreach programme carried out by ZimNATCOM in 2017, also refers (Ref: [MZBR Outreach Awareness Workshops Report Oct-Dec 2017](#)).

5.7 Local business or other economic development initiatives. Are there specific “green” alternatives being undertaken to address sustainability issues? What relationships (if any) are there among these different activities?

An analysis of policy documents from Hurungwe Rural District Council indicates that the district has policy instruments which outline roles and responsibilities related to the green economy transition agenda. For instance, the 2015 Annual Development Plan highlights the developments related to irrigation projects for income generation, ecotourism development in Mana Pools National Park, Magunje and Vuti CAMPFIRE projects, and nutrition gardens (Hurungwe Rural District Council, HRDC 2014). Overall, the council works with government in agriculture education and awareness programmes.

One of the key projects whose activities are directly linked to climate change and green economy transition is the **Kariba REDD+** project, which incorporates 784,987 hectares of woodland and open woodland in four provinces: Matabeleland North, Midlands, Mashonaland West and Mashonaland Central. The project is administered by the Binga, Nyaminyami, Hurungwe and Mbire Rural District Councils (RDC's).

In the absence of further information, this summary is compiled from the Kariba REDD report for 2014-2016 (Ref: [Kariba Redd+ Project Monitoring & Implementation Report 2014-2016](#)). The project is community-based, commenced on 1 July 2011, and claims to have proven successful in reducing deforestation in the project area. Since project start, over 5.6 million tCO₂e (tonnes of carbon dioxide equivalent) of greenhouse gas emissions are claimed to have been avoided through the reduction of deforestation.

The project includes a wide range of activities, which have direct positive effects on communities. Farmers are trained for conservation agriculture and necessary material inputs are provided. Community gardens are established and provide improved nutrition. From February 2014 to June 2016, over 2,800 participants benefited from several workshops, and 24 community gardens have been established in the area.

The project's biodiversity benefits include a reduction of the poaching pressure on wildlife through regular patrolling, in close cooperation with the local RDCs. From February 2014 to June 2016, roughly 3,500 team-days were spent patrolling, and over 3,400 snares have been removed from the field.

Biodiversity monitoring is being implemented to monitor the project impact on wildlife and tree species. Wildlife monitoring is done every month, by both 'walking based' and 'vehicle based' monitoring. The number of snares collected, number and species of animals poached and number of poachers arrested are also recorded. As part of the project's biodiversity monitoring, 131 tree species have been identified and many threatened wildlife species have been sighted.

The project also promotes beekeeping as an alternative and environmental friendly source of income. From February 2014 to June 2016, 16 beekeeping workshops have been held across the project area. This activity has 287 beneficiaries and over 700 beekeeping starter kits distributed since project start. In addition, 188 boreholes were resuscitated from February 2014 to June 2016.

Kariba REDD also claims to be maintaining and improving conservation connectivity across an area that encompasses the Biosphere Reserve, as shown in the map below:

The My Trees Project is an initiative between the Zambezi Society and members of the tobacco industry, which aims to replant, restore, and protect indigenous forest in tobacco growing areas, and provide alternative sources of income to affected communities. The objective is to reduce the net rate of natural forest loss in rural Zimbabwe via three interwoven strands of activity:

a. **Restoration:** Increasing contiguous natural woodland cover by replanting, maintaining and restoring affected areas. My Trees has been carrying out experimental work in the Hurungwe District portion of the Biosphere Reserve. In the first season of operations, My Trees' focus was on community engagement and establishing the nurseries to grow trees for the 2020/2021 season. Their seven nurseries have germinated over 100,000 tree seedlings which are now ready for planting. In addition, a small site (40 ha) was established to test some of the concepts and logistical assumptions. My Trees has employed 11 growers, six nurserymen and three supervisory staff. Two sites are at schools, one on a titled farm and others allocated by headmen at degraded sites in their area. There is a strong demand for further activity in 2021, when My Trees expects to add two further nurseries and another 300 growers.

b. **Preservation:** Protecting large areas of remaining intact woodland by enforcing existing legislation and working with national institutions and agencies with a mandate for conservation. My Trees is exploring opportunities to manage over 100,000 ha of intact woodland habitat in the

Biosphere Reserve Transition Zone bordering the Core and Buffer Zones. Their aim is to lease these concessions and protect them from further encroachment by communities on their borders, with the medium-term goal of developing their sustainable commercial potential.

c. **Providing alternatives:** Providing rural communities affected by deforestation with alternative sources of income, technology and fuels. My Trees is providing communities with innovative stoves for tobacco curing that are capable of reducing domestic firewood consumption by up to 75% (or an even larger saving when using woodlot-grown bamboo as fuel). This should facilitate an immediate reduction in deforestation by up to 10,000 ha per annum, greatly reducing pressure on natural woodland. My Trees plans to expand its stove project (trial commenced August 2020) significantly throughout 2021, with a target of 100,000 stoves in use by mid 2022.



The My Trees (Miti Yangu) Project focuses on restoring indigenous woodland destroyed by agricultural practices - Photo by My Trees Trust

5.8 Describe the main changes (if there are any) in terms of cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage.

(c.f. [UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972](#) and [UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003](#).)

From the Sanyati River to Mbire, the area is dominated by Korekore peoples that are descended from the Mutape state led by Nyatsimba Mutota in the precolonial period. Currently, mixed ethnic groups habit this area and include Korekore, Karanga, and Ndebele amongst others. Thus, there has been cultural ‘cross-fertilisation’ with the Nzou culture informing many of the in-group norms, values and practices. Rivers are used to demarcate most traditional chiefdoms. The chieftaincies are dominantly from the following totems; Nzou (elephant), Moyo (heart), Zambu (dove), Mhofu (eland) and Matemai.

We are not aware of any major changes in terms of cultural values since the establishment of the Biosphere Reserve. However, a wide range of cultural and sacred sites are important in guiding and controlling community behaviour both within the social and environmental systems.

The [responses to questions](#) put to the community during the 2019 research process revealed that, generally speaking, traditional cultural precepts are said to be still observed, although older community members observed that the younger generation is often less knowledgeable in this regard. The following are some of the cultural sites recognised. Responders are mostly quoted verbatim and, due to the nature of the topic, not open to ‘ground truthing’. Nevertheless, the large number of sites mentioned appears to be an indication of their importance in community culture.

Table 21a: Summarised responses to 2019 community research regarding cultural values

Sacred Site Category	Responses	Percentage
Sacred mountains	111	31
Springs	54	16
Historical sites	37	10
Burial sites	26	7
Sacred groves	19	5
Other	109	31

Table 21b: Specific Sacred Sites across the Reserve

Name of Sacred Site	Responses
Mushongavende	4
Nyami Nyami	3
Kaburi cave	3
Kariva	2
Angwa	2
Chimbangu	2
Pools at Mana Angwa	2
Island 155 (Lake Kariba)	2
Lake Kariba	1
Sacred forest - Ndizvimbiri Nyamasoka forest	1
Ndarama forest	1
Snake in Lake Kariba	1
Kanhungwe forest and stream	1
Kamwehuku	1
Kanjiramwanda	1
Kaburi (Ninga)	1
Sacred river Nyamhondoro	1
Mushongavende area	1
Nyambudzi sacred pool	1
Muruzvi pool	1
Magwenjere pool	1
Sacred trees	1
Nyangwena forest	1
Mukanga forest	1
Chituhwi stream	1
Kawanda forest	1
Kanziramwanda and Kumarinda	1
Chamakware river	1
Muzvimbire forest and pool	1
Kanjiramwanja forest	1
Snake Island in Lake Kariba	1
Mana Angwa river	1
Mushongavende forest	1
Kaponda sacred forest	1
Kasambaveze river	1
Mawocha (a sacred dam)	1
Chimbangu, chemakware	1
Sacred trees	1
Kariva Island	1
Chimbangu	1
Mushongavende, mudzimu ndiringe	1
Kaburi tunnel which stretches to Chinhoyi	1
Kariba and Kaburi	1

Kasirori sacred baobab tree Chimbangu river Maocha pool Chamapango river	1
Sacred baobab tree	1
Kaburi island	1

Table 21c: Traditional rituals that are performed on these sacred sites

Value	Responses
Dances and music	10
Ancestral appeasing	10
Doing sacrifices to their ancestors	9
Rainmaking rituals	8
Cultural dance	8
Rainmaking rituals	6
Traditional dances	3
Spirit medium chanting and pouring beer	3
Rain making ceremonies	2
None	2
Cleansing rituals	2
Traditional beer offering	2
Thanksgiving	2
Doing sacrifices	2
Rainmaking rituals Rituals for protection	1
Matusadonha, Kariva	1
Beer and traditional dances	1
Giving the spirits beer	1
Spiritual medium offering sacrifice	1
Rainmaking rituals	1
In the Lake at 115	1
Chiefs go to praise the ancestors	1
Rainmaking ceremonies or if many people die in the lake	1
Traditional dances	1
People put manoeuvre, money at Kaburi, cleansing of the lake after crocodiles become a menace in the lake	1
Cleansing rituals	1
For rainmaker ceremonies	1
Cultural	1
Gyu	1
Rain making ceremony	1
Rainmaking ceremonies	1
Rituals of rainmaking	1
Spirit mediums doing dances	1
Nyamhunga mediums	1
Spirit mediums beating drums and chanting	1
Raining making	1
Drummers beatings	1
Giving money and blankets to the place	1
Drums by tongaz	1
Dances	1
Throwing of traditional clothes and coins	1
Beer brewing and traditional dances	1
Rain dances in nyamhunga stadium and the lake	1
Spiritual medium offering traditional beer	1
Dances, music and doing sacrifices to their ancestors	1
To appease the spirits	1

Spirit medium mediums sacrifices	1
Spiritual appeasement for rains	1
Rainmaking rituals by Chiefs	1
Every year traditional leaders around September October the performance rituals at Kariva	1
Traditional leaders doing gathering at Lake Kariba	1
Dances and putting pottery	1
Traditional leaders doing gatherings and drinking beer	1
Dances around the lake	1
Tobacco sniffing	1
Rain making and thanks giving ceremonies	1
Rainmaking usually done around October, cleansing evil spirits from the lake	1
Beating of drums and traditional beers at kaburi and in the lake	1
Rainmaking rituals we are not allowed to cut down trees	1
Traditional dances and traditional beer brewing	1
Every year around October	1
Spirit medium chanting	1
Beating of drums by traditional leaders	1
At Kariva and 155	1
Chief's rainmaking rituals 5 years ago	1
Brewing beer and pouring the beer in the water for rainmaking	1
Marinda	1
Thanks giving ceremonies	1
Throwing of money and rice	1
Beer rituals	1
Beer sacrifices	1
Rainmaking rituals at the dam	1
Abstinence of people from the river	1
Rainmaking rituals by Chiefs	1
Traditional ceremonies	1
Rainmaking ceremonies and lions were killing people	1
Cleansing rituals Rainmaking rituals	1
Doing sacrifices and cultural dance	1
Kubata masuwo, for spiritual amusement	1
Traditional dances and brewed beer	1
All night drum beating	1
In Nyamhunga stadium there was a rainmaker ceremony years back	1
Beer brewing	1
For protection, even safari operators appease spirits for ease of doing business	1
Drummers dances and traditional beer	1
To protect people against wild animals and for better yields	1
Rain making	1
Sacred trees	1
Spiritual gatherings	1
Masvikiro rituals	1
For rainmaking ceremonies and keeping people safe	1
Gomoresumba	1
For protection	1

A number of further comments were made by respondents:

1. Few of these sacred sites are protected, and there are concerns over human encroachment. Therefore, a recommendation has been made to National Museums and Monuments of Zimbabwe (NMMZ) for their protection.
2. There are important fossil remains within the MZBR, notably at Mana Angwa, that have been acknowledged by NMMZ, but local communities receive no benefits from their existence.
3. A range of these sites are thought to have potential for cultural tourism.
4. Some sites - notably those related to pools in rivers - are being lost to siltation.

5.9 Community support facilities and services. What programmes in/for the biosphere reserve address issues such as job preparation and skills training, health and social services, and social justice questions. What are the relationships among them and with community economic development?

We are not aware of any specific Reserve-related programmes in this respect. However, relevant government ministries and departments are active within Transition Zone areas.

5.10 What indicators are in place to assess the effectiveness of activities aiming to foster sustainable development? What have these indicators shown?

There are currently no formal indicators in place, other than the statistics generated internally by major players such as Kariba REDD. However, these indicate a significant degree of success in achieving their immediate goals. We assume that some form of independent monitoring and evaluation will be incorporated into detailed management planning for the Reserve, as and when resources allow.

5.11 What are the main factors that influenced (positively or negatively) the success of development efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective?

a. It is important to emphasise the socio-economic environment that has pertained in Zimbabwe during the entire period of the MZBR's existence: fundamentally, Zimbabwe's international isolation since the controversial land re-distribution exercise of 2000-2001. So-called 'unofficial sanctions' resulted in a near-total withdrawal of bilateral and multilateral donor aid that has largely persisted up to the present day. This has had severe adverse impacts on a wide range of conservation-related initiatives, of which the development of the Biosphere Reserve is merely one example. Within the MZBR itself, a striking example was the withdrawal of funding for an ambitious development programme for the Mana Pools National Park. This, and other casualties of the donor withdrawal have not so far been revived or reinstated in any meaningful manner, and local institutions have been forced to fall back almost entirely on their own limited resources. As a result, activities have largely been concentrated on 'holding the fort' rather than on achieving major developments and improvements in the status of the reserve.

b. As regards local funding, the key sources of income are – as has already been indicated several times in this report – tourism and sport hunting. Although sport hunting is the more resilient of these two activities, both have been severely impacted by the conditions outlined above. Furthermore, the environment has also been conducive to an increase in corrupt practices, thus further reducing the financial resources available to carry out significant development work.

c. A range of key ingredients, including notably local knowledge and expertise, are already available to resource strategists and managers. The pressing need is not for significant changes in operational strategies; it is for a broader "enabling environment" that depends heavily on a return to normality in international relations and adequate funding.

6. THE LOGISTIC FUNCTION

[This refers to programs that enhance the capacity of people and organizations in the biosphere reserve to address both conservation and development issues for sustainable development as well as research, monitoring, demonstration projects and education needed to deal with the specific context and conditions of the biosphere reserve.]

6.1 Describe the main institutions conducting research or monitoring in the biosphere reserve, and their programmes. Comment on organizational changes (if any) in these institutions over the past ten years as they relate to their work in the biosphere reserve.

- Chinhoyi University of Technology, University of Zimbabwe, Bindura University, NUST, Womens' University in Africa – species, climate change, sustainable livelihoods and indigenous knowledge research etc
- Lake Kariba Fisheries Research Institute
- Kariba REDD - reforestation
- ZPWMA (ZimParks)
- Forestry Commission
- Great Elephant Census aerial survey of elephant - Zambezi Valley & Sebungwe area (2014)
- Flying for Wildlife - ongoing aerial surveillance and monitoring for ZimParks
- Illegal Wildlife Trade Initiative run by various NGOs, Tikki Hywood Trust, Zambezi Society IAPF, etc - Monitoring of poaching and wildlife crime reports and cases through the legal system
- WildCru/Panthera/Matusadona Lion Project/Cheetah Zimbabwe/Painted Dog Conservation - Monitoring of lion/leopard/predators in Matusadona, Mana Pools and Charara
- African Wildlife Foundation - Monitoring of deforestation - Hurungwe District
- Matusadona Anti-Poaching Project - monitoring and control of fish poaching on the Lake Kariba portion of the reserve
- Kariba Animal Welfare Fund Trust - monitoring of bushmeat snaring in the Kariba/Charara areas
- The My Trees Trust - training and development of woodland restoration, indigenous tree nursery development and silviculture

6.2 Summarize the main themes of research and monitoring undertaken over the past ten years and the area(s) in which they were undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex)

(For each specific topic provide reference citations. Provide the full citations alphabetically by lead author at the end of Section 6 or in a separate annex):

Research and monitoring schemes cannot be related to a MZBR Management Plan, as no such plan has as yet been drafted. Regardless of this, the following references appear to be relevant, along with a list of other academic papers and research projects relevant to the Biosphere Reserve area, listed below:

[Green economy initiatives in the face of climate change: experiences from the Middle Zambezi Biosphere Reserve, Zimbabwe. *Environment, Development and Sustainability*, 21\(5\), pp.2507-2533.](#)
Kupika, O.L., Gandiwa, E. and Nhamo, G., *Environment Development and Sustainability*, April 2018.

This study investigates climate change adaptation and mitigation interventions within the framework of a green economy for sustainable development and poverty eradication in the Middle Zambezi Biosphere Reserve, Zimbabwe. The study adopted a mixed method approach, mainly drawing data from field observations, focus group discussions (FGDs) drawing representatives from a household survey and key informant interviews. Primary data were collected in April and August 2015 from FGDs whose participants were derived from household heads who had previously participated in a broader climate change study. Key informant interviews were also held with traditional leaders, local experts and managers in the wildlife sectors. This was supplemented with data from secondary

sources. Findings from the study indicate that stakeholders in the Biosphere Reserve implement green economy and climate change-related programmes and projects. Results also indicate that the biodiversity and/or wildlife-related laws and policies developed prior to 2010 do not directly mention the term green economy and climate change yet these indirectly address the green economy agenda. However, recent soft law documents (post 2010) such as the Zimbabwe's National Biodiversity Strategy and Action Plan (2013–2020) and local councils' strategic plans prioritise climate change adaptation, mitigation and green economy-related issues. Although the wildlife sector has green economy-related initiatives in place, there exists a gap in terms of mainstreaming the green economy concept in biodiversity-related policies.

[Linking Social and Ecological Sustainability: An Analysis of Livelihoods and the Changing Natural Resources in the Middle Zambezi Biosphere Reserve.](#) Journal of Entrepreneurial and Organisational Diversity, Volume 6, Issue 1 (2017), Mbereko A, Kupika OL Gandiwa E.

This paper explores community livelihoods and conservation issues surrounding natural resources that are utilised by resettled farmers within the Middle Zambezi Biosphere Reserve, Zimbabwe. Data collection was done in two phases. The first phase, undertaken in 2011, administered household interviews, held focus group discussions (FGDs) and conducted in-depth interviews. The second phase, conducted in 2015, used FGDs and key informant interviews to gather data on changes in livelihoods and natural resources. Findings indicated limited options of social, human and financial capital. However, diverse livelihoods strategies are pursued in order to minimise the risk of biodiversity degradation. Structural factors that can contribute to cause biodiversity degradation include the failure of the CAMPFIRE Programme; natural resources governance flaws; contests over space and power, and weak policing by institutions devoted to the protection of natural resources. In conclusion, the authors observe how the institutions involved in the management of the protected natural area fail to promote the participation of the local community in the decision-making processes, thus limiting the potential benefits of the designation of the Middle Zambezi Biosphere Reserve.

[Environmental state of Lake Kariba and Zambezi River Valley: Lessons learned and not learned:](#) Magadza CHD, Wiley Online Library, 16 September 2010

Lake Kariba, still the largest reservoir in the world by volume, is 60 years old. It has undergone changes in its thermal properties, associated with global warming, which reflect in turn on its limnology. These changes include a shallower epilimnion, higher heat content and increased tropicality to near equatorial status. The role of Lake Kariba with regard to its energy characteristics is discussed in light of global warming findings. The lake's water residence time has increased from 3.7 years to ≈ 5.7 years, attributable to a reduced inflow from the Zambezi River. The phytoplankton communities have changed towards a cyanophyceae-dominated community, leading to a decline in entomostracan zooplankton, and a near collapse of the planktivorous *Limnothrissa miodon* fishery. Prolonged use of pesticides to control *Glossina* has led to measurable ecosystem level impacts on both terrestrial and aquatic biota. The impacts of the forced relocation of the Tonga people were still evident during this study. Siltation from resettlement areas has led to the loss of habitat and biodiversity in the inflowing streams to the lake. Unplanned shoreline development in the early history of the lake poses health problems. It is projected that global warming will cause the lake temperature to rise by $\approx 4^\circ\text{C}$ by the end of the century. Higher temperatures will be accompanied by windier conditions, thereby enhancing the risks from storms on the lake. The appropriateness of administrative structures intended to manage the Zambezi River Basin environment also is discussed herein. It is concluded that the management protocol is institutionally a non-inclusive process lacking the capacity to involve other stakeholders in managing the lake's resources, and even less so in the integrated management of the basin.

[The implications of a changing climate on the Kapenta fish stocks of Lake Kariba, Zimbabwe.](#) Ndebele-Murisa, M Emmanuel Mashonjowa E, & Hill T. Transactions of the Royal Society of South Africa Vol. 66(2), June 2011

The influence of climatic variables (rainfall, temperature and evaporation rates) and lake water levels on the stocks of the sardine fish species *Limnothrissa miodon* (Boulenger), commonly known as

Kapenta in Lake Kariba, was investigated. Secondary data of the climatic variables, water levels and fish catches recorded from 1963 to 2008 were analysed to determine their trends over time as well as the relationships among them. The analyses showed that rainfall is decreasing at a rate of 0.63 mm per year around Lake Kariba, while evaporation rates have increased by 31% at an average rate of 2.77 mm per year since 1963. The temperatures around the Kariba area have been rising since 1964; with the maximum range increasing at a faster rate than the minimum temperatures. Kapenta fish production has decreased significantly ($R^2=0.85$, $P \leq 0.05$) since 1974 at an average rate of 24.19 metric tons per year. This pattern of decrease was also observed in the artisanal fish catches that have declined at an average rate of 37.26 metric tons per year between 1974 and 2003. All the climatic factors as well as the water levels could explain variations in the Kapenta fish catches with the water levels exerting the greatest influence ($R^2 = 0.84$, $P 0.05$); followed the influence of climatic variables (rainfall, temperature and evaporation rates) and lake water levels on the stocks of the sardine fish species *Limnothrissa miodon* (Boulenger), commonly known as Kapenta in Lake Kariba, was investigated.

Secondary data of the climatic variables, water levels and fish catches recorded from 1963 to 2008 were analysed to determine their trends over time as well as the relationships among them. The analyses showed that rainfall is decreasing at a rate of 0.63 mm per year around Lake Kariba, while evaporation rates have increased by 31% at an average rate of 2.77 mm per year since 1963. The temperatures around the Kariba area have been rising since 1964; with the maximum range increasing at a faster rate than the minimum temperatures. Kapenta fish production has decreased significantly ($R^2=0.85$, $P \leq 0.05$) since 1974 at an average rate of 24.19 metric tons per year. This pattern of decrease was also observed in the artisanal fish catches that have declined at an average rate of 37.26 metric tons per year between 1974 and 2003. All the climatic factors as well as the water levels could explain variations in the Kapenta fish catches with the water levels exerting the greatest influence ($R^2 = 0.84$, $P 0.05$); followed by maximum temperature ($R^2 = 0.72$, $P \leq 0.05$), evaporation and rainfall. In turn, water levels are largely influenced by climate with temperature and rainfall explaining a significant portion of the variation in the water levels ($R^2 = 0.99$, and $R^2 = 0.93$, $P \leq 0.05$) in that order. This suggests that both climate (maximum temperature in particular) and nutrients, which are influenced by water levels, are the primary determinants of Lake Kariba's Kapenta production. Concerning are the possibilities that a changing climate in and around the lake may continue to adversely affect water levels, the stratification cycle, nutrient fluxes and the Kapenta fish production in the lake.

- [National Summary of Aerial Survey Results for Elephant in Zimbabwe: 2014](#) - Kevin Dunham Oct 2015 for Great Elephant Census.
- [Biodiversity, Conservation and Cultural Heritage Importance of the Mavuradona Wilderness Area in the Muzarabani district, northern Zimbabwe - Oct 2016](#) Black Crystal Consulting (Pvt) Ltd on behalf of Varden Safaris).
- [MANA POOLS NATIONAL PARK PREDATOR SURVEY, July – October 2015](#). L. Seymour-Smith and A. J. Loveridge.
- [Rangers and modellers collaborate to build and evaluate spatial models of African elephant poaching](#). Biological Conservation. Kuiper, T., Kavhu, B., Ms, N. A. N., Mandisodza-Chikerema, R., & Milner-Gulland, E. J. (2020). 243, 108486.
- [Ranger perceptions of, and engagement with, monitoring of elephant poaching. People and Nature](#). Kuiper, T., Massé, F., Ngwenya, N.A., Kavhu, B., Mandisodza-Chikerema, R.L. and Milner-Gulland, E.J., 2020.
- [The decline of Kapenta fish stocks in Lake Kariba – a case of climate changing?](#) M R Ndebele-Murisa, E Mashonjowa, T R Hill - Transactions of the Royal Society of South Africa 66(3): 219 - 223.
- [Decline of zooplankton food resources of *Limnothrissa miodon* fishery in Lake Kariba: Global warming-induced ecosystem disruption by *Cylindrospermopsis raciborskii*](#). *Lakes & Reservoirs: Research & Management*, 25(2), pp.117-132. Magadza, C.H., Madzivanzira, T.C. and Chifamba, P.C., 2020.
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- [The Matusadona Lion Project](#) - The Matusadona Lion Project was implemented by Principal Researcher Rae Kokeš in 2014, to undertake a rigorous population ecology study on the resident lion population of Matusadona NP. Matusadona NP once held Africa's second highest density of lions (c. 100 lions within 400km²) in the 1990s, but by 2004 this number had fallen to an estimated 28 individuals. This dramatic decline was attributed to a loss of prey due to fluctuating water levels of Lake Kariba and the impact this had on available grazing areas along the foreshore. However, no study has gathered information investigating other threats to this important population.
- [Climate Change in Zimbabwe – A guide for planners and decision makers](#). Anna Brazier (published by Konrad Adenauer Stiftung) (2nd edition 2017).
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6.3 Describe how traditional and local knowledge and knowledge from relating to management practices have been collected, synthesized and disseminated. Explain how such knowledge is being applied to new management practices, and how and if it has been integrated into training and educational programmes:

Information from selected relevant legislation (Parks and Wildlife Act (Chapter 20:14), EMA Act (Chapter 20:27), Forestry Act (Chapter 19:05), Atmospheric, prevention and pollution Act (Chapter

20:03), Bees Act (Chapter 19:02), Communal land Forest produce Act (Chapter 19:04) and the Chiefs and Headmen Act (Chapter 29:01) indicated that there is no formal mainstreaming of indigenous local knowledge (ILK) in Zimbabwean biodiversity conservation.

However, the Constitution of Zimbabwe amendment number 20 (Chapter 02:33) states that “the State must take measures to preserve, protect and promote indigenous knowledge systems, including knowledge of the medicinal and other properties of animals and plant life possessed by local communities and people”. Meanwhile, the Communal land Forest Produce Act (Chapter 19:04) provides for powers concerning road construction and use, restrictions on exploitation near public streams (section 13), establishment of plantations, forest nurseries and other works (section 14) but these powers are all vested in the Minister and there is no section requiring local people to be consulted for their knowledge in relation to management and use of such biodiversity.

Information on mainstreaming of ILK in biodiversity conservation in the Middle Zambezi Biosphere Reserve, Zimbabwe was collected from selected stakeholders in March 2019. The study was carried out in Hurungwe Rural District, Hurungwe Safari Area, and the Mana Pools National Park, thus representing each zone of the Middle Zambezi Biosphere Reserve.

Tools used in data collection include secondary sources (policy analysis), interview of key informants, and closed end questionnaires. The major findings indicate that there is no mainstreaming of ILK in the formulation of key environmental laws which are pivotal in biodiversity conservation. However, there is a high level of ILK in the transitional zone as compared to the buffer zone and core zone. The results indicate that men are more aware of and comply with ILK than their female counterparts. The age group of 50 years and above also showed high levels of ILK in comparison with other age groups.

Results indicated that questionnaire respondents from the transitional zone are more aware and comply with the dictates of ILK, while those in the buffer zone and core zone are aware but display low levels of compliance. In conclusion, findings support the research hypothesis that mainstreaming of indigenous local knowledge in protected areas and local communities for biodiversity conservation will reduce threats to biodiversity, thus promoting socioeconomic development and biodiversity survival in the Middle Zambezi Biosphere Reserve. The findings should be considered when reviewing environmental laws, with a view to mainstreaming ILK in biodiversity conservation.

Meanwhile, within the Reserve the Chinhoyi University of Technology is undertaking research on *“Inventorying Of Knowledge And Practices Promoting The Use And Conservation Of Biodiversity Resources (Flora And Fauna) In Nyaminyami And Mbire Districts, Zimbabwe”*. The study has international financial support from 2018 to 2021. The study is documenting indigenous biodiversity-related knowledge currently present in local community culture and traditions and, when completed, should be instrumental in guiding future strategies and actions in this regard.

6.4 Environmental/sustainability education. Which are the main educational institutions (“formal” – schools, colleges, universities, and “informal” services for the general public) that are active in the biosphere reserve?

Describe their programmes, including special school or adult education programmes, as these contribute towards the functions of the biosphere reserve. Comment on organizational changes (if any) in institutions and programmes that were identified in the biosphere reserve ten or so years ago (e.g. closed down, redesigned, new initiatives). Refer to programmes and initiatives of UNESCO Associated Schools networks, UNESCO Chairs and Centers where applicable.

Zimbabwe's education system mandates seven years of primary school encompassing Grades 1 - 7. Urban primary schools teach in English. Rural primary schools teach students in their local native language, typically in Shona or Ndebele, then transition to English by Grade 3. The curriculum in primary schools encompasses Language, Art and Maths. Based on the Education Secretary's Policy Circular No. 12 in 1987, “the minimum expected educational outcome for all students is functional literacy and numeracy by the end of primary school”.

Secondary education is not funded by the government and students can attend private boarding schools, government boarding schools or day schools, all with an enrollment fee. Secondary education is made up of two cycles, the General Certificate of Education, or Ordinary Level for four years and the General Certificate of Education Advanced Level, or Advanced Level, for two years. This structure was adopted from the British system of education.

Tertiary education is operated by the Ministry of Higher and Tertiary Education and includes universities, technical, polytechnic and teacher training colleges and various vocational training centers.

A PHD thesis authored by Mapira and Jemittas, 2014, Stellenbosch University titled [Zimbabwe's environmental education programme and its implications for sustainable development](#) states that nearly 84% of the environmental education (EE) in the country is provided by the formal education sector (which includes schools, colleges and universities) while the remaining 16% is derived from non-formal and informal education sources such as: EMA, some government ministries and departments and several non-governmental organisations (NGOs). However, the bulk of the EE provided in Zimbabwe is biophysical in nature and is geared at transmitting facts *about* rather than *for* the environment (Fien, 1993; Chikunda, 2007 and Mapira, 2012). Consequently, it does not instill a sense of environmental stewardship among ordinary citizens as reflected by increasing cases of environmental crimes including: land degradation, veldt fire outbreaks, deforestation, and the poaching of elephants, rhinos, and other wildlife resources.

Educational institutions at all three levels are located within or close to the Biosphere Reserve. However – and although we know of no research to confirm this – it appears that these institutions adhere to the structure outlined above, and that the 'stewardship' component is provided by NGOs in the form of class visits, field trips and similar activities as reflected in the questionnaire responses summarised below:

Table 22: Educational activities led by NGOs

Education programmes	Responses	Percentage
Class visits	144	29
Field trips	53	10
Educational tours	46	9
Educational quizzes	42	8
Community clubs	37	7
Visitors interpretation	23	4
Other	26	5
None	143	28

Mention must be made of the RIFA Conservation Education Camp located on the Zambezi River just west of Chirundu in the heart of the Biosphere Reserve. This partnership project between the Zimbabwe Hunters' Association and the ZPWMA (ZimParks) runs week-long camps for 30 school children (and four teachers) that are tailor-made to their educational curriculum needs, and also provides a practical introduction to bush skills, wildlife management and hunting ethics. The camp is open to all Zimbabwean schools, but the costs associated with attendance mean that this resource is not available to a large number of rural schools, unless they are able to access funding support. The Zimbabwe Hunters' Association provides sponsorship for pupils and teachers of some rural community schools in Hurungwe District and of ZPWMA (ZimParks) schools to attend yearly.

6.5 How do you assess the effectiveness of actions or strategies applied? (Describe the methods, indicators)

We are not aware of any formal ongoing monitoring programmes to evaluate the effectiveness of environmental education curricula and activities within the Biosphere Reserve. However, questioning during 2019 revealed that there is a substantial lack of knowledge pertaining to the significance of

the MZBR and its impacts in the form of benefits, such as the promotion of local livelihoods. A total of 305 respondents (82.66%) indicated that they were unaware of the existence of the Biosphere Reserve.

6.5.1 Describe the biosphere reserve's main internal and external communication mechanisms/systems.

There are few, if any, formal communications mechanisms other than those described above and largely initiated by NGOs working within the Reserve. However, a range of informal channels of communication were mentioned by questionnaire respondents, as follows:

Table 23: Informal Channels of Communication

Forms of conservation communication in the MZBR	Responses	Percentage
From Ward Councilors	12	18
Through teachings from traditional leaders	12	18
From Media i.e Newspaper	5	8
From ZimParks	5	8
From EMA	3	4
From an NGO	1	1
Other	29	43

One recent development may assist with filling this communication gap. A new communications forum consisting of an alliance of NGOs working in the Biosphere Reserve area - the [Zambezi Valley Conservation Network](#), (ZVCN) was formed in 2020. It is hoped that this may be able to assist in improving both the range and effectiveness of future NGO interventions and communicating the current and future directions of the MZBR.

6.5.2 Is there a biosphere reserve website? If so, provide the link.

There is currently no MZBR website.

6.5.3 Is there an electronic newsletter? How often is it published? (provide the link, if applicable).

There is currently no MZBR newsletter.

6.5.4 Does the biosphere reserve belong to a social network (Facebook, Twitter, etc.)? Provide the contact.

There are currently no MZBR social network platforms for the Biosphere Reserve.

6.5.5 Are there any other internal communication systems? If so, describe them.

None known to us.

6.6 Describe how the biosphere reserve currently contributes to the World Network of Biosphere Reserves and/or could do so in the future.

The Mid-Zambezi Biosphere Reserve itself does not currently contribute formally to the World Network of Biosphere Reserves, other than via the attendance of Zimbabwe representatives at MAB meetings worldwide. It is anticipated that once the MZBR has legal status and a management structure, the possibilities for future meaningful contribution to the wider world network will be possible.

Zambezi MAB committee was represented at the following events:

UNESCO Man and Biosphere (MAB) Programme – Biosphere Reserve Periodic Review – December 2020

- A. 5th session of the general assembly of the African network on Man and the Biosphere (afriMAB) holding at International Institute for Tropical Agriculture (IITA) Ibadan, Nigeria from 11th to 15th September 2017. Theme: “Improving Governance of MAB Programme and Biosphere Reserves in Africa”.

Key objectives, topics and outcomes:

- MAB committees from various African countries to discuss objectives such as strengthening cooperation amongst MAB national committees; Share information on implementation of programmes at national and local level, Strengthen MAB committee capacities for effective governance vis-a-vis Lima Action Plan; Sharing results on ongoing projects in Africa and selected a new AfriMAB bureau.
- Zimbabwe Mab committee submitted a country report along with several other committees from African countries.

- B. Botswana Man and Biosphere Programme and workshop, April 2011

Key objectives, topics and outcomes:

- UNESCO’S Man and Biosphere in the context of other approaches to local sustainable development was presented.
- Set of recommendations developed from participants to pave the way for MAB programme and eventual listing of biosphere reserves.
- Terms of reference for Zimbabwe MAB committee were outlined.

- C. 21st MAB/ICC Council Meeting, Jeju, South Korea. Korea, 25 - 30 June 2009

- Discussions and workshops included topics such as climate change in Biosphere Reserves; Learning centres; Eco village; Eco-tourism; Successful case on Eco-tourism of National Park, & Guideline on Eco-tourism; Development direction and suggestion of eco-tourism co-tourism.

- D. UNESCO - IUCN-BfN Man and Biosphere Workshops: Biosphere Reserves as Tools for Landscape Governance & Livelihoods, 1 - 5 December 2014, Namibia

Topics covered:

- Landscape governance; Conservation and sustainable development; Added value of BR for landscape governance and sustainable development (BfN); The establishment and role of a National MAB Committee; Screening of potential BR sites; Stakeholder processes; Zonation; Dossier compilation; Nomination procedure and approval; Administering and managing a BR; The role of research in landscape governance and BR establishment and management.

- E. Report of Zimbabwe to UNESCO MAB on the 40th Anniversary of MAB

Included:

- Nomination acceptance at the 39th meeting in Paris; Announcement of the Middle Zambezi Biosphere Reserve; Launching of the Biosphere Reserve; Promotion of MAB in S. African AfriMab region; Acknowledgement to invaluable assistance from the UNESCO regional office.

F. UNESCO MAB 25th International Coordinating Council (ICC); 27th - 30th May 2013

Key objectives, topics and outcomes:

- The objectives of the meeting was to review, inter alia, the state of the world Biosphere Reserves, and to indicate new initiatives which the programme could adopt.
 - Observations included: Economic, environmental conservation; Ecosystem research; Human environment research ; Sustainable development, Cultural identity, Learning for sustainable future; Biosphere Reserves can take lead in the “green” economy; BR as mini UNESCO, in essence, the Biosphere Reserves embody all that UNESCO strives for, and can be viewed as mini UNESCOs.
 - Recommendations for Zimbabwe included legal status of the MZBR; Need for a ZimNATCOM Biosphere Reserve ‘Secretariat’.
- G. Rhön communiqué of the international expert workshop on “Managing Challenges of Biosphere Reserves in Africa”. Adopted in Bad Neustadt an der Saale/Germany, 2nd July 2011.

6.6.1 Describe any collaboration with existing biosphere reserves at national, regional, and international levels, also within regional and bilateral agreements.

There are currently no official collaborative links between the MZBR and other existing biosphere reserves. However, informal exchanges and links do occur at regional (African) and international level and members of the South African MAB team provided some guidance to Zimbabwe on this 10-year reporting mechanism. The lack of a legal and management framework for the MZBR as well as funding constraints make formal collaboration difficult at this stage.

6.6.2 What are the current and expected benefits of international cooperation for the Biosphere Reserve?

Undoubtedly there are lessons to be learned from international cooperation (particularly intra-Africa) with regard to developing the MZBR’s initial legal and management framework and later functionality.

6.6.3 How do you intend to contribute to the World Network of Biosphere Reserves in the future and to the Regional and Thematic Networks?

It is difficult to contribute at this stage, until the legal and management framework of the MZBR is in place and until funding is available (other than for attendance at meetings).

6.7 What are the main factors that influenced (positively or negatively) the success of activities contributing to the logistic support function? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be favored as being most effective?

The key ‘new approach’ will be the creation of a coordinating framework, and the structuring of a detailed management plan for the MZBR, as none currently exists. This will, in turn, depend on the availability of funding for a Biosphere Reserve coordinator and suitably qualified staff.

When this is achieved, we would anticipate that the range of issues and problems currently being experienced will be remedied via improved funding; improved communications strategies; and well-targeted assistance from a wider range of NGO’s. One recent development - the creation of a communications forum consisting of an alliance of NGOs working in the area (the [Zambezi Valley Conservation Network](#), or ZVCN) - will, it is hoped, also be instrumental in improving both the range and effectiveness of future NGO interventions, guided by the proposed Reserve Management Plan.

6.8 Other comments/observations from a biosphere reserve perspective:

None

7. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

[Biosphere Reserve coordination/management coordinators/managers have to work within extensive overlays of government bodies, business enterprises, and a 'civil society' mix of non-governmental organizations and community groups. These collectively constitute the structures of governance for the area of the Biosphere Reserve. Success in carrying out the functions of a Biosphere Reserve can be crucially dependent upon the collaborative arrangements that evolve with these organizations and actors. Key roles for those responsible for the Biosphere Reserve coordination/management are to learn about the governance system they must work within and to explore ways to enhance its collective capacities for fulfilling the functions of the biosphere reserve.]

7.1 What are the technical and logistical resources for the coordination of the Biosphere Reserve?

Technical and logistical delivery within the MZBR is the responsibility of the existing organs of government (listed below),

The MZBR mostly falls under four administrative **districts** namely Kariba, Hurungwe, Makonde and Gokwe North, with four District Development Coordinators coordinating development in the four districts. In addition to that, the area in question spans over two **provinces**: Midlands and Mashonaland West Provinces. The districts are manned by government's deconcentrated structures responsible for administering various ministerial duties.

However, there are **local authorities** mandated by the Zimbabwe Constitution's Chapter 14 which creates local authorities as a third tier of Government. All the local authorities employ a manager responsible for environmental issues, planning and running the day to day issues related to the Biosphere Reserve. These natural resources managers report to their chief executive officers and ultimately to their councils.

There is also significant assistance from a range of private-sector support organisations working within the landscape.

However, whilst there is a wealth of conservation and development activity happening within the MZBR, the technical and logistics resource for specific coordination of the Biosphere Reserve itself is lacking. There are a number of contributing factors which include: fragmented administrative responsibility, lack of legislative framework for the biosphere, a lack of a specific management plan/strategy, a nominated and specialist coordination/management service provider and overriding need for financing of these requirements.

A budget and funding for the delivery of technical and logistical coordination is therefore an urgent requirement. It has been suggested that the Ministries of Local Government and Public Works and the Ministry of Environment, Climate Change, Tourism and Hospitality Industry could play an important role in assisting with co-ordination.

7.2 What is the overall framework for governance in the area of the biosphere reserve? Identify the main components and their contributions to the biosphere reserve:

Biosphere Reserves are not statutory institutions, and thus no government institution has a mandate to provide specific governance for the biosphere reserve.

However, the areas that make up the MZBR have their own existing governance structures (as described above), largely through government organs, as the areas are state-owned, either as communal agricultural regions or as protected areas.

The Ministry of Environment, Climate, Tourism and Hospitality Industry, through:

- a. Zimbabwe Parks and Wildlife Management Authority (ZPWMA) - management within National Parks and Safari Areas
- b. Environmental Management Agency

The Ministry of Local Government and Public Works, through:

- Provincial offices
- District Offices
- Municipality (Kariba)
- Local board (Chirundu)
- Rural District Councils
- Traditional Leaders
- CAMPFIRE

7.3 Describe social impact assessments or similar tools and guidelines used to support indigenous and local rights and cultural initiatives (e.g. CBD Akwé: Kon guidelines, Free, Prior, and Informed Consent Programme/policy, access and benefit sharing institutional arrangements, etc.):

No specific assessment of this nature has been known to be undertaken within the MZBR.

7.4 What (if any) are the main conflicts relating to the biosphere reserve and what solutions have been implemented?

There are ongoing and identifiable conflicts of resource use and threats to biodiversity within the MZBR, which can largely be explained by the tension that exists between “protectionism” versus “development”. For example:

- a. Alluvial mining: a recent banning of mining in designated areas is facing problems with resulting litigation.
- b. Quarry stone mining in a Safari Hunting Area (Buffer Zone) by a Chinese contractor without prior consultation. They were not challenged.
- c. Schist paving stone quarrying over a large area within the Buffer Zone. No resolution.
- d. Human Wildlife Conflict within the urban settlements and adjoining agricultural lands of the Transitional Zones.

Overriding thematics that continue to challenge the strategic management of the MZBR include:

1. Government controlling authorities versus communities over land use (i.e. agricultural expansion and mining rights).
2. NGOs versus uncontrolled/unsustainable development initiatives (i.e. mining threats).
3. Communities versus safari operators (i.e. Human Wildlife Conflict and the balance between crop and livestock losses versus meaningful benefits from adjacent wildlife).
4. Communities versus Rural District Councils and Environmental Management Agency (EMA) (woodfuel availability, land use and land availability issues).
5. Urbanisation versus biodiversity conservation (specific woodfuel needs and HWC within urban centres).

Solutions to the above are piecemeal or delivered on a case by case basis. The need for a formalised strategy, in some instances supported by new legislation (in the instance of mining for example), is necessary and should be included in the development of a formal management plan for the biosphere (pending).

7.4.1 Describe the main conflicts regarding access to, or the use of, resources in the area and the relevant timeframe. If the biosphere reserve has contributed to preventing or resolving

some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone?

The primary and escalating conflict thematics are described above, broken down simply as:

- Human Wildlife Conflict
- Natural resource extraction - minerals and wood fuel

Resolution of these has not been directly undertaken through MZBR management, however it is a strong recommendation that the management be capacitated sufficiently to be able to play a meaningful role in such resolutions in future.

At this stage, conflict resolution is principally in the hands of ZPWMA, RDC's, CAMPFIRE, local village communities and traditional leadership, EMA, impacted commercial stakeholders (i.e. safari operators) and advocacy entities with the assistance of Zimbabwe Environmental Law Association (ZELA).

The threat of illegal or environmentally damaging natural resource extraction has been an ongoing threat to certain areas of the landscape. However the intensity and occurrence of the threat has increased radically in the last 12 months. This threat demands an innovative reaction, which to date has relied on solid legal recourse where activities are in breach of current legislation. A task force of concerned and impacted stakeholders has been set up to lead a process of opposition to specific commercial scale mining claims (on the Angwa River), which may evolve into an ongoing and structured opposition to further threats.

HWC is a constant and widespread issue within the MZBR. Communities feel strongly that HWC needs to be addressed as it is leading also to human to human conflict. If there is no efficient emergency response from the authorities upon report of a problem animal, there is a feeling that animals are more valued than people.

Nature of HWC

- People are being killed and crops and livestock lost on the periphery of protected areas as well as the major urban centre of Kariba.
- People are encroaching closer to, or within the boundaries of protected areas.
- 'Ownership' of wildlife is sensitive - if an animal is causing harm, communities claim it belongs to ZPWMA, but if the animal is shot, the meat is assumed to belong to the community.
- People are known to provoke animals e.g. Throwing stones and chasing them unnecessarily, walking late at night or farming into wildlife boundaries.
- Prevalence of snares are causing numerous injuries to large wildlife which in turn are known to become more aggressive and attacking people.
- HWC is mainly caused by competition for territory with agricultural land, except for the case of Kariba (and Chirundu to a lesser extent), where wildlife can roam within high density suburbs.
- There has been a lack of cooperation between Kariba Municipality and Chirundu Urban Councils with wildlife managers with regard to expansion of urban settlements into wildlife areas in the Buffer Zone.

Responses in place for resolving the HWC. (Varies with the nature of the conflict)

- Control - An animal can be assessed as needing to be killed as part of Problem Animal Control (PAC).
- Compensation - losses of livestock can be compensated under some circumstances.
- If people are injured, hospital bills are paid for.
- If a victim is a bread-winner, their children's school fees can be paid.
- In some areas, villagers are trained to respond appropriately to threats.
- In some areas, rangers are deployed to non-lethally chase animals using weapons and deterrents.

7.4.2 Describe any conflicts in competence among the different administrative authorities involved in the management of the area comprising the Biosphere Reserve.

Conflicts around land use are those most prominently highlighting administrative differences. These are in most instances competing ministry authority i.e. Min Environment (Parks/Forestry/EMA) versus mines or in other cases environment versus agriculture. Lack of specific expertise in the government sector can play a role in exacerbated differences. For example, the tendency to accept proposals for the development of commercial enterprise regardless of negative impacts. NGOs have a role to assist in highlighting controversial decision making, but ultimately have no formal administrative, planning or legislative authority. Porous legal systems or vague legislation can lead to entities undertaking illegal or controversial developments and practices without sufficient transparency or accountability.

7.4.3 Explain the means used to resolve these conflicts, and their effectiveness. Describe its composition and functioning, resolution on a case-by-case basis. Are there local mediators; if so, are they approved by the Biosphere Reserve or by another authority?

At present, the MZBR plays no formal role in mediation or approval thereof. Typically, conflicts on the ground (for example mining developments), require the interference of Ministry entity interference - i.e. ZPWMA and EMA. Cases can be highlighted by private sector affected parties and NGO's who have played a strong advocacy role over the years and remain committed to bringing to light illegal or controversial developments within protected areas. In the first instance, appropriate EIA's, undertaken transparently by EMA, should provide an initial context of approvals or highlight illegality. The system can however be ineffective or compromised at which point the interference of legal expertise - specifically the Zimbabwe Environmental Law Association (ZELA) play a vital role in mediation. The ongoing role of ZELA, alongside private sector and NGO's is seen as vital to the opposition of illegal or controversial development in the area. Incidentally, in one case, Zambezi Society together with ZPWMA held two workshops at which the processes and mandates and tensions between ZPWMA/HRDC/traditional leaders was aired, with a view to conflict resolution.

7.5 Updated information about the representation and consultation of local communities and their participation in the life of the biosphere reserve:

Whilst it is fair to conclude that the MZBR has not had requisite strategic or coordinating/managerial structure to deliver ongoing specific activity in relation to community consultation, there has been consultation with communities on a project by project level, alongside a process of awareness workshops in 2017 and 2019. Additionally, in 2018 Zambezi Society/ZPWMA ran two half day workshops (Marongora) with HRDC/traditional leaders/ ZPWMA/ President's Office/ Police to identify conflict hot spots between these entities. Over time this has led to much improved dialogue, tripartite meetings and the start of conservation aligned projects. It is a recommendation that the management of the biosphere includes a programme of such consultation going forward.

7.5.1 Describe how local people (including women and indigenous people) are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultation of associations, women's groups)

Although not directly undertaken by the biosphere management process, there have been programmes in the landscape that provide a consultative process in relation to conservation. These include the SAICH project.

The Southern African Intangible Cultural Heritage Cooperation Platform (proposed name SAICH Platform) operates under the auspices of the United Nations Educational, Scientific and Cultural Organisation (UNESCO). The SAICH Platform is hosted by Chinhoyi University of Technology (CUT) in Zimbabwe. Indigenous peoples such as the Korekore participate in the inventorying of tangible and intangible heritage including knowledge on wildlife conservation.

Women in Mbire district are involved in a number of projects such as fishing in Kanyemba, AWF project on baking and confectionery, food processing and post harvesting technologies for vegetables. These projects are supported through the Ministry of Women Affairs, Community and Medium Enterprises Development. SAFIRE, a local NGO recipient of the GEF 6 Small Grants is specialising in promoting wood saving stoves known as tsotso stoves. The project trains women to use tsotso stoves using locally available soils. Women make incomes out of selling stoves to other households and are expected to make enough income to send their children to school, buy food and other household requirements, traditionally men's roles in the family. SAFIRE is also promoting production of non-timber forest products such as mats, hats and baobab pulp using locally available ilala palm (*Hyphaenea petersiana*) leaves and baobab bark (*Adansonia digitata*) and fruit.

Zim Apiculture Trust (ZAT) is spearheading the following key activities under GEF 6 project:-

- Sustainable Forest Management - ZAT Director agreed with Forestry Commission Operations Manager that joint beekeeping and forestry management will be done in Mbire district. A nursery to be established at Mazambara Feedlot and Community Garden starting November 2020 after Mbire Rural District Council engaged ADRA on behalf of ZAT.
- Basic beekeeping trainings: Done in Muzarabani; Mbire and Hurungwe districts covering the following topics; Benefits of bee farming; Different castes of honeybees features/roles and characteristics; Beekeeping systems (technological choices); Beekeeping equipment and hive accessories; Pest and predators; offensive smells and colours; Profitability of the beekeeping project; Introduction to hive making and group formation.

The GEF 6 project area comprises several ethnic groups, including indigenous groups such as Vadoma, Machikunda and Karanga. The majority of the indigenous or autochthonous. VaDoma Community resides in manly in Ward 1 and Ward 11 of Mbire North with few others dotted around the other wards in Kazangarare, ward 9, Hurungwe District. The GEF 6 project is undertaking some outreach programmes involving indigenous peoples such as the Machikunda and the Vadoma in the Mid Zambezi Biosphere Reserve areas. Women take lead in the establishment of the indigenous woodlots and are championing the following projects: community nutritional gardens, biogas making to reduce workload and conservation agriculture. A few Vadoma men have been recruited as local game scouts and are involved in anti-poaching activities.

7.5.2 What form does this representation take: companies, associations, environmental associations, trade unions (list the various groups)?

At this point in time, ward councilors and traditional leaders represent local communities/indigenous people in the planning and management of activity/intervention within the biosphere reserve. The Ministry of Women's Affairs represents the interests of women.

Bilateral communication using already existing structures as follows:

Individual (Local community members)



Ward (Environmental Subcommittees, Councillors, Chief, Headman, village heads)



7.5.3 Indicate whether there are procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities)

Local communities are currently represented through the CAMPFIRE programme which has recently undergone a significant review and is launching a new framework in 2020 (Ref [Govt approves proposal to revitalize CAMPFIRE](#) – The Chronicle, 17 Sept 2020). It is a recommendation that the next phase of the biosphere’s development include such procedural detail and mechanism in order to provide widespread representation. It is at present not existing within the biosphere’s management structure.

7.5.4 How long-lived is the consultation mechanism (e.g., permanent assembly, consultation on specific projects)?

By law in Zimbabwe, consultation is required for specific projects. But these mechanisms are at present not underway under the auspices of the MZBR management.

7.5.5 What is the impact of this consultation on the decision-making process (decisional, consultative or merely to inform the population)?

The historical consultation exercises have not translated into structural capacity to impact decision-making. This is a recommendation for the next phase of biosphere development under an enhanced coordination/management mandate.

7.5.6 At which step in the existence of a biosphere reserve is the population involved: creation of the biosphere reserve, drawing up of the management plan, implementation of the plan, day to day management of the biosphere reserve? Give some practical examples.

Local populations were initially involved in the nomination process. Since then, awareness workshops took place in 2017 in each of the six impacted districts. However, there are no cases that the review could reveal that show day to day management of the MZBR involves the input of local populations in management planning, given a management plan is not yet in place. That said, a management plan (funded by the GEF6 programme) is to be undertaken imminently in a large section of the Biosphere Reserve area, and the population will be consulted in this process.

7.6 Update on management and coordination structure:

The lack of an established coordinating framework for the Biosphere Reserve and no legislation to back it up, has made it difficult to access funds for the establishment of a management plan and employment of a coordinator and staff for the Biosphere Reserve. These matters need to be addressed urgently in order that the MZBR can start to function effectively.

7.6.1 Describe any changes regarding administrative authorities that have competence for each zone of the Biosphere Reserve (core area(s), buffer zone(s) and transition area(s))? If there are any changes since the nomination form/last periodic review report, please submit the original endorsements for each area.

There are no structural changes to the administration of biosphere zones. The State controls Core Areas & Buffer Zones (concessions) through the Zimbabwe Parks and Wildlife Management

Authority (ZPWMA). The State controls most of Transitional Zones (through district councils/ chiefs) as they are communal lands which fall under the jurisdiction of the State.

(Detail on specific changes to the biosphere are described in Part 1, Section 2.2. Updated background info on the Biosphere Reserve).

7.6.2 Update information about the manager(s)/coordinator(s) of the biosphere reserve including designation procedures.

Given there is no designated or specific coordination/management of the biosphere in place, the management of the biosphere geography remains with the existing administrative parties (principally ZPWMA and RDCs). There are no MAB personnel in the administration since there is no statutory instrument for setting up a MAB management structure recognised by law. The next phase of biosphere development would be to create an inclusive MZBR coordinating framework to oversee strategic and management solutions developed for targeted activity within the biosphere.

7.6.3 Are there any changes with regard to the coordination structure of the Biosphere Reserve? (if yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence). Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager of the Biosphere Reserve?).

There are no changes. The biosphere geography remains under State authority. There is currently no specific activity related to coordination/management of the Biosphere Reserve. This needs to be urgently addressed.

7.6.4 How has the management/coordination been adapted to the local situation?

Current management/coordination is largely through ZimParks with CAMPFIRE involved in the local situation. The GEF6 project is helping in a coordinating role. Some aspects of the biosphere administration (e.g. reporting), have been contracted out to NGOs working within the Biosphere Reserve.

7.6.5 Was the effectiveness of the management/coordination evaluated? If yes, was according to a procedure?

There has been no evaluation of management/coordination.

7.7 Update on the management/cooperation plan/policy:

7.7.1 Are there any changes with regard to the management/cooperation plan/policy and the stakeholders involved? If yes, provide detailed information on process for involvement of stakeholders, adoption and revision of the plan.

There is currently no management plan for the biosphere. Hopefully, this review will emphasise the need for the Government of Zimbabwe to domesticate the UNESCO MAB programmes and to encourage the establishment of an inclusive, coordinating framework to move them forward.

7.7.2 Describe contents of the management/cooperation plan (provide some examples of measures and guidelines). Is the plan binding? Is it based on consensus?

There is no management plan

7.7.3 Describe the role of the authorities in charge of the implementation of the plan. Describe institutional changes since the nomination form/last periodic review report. Please provide evidence of the role of these authorities:

There is no management plan.

7.7.4 Indicate how the management plan addresses the objectives of the Biosphere Reserve:

There is no management structure outside of the Parks and Wildlife mandate that undertakes management of the wildlife in the Core and Buffer Zones.

7.7.5 What are the progresses with regard to the guidelines of the management/ cooperation plan/policy?

There is currently no management plan.

7.7.6 Were there any factors and/or changes that impeded or helped with the implementation of the management/coordination plan/policy? (Reluctance of local people, conflicts between different levels of decision-making):

The absence of a dedicated management/coordination appointment, including qualified staff, has impeded the development of a management/coordination plan/policy.

7.7.7 If applicable, how is the biosphere integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve? (Please provide detailed information if there are any changes since the nomination form/last periodic review report).

The lack of coordination of the MZBR has led to limited awareness of the existence of the Reserve and it is therefore unlikely that the Reserve has been specifically addressed in any local, regional or national development plans (mentioned below) as yet. Certain conservation NGOs know the latent value of the MZBR and bring it to the attention of their international audiences in their communications. It is hoped that when a management/co-ordination structure is in place, awareness will improve.

The relevant strategies underway, which apply to the biosphere geography include:

Regional Strategies

- SADC Forestry Strategy 2010-2020
(https://www.sadc.int/files/4815/9125/6651/SADC_Forestry_Strategy_2010-2020-English.pdf)
- SADC Wildlife Protocol
- SADC Protocol on Forestry
(https://www.sadc.int/files/9813/5292/8364/Protocol_on_Forestry2002.pdf)
- SADC Support Programme On Reducing Emissions From Deforestation And Forest Degradation (REDD) (https://www.sadc.int/files/8615/9125/6552/SADC_REDD_Programme-English.pdf)
- SADC Regional Forest Law Enforcement, Governance And Trade (FLEGT) Programme Document
- SADC_Forest_Law_Enforcement_Governance
(https://www.sadc.int/files/7315/9125/6218/SADC_Forest_Law_Enforcement_Governance_and_Trade_Program-English.pdf)
- SADC Law Enforcement and Anti-poaching Strategy 2015-2020

Transfrontier Conservation Areas:

- a) KAZA/ Matusadona National Park
- b) Mana Pools/Lower Zambezi Transfrontier Conservation area agreements

ZIMPARKS Strategies

- 5-year National Strategy - 2019 - 2023
- Protected Area Management Plans (yearly & 5-yearly)
- Report to UNESCO on the status of the Mana/Sapi/Chewore to the World Heritage Site
- Elephant Management Plans

Ministry of Environment, Climate and Tourism

- The National Biodiversity Strategy and Action Plan (NBSAP)

Rural District Councils

- Local RDC Development Plans e.g. the Mbire Natural Resources Management Plan 2019
- Mbire Land Use Plan (2020-2030)

Details of the potential outcomes of various management/cooperation plans which have relevance to the Biosphere Reserve.

KAZA is promoting transboundary collaboration and could provide some funding inputs to the Matusadona Core Area of the Biosphere Reserve.

Similarly, AWF is involved in transboundary collaboration in the Mana Pools/Lower Zambezi area and could assist with providing funding inputs to the Mana Pools/Sapi area of the Biosphere Reserve.

The Zimbabwe National Elephant Management Plan (and its Regional sub-plans) which were developed following the surveys conducted by the Great Elephant Census 2014 have already enabled public and private-sector stakeholders to attract funding to assist with combating elephant poaching.

Mana Pools Management Plan - this was developed with stakeholder consultation in 2005, but has not been revised since then. As a result there is a danger of uncontrolled development initiatives (tourism/mining etc.) providing threats to the Park's ecosystems. There is an urgent need for funding to be found to revise this plan (ideally in the context of the Biosphere Reserve).

The 5-year UNDP-GEF-funded project: 'Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe', known as the 'Zambezi Valley Biodiversity Project' will have outcomes in the Biosphere Reserve (e.g. development of a Management Plan for the Zambezi Valley area).

8. CRITERIA AND PROGRESS MADE:

[Conclude by highlighting the major changes, achievements, and progress made in your biosphere reserve since nomination or the last periodic review. How does your biosphere reserve fulfill the criteria. Develop justification for the site to be a biosphere reserve and rationale for the zonation. What is lacking, and how could it be improved? What can your biosphere reserve share with others on how to implement sustainable development into practice?]

Brief justification of the way in which the Biosphere Reserve fulfils each criteria of article 4 of the Statutory Framework of the World Network of Biosphere Reserves:

1. "Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

(The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

The Biosphere fulfils the necessary criteria. The only other Biosphere Reserves in the sub region are:

- The Cape West Coast (54)
- Cape Winelands (5000)
- Kogelberg (53)
- Kruger to Canyons (56)
- Waterberg (55)
- Lake Chirwa wetland (3064)
- Mt Mlanje (40)

The sub-regional mosaic above (Malawi and S. Africa) does not include the Zambezi River basin in Zimbabwe, Zambia, Namibia, Botswana, Mozambique and Angola. It therefore misses an important Ecoregion in the subcontinent, now represented specifically by the Mid Zambezi Biosphere.

2. “Be of Significance for biological diversity conservation”.

Unique habitats included in the application are:

- The Mopane/ *Brachystegia* woodland
- The *Feidherbia albida* flood plain
- The Zambezi river riparian ecosystem
- Lake Kariba (the largest manmade lake in the world)
- Area also contains an urban settlement of some 40,000 inhabitants. Currently this city lives in conflict with the surrounding wildlife management area.

Endangered and/or economically important species include:

- The African Savannah Elephant, *Loxodonta Africana*
- The Black Rhino, *Diceros bicornis*
- Large Eared Free-tailed Bat, *Otomops matiensseni*
- Isolated population of Nigerian Free-tailed Bat *Chaerephon nigeriae*
- A southernmost population of *Nycteris macrotis*
- The Painted or Wild Dog *Lycaon pictus*
- Of the endemic bird species found in the subcontinent, nine occur in the proposed reserve.

3. “Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale”. (Including examples or learning experiences from putting sustainable development into practice).

The Middle Zambezi Biosphere region has multiple conservation actors, spread between five entity types:

- Local government authorities
- Tourism groups
- Local communities and developmental NGO’s
- Conservation support organizations
- Corporates (agricultural and mining)

The area includes over 10 dedicated Conservation Support Organisations (CSOs) and more than 25 Safari operations. If the Biosphere is able to illustrate a holistic and collaborative conservation model, inclusive of multiple actors, then this will represent a significant model for replication within the region.

Regionally there is an opportunity for expansion of the Biosphere Reserve to include:

- The lower Zambezi National park in Zambia
- The Zambian Luangwa valley parks
- The Malawi conservation areas
- Nyika
- Kasungu National Park
- Waza Marsh

4. “Have an appropriate size to serve the three functions of biosphere reserves”.

The current Biosphere size is 33,945 sq km, which represents a landscape scale section of the Zambezi catchment and is an appropriate size to serve the functions of Biosphere Reserves.

5. Appropriate zonation to serve the three functions. The proposal comprises two core areas:

- Matusadona National Park; area 1407 km² and;
- Mana Pools National Park, area 2196 km²

The Buffer Zone or zones are those clearly identified and surrounding or contiguous protected areas to the core areas. They include a number of controlled safari hunting areas and CAMPFIRE areas: 26,307 km² (excluding CAMPFIRE areas of Omay, Gachegache, Kanyati and Siyakobvu, circa 600 km²).

An outer transition area or 'Transition Zone' consists of extensive agricultural areas with a remnant proportion of wooded areas. Some properties operate as conservancies within this area.

The Transition Zone (as per the Sevelle Strategy), has in some parts of the originally designated area, effectively reduced in size over the last 10 years, due to expensive expansion of intensive agricultural activity. The southern boundary of the protected areas (Core and Buffer Zones) has been most affected by loss of natural habitat due to the demands on woodfuel, largely as a result of extensive expansion of tobacco production in this area.

6. "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve".

Committee formation:

1. The MZBR has been set up to be run by a management committee under the auspices of the National MAB committee. The Committee would be known as the Middle Zambezi Valley Biosphere Reserve Management Committee.
2. The committee was originally proposed to be drawn from:
 - i. A representative of the National MAB Committee
 - ii. An ex officio representative of the UNESCO National Commission
 - iii. A representative of the Department of National Parks and Wildlife Management
 - iv. A representative of the Wildlife and Environment Society of Zimbabwe
 - v. A representative of the Zambezi Society
 - vi. A representative of the Ministry of Local Government
 - vii. Environmental Management Agency (EMA)
 - viii. Forestry Commission
 - ix. Two representatives each of elected relevant District Councils
 - x. A representative of the Lomagundi Hunters Association
 - xi. A representative of the Zambezi Valley Resource Users Association
 - xii. A representative of Kariba Town
 - xiii. A representative of Ministry of Education.
 - xiv. Zambezi River Authority
 - xv. Zambezi River Commission (ZAMCOM)
 - xvi. Africa Wildlife Foundation (AWF)

7. Mechanisms for implementation:

- a) Mechanisms to manage human use and activities
- b) Management policy or plan

- c) Authority or mechanism to implement this policy or plan
- d) Programmes for research, monitoring, education and training mechanisms to manage human use and activities

A - Human use of the biosphere geography is covered under the appropriate statutes of Zimbabwe, VIS:

- Parks and Wildlife Act
- Environment Management Act
- Forest Act
- Rural District Councils Act
- Urban Councils Act
- The Zimbabwe Inland Shipping Act
- CAMPFIRE

B - A management plan or policy:

The Biosphere Reserve has until now been managed under policies emanating from the appropriate environment management laws of Zimbabwe as cited in (a) above. There are however pending management plans in development that will specifically review the strategic management of the protected ZPWMA areas. These management plan will fill a significant gap.

C - Authority or mechanism to implement this policy or plan:

The pending management plans will assist the strategic administration of the Biosphere Reserve's ZPWMA protected areas.

D - Programmes for research, monitoring, education and training:

There are ongoing research programmes by:

- Parks and Wildlife Authority
 - Ongoing work on predator populations of Mana Pools
- Africa Wildlife Foundation
 - Biodiversity of the Zambezi Basin
- University of Zimbabwe
 - Ongoing work on limnology of Lake Kariba
- Zambezi Society
 - Ongoing work on Biodiversity of the Zambezi Valley
- Other planned research will consider impacts of climate change on terrestrial ecosystems. Work on Lake Kariba indicates measurable ecosystem impact, with adverse impacts on fishery.
- The Ruckomechi research station has a veterinary facility dedicated to research on The tsetse fly, *Glossina morsitans*. This is a trypanosome vector.

Does the biosphere reserve have cooperative activities with other biosphere reserves (exchanges of information and staff, joint programmes, etc.)?

At the national level:

No other biosphere but MAB is giving support and input to applications for other proposed biospheres in Zimbabwe. Lessons will be drawn from the experiences of the last 10 years of the MZBR.

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At the regional level:

Informal links with RSA, Malawi, Botswana, Namibia and Swaziland.

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Through twinning and/or transboundary biosphere reserves

No twinning taking place. There are inter-government discussion on the Lower Zambezi transfrontier.

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Within the World Network:

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Obstacles encountered, measures to be taken and, if appropriate, assistance expected from the Secretariat:

Address the existing problem of lack of 'buy in' to the Biosphere concept with the formation of an inclusive, high-level coordinating framework to lead the future direction of the Reserve. Target funding to enable the meaningful coordination/management of the MZBR, including the specific ability to:

1. Develop a management plan which is in collaboration with existing management plan strategies within the area.
2. Employ a Coordinator/ Manager.
3. Develop a communications strategy and implement it at different levels.
4. Carry out relevant research.

Main objectives of the Biosphere Reserve:

Describe the main objectives of the Biosphere Reserve integrating the three functions and the sustainable development objectives for the coming years.

Function 1 - Conservation:

The Zambezi Valley is part of Region 54 of the African Ecoregions. It consists of riverine, and terrestrial ecosystems, unique to the subcontinent, as well as the largest man made reservoir. Among threatened species found in the valley are the Black Rhino (*Diceros bicornis*), the Painted Wild Dog, *Lycaon pictus* and the Nyala (*Tragelaphus angasii*). The flora consist of Mopane/*Combretum/Terminalia* woodland and the Zambezi riparian forest. At Mana Pools it

comprises the only floodplain ecosystem left in the Middle Zambezi. The Reserve represents an important contribution to the holistic conservation of this vast, contiguous area, particularly with regards to the strategic management of the human populations within.

Function 2 - Development:

The Reserve status specifically contributes to the integration of development activity within the urban centres and Transitional Zones. In the Omay, Siyakobvu, Hurungwe and Dande areas, the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) has historically had a positive impact. However, recent times have seen a decline in activity and benefit to communities. The Reserve status can contribute to the revival of initiatives and wildlife management programmes run for and in conjunction with local inhabitants.

Function 3 - Logistic support

With a strong and mandated coordination/management committee, the MZBR could play a significant role in the synergy between conservation related activity in the area. Activity that could be impacted includes tourism, education, research, agriculture and community development.

9. SUPPORTING DOCUMENTS, BIBLIOGRAPHY & RECOMMENDATIONS

[List of the annexes submitted with periodic review report.]

(1) Updated location and zonation map with coordinates:

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84). Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website...)]

All maps to be found online in [MZBR Maps Dropbox Folder](#)
Shape files can be made available if and when required

(2) Updated vegetation map or land cover map:

[A vegetation map or land cover map showing the principal habitats and land cover types of the biosphere reserve should be provided, if available.]

None available yet – No funding

(3) Updated list of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions).

[If applicable update the principal legal documents since the nomination of the biosphere reserve and provide a copy of these documents.]

No legal status, see proposed [Statutory Instrument](#).

(4) Updated list of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the Biosphere Reserve. Provide a copy of these documents. It is recommended to produce an English, French or Spanish synthesis of its contents and a translation of its most relevant provisions.]

- [African Elephant Action Plan](#)
- [Multi-species Action Plan to Conserve African-Eurasian Vultures](#)
- [Conservation Strategy and Action Plan for the African Wild Dog \(*Lycaon pictus*\) in the Kavango Zambezi Transfrontier Conservation Area, March 2014-March 2019](#)
- [Zimbabwe National Elephant Management Plan, 2015-2020](#)
- [Zimbabwe Rhino Policy and Management Framework 2011-2016](#)
- [ZimParks Scientific Services Unit Research Strategy](#)
- [Sebungwe Action Plan \(Annex to Zimbabwe National Elephant Management Plan, 2015-2020\)](#)
- [Lower Zambezi Action Plan \(Annex to Zimbabwe National Elephant Management Plan, 2015-2020\)](#)
- [Zambezi Valley Law Enforcement Plan June 2017](#)
- [Mana Pools National Park General Management Plan](#)
- [Draft Mana Pools National Park Anti-Poaching Plan](#)

(5) Updated species list (to be annexed)

[Provide a list of important species occurring within the proposed Biosphere Reserve, including common names, wherever possible.]

Unchanged from original application.

(6) Updated list of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed Biosphere Reserve.]

a) Detailed support documents for this Periodic Review:

- [MZBR Outreach Awareness Workshops Report Oct-Dec 2017](#)
- [Data collected from key stakeholders at KAZA meeting July 2019](#)
- Reports on community workshops/meetings held with stakeholders & informants & attendance lists:
 - [Gokwe North](#),
 - [Nyaminyami /Kariba](#)
 - [Mbire](#),
 - [Chinhoyi \(validation meeting\)](#)
- Community research: [Household Survey Questionnaire](#)
- Community Research: [Household Survey Questionnaire responses – database](#)
- Community Research: [HOUSEHOLD SURVEY REPORT MZBR REVIEW](#)
- [KEY INFORMANT GUIDE MZBR REVIEW](#)
- [Report on KEY INFORMANT INTERVIEWS](#)
- [Minutes of the meetings with the SA team – Dec 2019](#)
- [Minutes of key stakeholders meeting Harare – 26 Nov 2019](#)
- [Draft Statutory Instrument for the Mid-Zambezi Biosphere Reserve \(2017\)](#)
- [MZBR simple pamphlet – July 2017](#)
- [UNESCO-EU-Government of Spain Consultative meeting on Strengthening the Middle Zambezi Biosphere Reserve \(MZBR\) in Zimbabwe, July 2017\)](#)

b) Bibliography (external documents referred to in this Periodic Review):

- [Population Census for Zimbabwe 2012](#)
- [Inter-Censal Demographic Survey 2017 \(Zimbabwe\)](#)
- [Strengthening Biodiversity and Ecosystems Management and Climate-Smart Landscapes in the Mid to Lower Zambezi Region of Zimbabwe](#)". UNDP/MECTHI GEF-funded Zambezi Valley Biodiversity Project (ZVBP) (2018-2023)

- [State of Conservation: Mana Pools National Park, Sapi & Chewore Safari Areas \(Zimbabwe\)](#) Reports to UNESCO World Heritage Site Committee
- [National Summary of Aerial Survey Results for Elephant in Zimbabwe: 2014](#) - Kevin Dunham Oct 2015 for Great Elephant Census
- [Zimbabwe National Elephant Management Plan \(2015-2020\)](#).
- [Lower Zambezi Fisheries Management Plan - Findings and recommendations, November 2019](#)
- [Biodiversity, Conservation and Cultural Heritage Importance of the Mavuradona Wilderness Area in the Muzarabani district, northern Zimbabwe - Oct 2016](#) Black Crystal Consulting (Pvt) Ltd on behalf of Varden Safaris)
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- [Abundance, growth and reproductive biology of oreochromis niloticus \(Linnaeus, 1758\) compared with tilapiines indigenous to the middle Zambezi](#) (Doctoral dissertation, The University of Zambia). Nyirenda, S.M., 2017
- [Environmental Flow Analysis of the Zambezi River Basin. Ecological Changes in the Zambezi River Basin](#), p.183. Tamatamah, R. and Mwedzi, T
- [Mapping floods in the Middle Zambezi Basin using Earth observation and hydrological modeling techniques](#). Physics and Chemistry of the Earth, Parts A/B/C, 114, p.102787. Nharo, T., Makurira, H. and Gumindoga, W., 2019
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- [Impact of elephants \(*LOXONDONTA AFRICANA L.*\) on baobab trees \(*ADANSONIA DIGITATA L.*\) in Mana Pools National Park, Zambezi Valley Region](#). Ndoro, O., 2013
- [Climate Change in Zimbabwe – A guide for planners and decision makers](#). Anna Brazier (published by Konrad Adenauer Stiftung)
- [Mapping The Human-wildlife Buffer Zone and Adjacent Landscape of Ward 8, Hurungwe - District, Zimbabwe – AWF Project report Feb 2019](#)
- [ZIMPARKS-STRATEGIC-PLAN-2019-2023 \(pdf\)](#)
- [Community Based Natural Resource Management \(CBNRM\):A vehicle towards Sustainable Rural Development. The case of CAMPFIRE in Zimbabwe's Mashonaland West Hurungwe District](#) - Emmaculate Tsitsi Ngwerume and Cyprian Muchemwa (2011)
- [Kariba Redd+ Project Monitoring & Implementation Report 2014-2016](#)
- [The implications of a changing climate on the Kapenta fish stocks of Lake Kariba, Zimbabwe](#). Ndebele-Murisa, M Emmanuel Mashonjowa E, & Hill T. Transactions of the Royal Society of South Africa Vol. 66(2), June 2011
- [Environmental state of Lake Kariba and Zambezi River Valley: Lessons learned and not learned](#): Magadza CHD, Wiley Online Library, 16 September 2010
- [Zimbabwe's environmental education programme and its implications for sustainable development](#) Mapira & Jemitias, 2014, Stellenbosch University
- [Govt approves proposal to revitalize CAMPFIRE](#) – The Chronicle 17 Sept 2020

c) RECOMMENDATIONS FOR THE EARLY STAGES OF THE NEXT 10 YEAR PHASE FOR THE MID-ZAMBEZI BIOSPHERE RESERVE – 2020-2030
(for stakeholder inclusive deliberation)

The Zambezi Society felt it would be beneficial to produce notes to guide the incoming MAB-MZBR team. These thoughts are offered more as a catalyst for action than as a prescription.

UNESCO's designation of the Mid-Zambezi Biosphere Reserve in Zimbabwe has the potential to help coordinate, strengthen and consolidate the existing efforts of many players already working to achieve the long-term conservation of this magnificent wilderness landscape and sustainable development for the people living in and around it.

It will be even more valuable if it also develops the potential to expand across borders with linkages to the Lower Zambezi in Zambia and beyond.

The challenges

Much has been achieved in the past 10 years, but this has been at the hands of individual organisations and state authorities, rather than as a cohesive Biosphere Reserve-focused structure. In truth, there has been a reluctance on the part of key stakeholders to 'buy in' to the Biosphere Reserve concept for a number of reasons: -

- a. The benefits of the MZBR to their organisations or to the landscape in general are not immediately obvious.

- b. There may have been a perception that the MZBR will impose an unwanted higher layer of management.
- c. The MZBR is seen as another designation to embed 'protection' of large land areas without due consideration of 'development' needs.
- d. The lack of any formal catalysing and coordinating role by the Ministry of Environment to lead a team of collaborating stakeholders to create momentum for the MZBR.
- e. The absence of an integrated, holistic and consultative plan for the MZBR.

A new narrative

In order to address these challenges, a bold and fundamental shift in the MZBR narrative is urgently required. An enabling structure needs to be created with the emphasis on support and coordination. Stakeholders need to be made aware of the advantages of the MZBR, not as an implementing entity, but as an interlinking network of public and private-sector organisations with a collaborative team doing work for the collective.

The benefits of the MZBR network as a central portal need to be clearly set out:-

- Identifying and attracting cross-cutting funding
- Storing data
- Disseminating and receiving information, news, stories etc.
- Arranging thematic workshops to share experiences, challenges and opportunities,
- Identifying gaps
- Setting up dialogue with policy-makers
- Talking to global audiences
- Identifying and setting up training opportunities
- Hosting difficult conversations, (e.g. protection- development) etc.

To this end, a proposed draft Vision and Mission Statements for the MZBR, for the consideration of all stakeholders, might read as follows:-

VISION: Through collaboration, achieve a satisfactory and sustainable integration of the human and biological ecosystems of the Mid-Zambezi Biosphere Reserve so that the future of both is secured in perpetuity.

MISSION: To provide coordination, marketing, data capture, landscape monitoring and global and regional representation in support of the diverse visions and missions of all the member organisations.

Legal structure

Currently the Mid-Zambezi Biosphere Reserve has no formal recognition in Zimbabwe's legislation. This will be an important output of future collaborative efforts to maximise the benefits of the Biosphere Reserve designation. Legal expertise will be required to effect the necessary changes within Zimbabwe's Parks Act and, if necessary, the Environmental Management Act. The Ministry of Environment has a Legal Director who can assist here. Updating of the Parks Act is underway and the issue of Biosphere Reserves could be pursued at a high level via this (however, there is a need to move quickly).

Organisational structure (this can be established informally while the process for legal status is being pursued)

- a. An Administrative Board - headed by Zimbabwe's Ministry of Environment, Climate Change, Tourism and Hospitality Industry and comprising decision making/mandated representatives from government, private sector and communities.
- b. A coordination team with one or two elected 'point people' to take control of day to day running e.g. coordination, networking, data capture, marketing, capacity building, gap

identification, tracking (Africa-wide) for new innovations and best practice, identification of fundraising opportunities for stakeholders, partnership opportunities to exploit the diverse skill sets and experience of member organisations for Biosphere Reserve projects.

- c. On-the-ground team consisting of:
 - i. Operations coordinator (Biosphere wide)
 - ii. Community liaison officer in the Buffer/Transitional Zones of the Biosphere Reserve with responsibility for supporting organisations, identifying projects and linking to appropriate implementors
 - iii. Ecological/research team coordinator (Biosphere wide)

Proposed Objectives

1. **Support the development of a collaborative management plan** with an overall vision for the Biosphere (need to employ a Management Planning expert consultant). The upcoming GEF-funded management plan (due to be undertaken during 2021-2022) will cover part of the Biosphere Reserve area and could provide a sound basis upon which a MZBR plan could build. The MZBR coordinating team could assist in ensuring that the momentum created by the GEF project moves forward into the future.

The MZBR Management Plan needs to encompass:-

- a. **Sub management plans** for National Parks, Safari Areas, Buffer Zones/towns, Transitional Zones (Communities/wards etc).
- b. **To support the relevant authorities in the development of town plans** for Kariba, Chirundu and Makuti which will take into account wildlife presence and wilderness values - Maintaining corridors, potential industries, fencing, sewerage, rubbish etc.
- c. To set up catalytic conversations to take into account planning for:
 - Power generation
 - Fishing (commercial & small-scale)
 - Air access
 - Tourism (management plan for this is vital to prevent over-tourism)
 - Agriculture - commercial and small-scale
 - Mining
 - Gas
- d. **To support the relevant authorities, traditional representatives, NGOs in developing a community management plan** to take into account:
 - Reforestation - development of a community managed GREEN FENCE line (beyond which no agricultural activity/ habitat clearing is allowed to take place)
 - Movement of people by the Rural District Councils back to behind the GREEN FENCE (out of the buffer zone)
 - Community ranger programme for law enforcement and HWC (empowerment of women)
 - Establishment of alternative (sustainable) livelihoods
 - A community liaison person will be essential to support, incubate and monitor community activity
- e. **To support the development of a research plan**
 - Past, present, future
 - Ecological team (headed by an ecologist to identify priorities and coordinate research activities within the Biosphere)
- f. **To support the establishment of a communications channel** to spread awareness of the MZBR nationally, regionally and globally, as well as to all inhabitants of the MZBR through newsletters, social media, local radio stations etc.

2. Assess the **economic value** of the Biosphere Reserve (need to employ an Environmental Economics expert consultant).

3. **Improve and tighten up on synergies** within the landscape with regard to law enforcement, biodiversity research and conservation, illegal wildlife crime intelligence, monitoring etc.
4. **Mitigate encroachment and impacts** from mining, agriculture and tourism through partnerships (e.g. encourage the spread of tourism to a wider area to reduce impacts on vulnerable ecosystems) and alternative poverty alleviation opportunists.
5. In addition to the expansion of the Core Area to include Mavuradonha Wilderness Area and Lake Kariba shoreline (as proposed the 2010-2020 Periodic Review), a bolder plan to **Expand the Core Area of the MZBR further to cover all Parks and Wildlife 'Protected Area' land** (currently only Mana and Matusadona) with a particular focus to be placed on distressed assets such as Doma and Charara wildlife estates.
6. **Explore the possibilities of linking the MZBR with any future Biosphere Reserve on the Lower Zambezi in Zambia** to create a future first transboundary Biosphere Reserve shared between the two countries.

Monitoring and databases

The collaborative team to define what impact metrics are to be used, and then measure success/shortfall (over next 10 years) of:-

- Wildlife protection
- Habitat conservation
- Community empowerment
- Improved livelihoods
- Business

Funding

In order to secure the funding to enable the above to take place the following steps are proposed:-

1. A small team (with AFriMab and MAB German experts) be put together to develop a compelling narrative around the value of the Biosphere Reserve.
2. Working field visits by the Director and PS of the Ministry of Environment, Climate Change, Tourism and Hospitality Industry.
3. A workshop of top managers/leaders of all major stakeholders (agenda requires skillful crafting) to share respective visions, strategic plans, challenges, projects. Identify areas where the MZBR collaborative team can provide support, develop the vision, craft high a level strategy, establish terms of reference for the MZBR. Agree structure, board representation and TOR, staffing levels and roles.
4. Outputs to be taken on a road show for additional input and building of awareness.
5. Outputs to be taken to a cabinet briefing.
6. Develop a two year catalytic funding requirement.
7. Explore sources of funding, especially those suggested by UNESCO, including:-
 - UNESCO "Be Resilient" project (Lines of Action)
 - German NATCOM project for Southern Africa
 - USAID Resilient Waters Project
 - UNESCO Adaptation Fund
 - Green Climate Fund
 - International Klimat Initiative (IKI) – funds to combat desertification
 - GEF

3rd December 2020

10. ADDRESSES

10.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: ZIMBABWE NATIONAL COMMISSION FOR UNESCO

Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development,

Street or P.O. Box: P. Bag CY 7732

Causeway

City with postal code: Harare

Country: ZIMBABWE

Telephone:

E-mail: zimnatcom3@gmail.com

Web site: None

AND

Name: Ministry of Environment, Climate Change, Tourism and Hospitality Industry

Street or P.O. Box: 11th Floor Kaguvi Building, Corner 4th and Central Ave

P.O. Box CY 1718,

Causeway,

City with postal code: Harare

Country: ZIMBABWE

Telephone: +263 750 409, 750 360/62/64/80/83 770897,75991,750401

E-mail: info@environment.org.zw

Web site: <http://www.envirotourism.org.zw>

10.2. Administering entity of the core area(s):

Name: Zimbabwe Parks and Wildlife Management Authority (ZPWMA)

Street or P.O. Box: Corner Sandringham Drive & Borrowdale Road, Botanical Gardens,

P. O. Box CY140, Causeway,

City with postal code: Harare

Country: Zimbabwe

Telephone: +263 24 2707624-9

E-mail: cmutema@zimparks.org.zw and wkagurabadza@zimparks.org.zw

Web site: <https://www.zimparks.org.zw>

10.3. Administering entity of the buffer zone(s):

Name: Zimbabwe Parks and Wildlife Management Authority (ZPWMA)
Street or P.O. Box: Corner Sandringham Drive & Borrowdale Road, Botanical Gardens,
P. O. Box CY140, Causeway,
City with postal code: Harare
Country: Zimbabwe
Telephone: +263 24 2707624-9
E-mail: cmutema@zimparks.org.zw and wkagurabadza@zimparks.org.zw
Web site: <https://www.zimparks.org.zw>

10.4. Administering entity of the transition area(s):

Name: Ministry of Local Government & Public Works
Street or P.O. Box: Cecil House 95 Jason Moyo Street Harare and
7 Robert Mugabe. P.O Box 710 Chinhoyi
Country: Zimbabwe
Telephone: +263 242 - 756521, 71
E-mail: communications@mlg.gov.zw
Web site: <http://www.mlg.gov.zw>

Annex I to the Biosphere Reserve Periodic Review, December 2020

MABnet Directory of Biosphere Reserves

MAB or Natcom to fill in administrative details

Administrative details

Country: Zimbabwe

Name of BR: Middle Zambezi Biosphere Reserve

Year designated: 2010

Administrative authorities: (7.6) The State – through Zimbabwe Parks and Wildlife Management Authority and Rural District Councils

Name Contact: (10.1)

Contact address: (Including phone number, postal and email addresses) (10.1)

1. ZIMBABWE NATIONAL COMMISSION FOR UNESCO

Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development,
P. Bag CY 7732, Causeway, Harare, ZIMBABWE.

E-mail: zimnatcom3@gmail.com

2. MINISTRY OF ENVIRONMENT, CLIMATE CHANGE, TOURISM AND HOSPITALITY
INDUSTRY

11th Floor Kaguvi Building, Corner 4th and Central Ave, Harare / P.O. Box CY 1718,
Causeway, Harare, ZIMBABWE

Telephone: +263 750 409, 750 360/62/64/80/83 770897,75991,750401

E-mail: info@environment.org.zw

Web site: <http://www.envirotourism.org.zw>

Related links: (web sites) none established

Social networks: (6.5.4) none established

Description

General description:

Approximately 25 lines

Name: Middle Zambezi Biosphere Reserve

The Middle Zambezi valley is part of Region 54 of the African Terrestrial Ecoregions and includes a World Heritage Site, a RAMSAR wetland site of international importance and an Important Bird Area. It consists of riverine and terrestrial ecosystems unique to the subcontinent and home to a diversity of wildlife, including an estimated 15,500 African Elephant (*Loxodonta Africana*). Among threatened species found in the valley are the African Wild Dog, *Lycaon pictus* and the Nyala (*Tragelaphus angasii*). The flora consists of arid *Colophospermum/Combretum/Terminalia* woodland and riparian forest along the Zambezi River and its tributaries. At Mana Pools it comprises an alluvial terrace and floodplain ecosystem – the only one left in the Middle Zambezi.

The Middle Zambezi Biosphere Reserve covers a vast area of nearly 34,000 sq kms. Its land management units comprise two Core National Park areas (Matusadona and Mana Pools) and 11 Buffer Zone safari areas under state protection for hunting or tourism. While the land tenure status in the Core and Buffer Zone areas is stable, that in the settled areas of the Transition Zone is currently volatile, posing accountability issues with respect to environmental management and sustainable development. The Biosphere Reserve Buffer Zone also includes part of the eastern section of Lake Kariba formed by the damming of the Zambezi River in 1960 for hydro-electricity generation. The reservoir is administered as a Recreational Park which also supports commercial fisheries and a crocodile farming industry.

The total human population of the Biosphere Reserve is estimated at around 252,200, with the majority in the Transition Zones which lie outside the wildlife Safari Areas and in the urban areas of Kariba (25,450) and Chirundu (4,000) (the Core and Buffer Zones being limited to ZimParks Authority staff and their families, with seasonal influx of tour operators, staff and visitors.)

Major ecosystem type: The Zambezi Valley is part of Region 54 of the African Terrestrial Ecoregions. It consists of riverine, and terrestrial ecosystems unique to the subcontinent, as well as the largest man made reservoir.

Major habitats & land cover types:

Dry savannah deciduous *Brachystegia* woodland: Regional/Local

Colophospermum mopane woodland: Local

Tropical lotic and lentic aquatic habitats: Local

Bioclimatic zone: Tropical

Location (latitude & longitude): Central 16°09'52"S, 29°20'26"E

Total Area (ha): 33, 945 sq km (approx. 3,394,500 ha)

Core area(s): 3603 sq kms (approx. 360,300 ha)

Buffer zone(s):

Terrestrial: 26,307 sq kms (approx. 2,630,700 ha)

Lacustrine: 417 sq kms (approx. 41,700 ha)

Transition area(s):

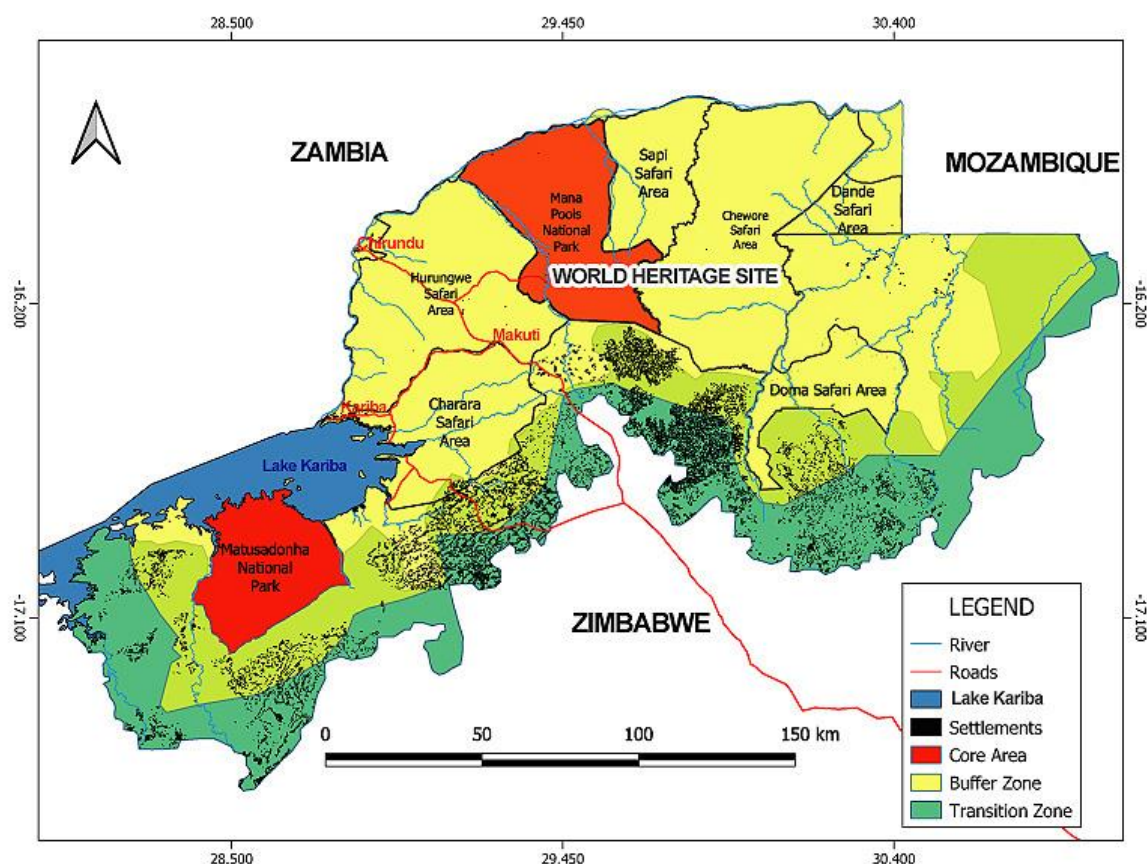
Outside Buffer Zone: 3,618 sq km (approx. 361,800 ha)

Overlapping Buffer Zone: 10,477 sq km (approx. 1,047,700 ha)

Different existing zonation: N/A

Altitudinal range (metres above sea level): 300 - 1350

Zonation map(s) (refer to section 2.2.2):



Main objectives of the biosphere reserve**Brief description (approx. 5 lines)**

Harness collaboration and provide support to strengthen and consolidate the existing efforts of the many players already working in this landscape, and to assist them in developing an integrated, holistic and consultative plan to secure a) the long-term sustainable conservation of one of the world's largest wilderness areas, the Zambezi Valley, and; b) the achievement of UN sustainable development goals within settled areas surrounding this wilderness

Research and Monitoring**Brief description**Approximately 5 lines

- Ecological research on ecosystem and community interaction.
- Impacts of global warming on ecosystems
- Social studies on resettled peoples coping mechanisms to their environment
- Abiotic research on hydrology, geology and climatology

Specific variables (please fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors	√	Afforestation/Reforestation	√
Acidic deposition/Atmospheric factors		Algae	√
Air quality		Alien and/or invasive species	√
Air temperature	√	Amphibians	√
Climate, climatology	√	Arid and semi-arid systems	√
Contaminants	√	Autoecology	

Drought	√	Beach/soft bottom systems	
Erosion	√	Benthos	
Geology	√	Biodiversity aspects	√
Geomorphology		Biogeography	
Geophysics		Biology	√
Glaciology		Biotechnology	√
Global change	√	Birds	√
Groundwater	√	Boreal forest systems	
Habitat issues	√	Breeding	
Heavy metals	√	Coastal/marine systems	
Hydrology	√	Community studies	√
Indicators	√	Conservation	√
Meteorology	√	Coral reefs	
Modeling	√	Degraded areas	√
Monitoring/methodologies		Desertification	√
Nutrients		Dune systems	
Physical oceanography		Ecology	√
Pollution, pollutants	√	Ecosystem assessment	√
Siltation/sedimentation	√	Ecosystem functioning/structure	√
Soil	√	Ecotones	
Speleology		Endemic species	√

Topography		Ethology	√
Toxicology	√	Evapotranspiration	√
UV radiation		Evolutionary studies/Palaeoecology	√
		Fauna	√
		Fires/fire ecology	√
		Fishes	√
		Flora	√
		Forest systems	√
		Freshwater systems	√
		Fungi	√
		Genetic resources	√
		Genetically modified organisms	
		Home gardens	√
		Indicators	√
		Invertebrates	√
		Island systems/studies	
		Lagoon systems	
		Lichens	
		Mammals	√
		Mangrove systems	

		Mediterranean type systems	
		Microorganisms	√
		Migrating populations	√
		Modeling	√
		Monitoring/methodologies	√
		Mountain and highland systems	
		Natural and other resources	√
		Natural medicinal products	√
		Perturbations and resilience	√
		Pests/Diseases	√
		Phenology	√
		Phytosociology/Succession	√
		Plankton	√
		Plants	√
		Polar systems	
		Pollination	
		Population genetics/dynamics	√
		Productivity	√
		Rare/Endangered species	√
		Reptiles	√
		Restoration/Rehabilitation	√

		Species (re) introduction	√
		Species inventorying	
		Sub-tropical and temperate rainforest systems	
		Taxonomy	√
		Temperate forest systems	
		Temperate grassland systems	
		Tropical dry forest systems	√
		Tropical grassland and savanna systems	√
		Tropical humid forest systems	
		Tundra systems	
		Vegetation studies	√
		Volcanic/Geothermal systems	√
		Wetland systems	√
		Wildlife	√

Socio-economic		Integrated monitoring	
Agriculture/Other production systems	√	Biogeochemical studies	√
Agroforestry	√	Carrying capacity	√

Anthropological studies	√	Conflict analysis/resolution	√
Aquaculture	√	Ecosystem approach	√
Archaeology	√	Education and public awareness	√
Bioprospecting		Environmental changes	√
Capacity building	√	Geographic Information System (GIS)	√
Cottage (home-based) industry	√	Impact and risk studies	√
Cultural aspects	√	Indicators	√
Demography	√	Indicators of environmental quality	√
Economic studies	√	Infrastructure development	√
Economically important species	√	Institutional and legal aspects	√
Energy production systems	√	Integrated studies	√
Ethnology/traditional practices/knowledge	√	Interdisciplinary studies	√
Firewood cutting	√	Land tenure	√
Fishery	√	Land use/Land cover	√
Forestry	√	Landscape inventorying/monitoring	√
Human health	√	Management issues	√
Human migration	√	Mapping	√
Hunting	√	Modeling	√
Indicators	√	Monitoring/methodologies	√

Indicators of sustainability	√	Planning and zoning measures	√
Indigenous people's issues	√	Policy issues	√
Industry	√	Remote sensing	√
Livelihood measures	√	Rural systems	√
Livestock and related impacts	√	Sustainable development/use	√
Local participation	√	Transboundary issues/measures	√
Micro-credits		Urban systems	√
Mining	√	Watershed studies/monitoring	√
Modeling	√		
Monitoring/methodologies	√		
Natural hazards	√		
Non-timber forest products	√		
Pastoralism			
People-Nature relations	√		
Poverty	√		
Quality economies/marketing			
Recreation	√		
Resource use	√		
Role of women	√		
Sacred sites	√		
Small business initiatives	√		

Social/Socio-economic aspects	√		
Stakeholders' interests	√		
Tourism	√		
Transports	√		

Annex II to the Biosphere Reserve Periodic Review, December 2020 Promotion and Communication Materials for the biosphere reserve

Provide some promotional material regarding the site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments or sub-titles, of professional quality – DV CAM or BETA only, will be needed.

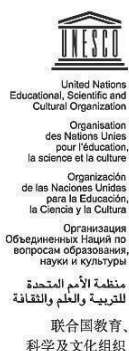
In addition, return a signed copy of the following Agreements on Non-Exclusive Rights for photo(s) and video(s).

All images and graphics included in this Periodic Review can be accessed online at [MZBR Photos-Graphics Dropbox Folder](#)

UNESCO Photo Library
Bureau of Public Information

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:



1. a) I the undersigned, copyright-holder of the above mentioned photo(s) hereby grant to UNESCO free of charge the non-exclusive right to exploit, publish, reproduce, diffuse, communicate to the public in any form and on any support, including digital, all or part of the photograph(s) and to licence these rights to third parties on the basis of the rights herein vested in UNESCO

b) These rights are granted to UNESCO for the legal term of copyright throughout the world.

c) The name of the photographer will be cited alongside UNESCO's whenever his/her work is used in any form.

2. I certify that:

a) I am the sole copyright holder of the photo(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.

b) The photo(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

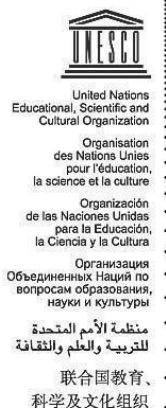
Name and Address: **THE ZAMBEZI SOCIETY** E-mail: zambezi@mweb.co.zw

NOTE: The photographs and graphics used in this periodic review are from different sources. The Zambezi Society would appreciate being informed beforehand if reproduction is required and we will ensure that the required permissions are granted from the owner.

Signature :

Date : 2 December 2020

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)
Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687
Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org; m.ravassard@unesco.org



UNESCO PHOTO LIBRARY Bureau of Public Information

AGREEMENT GRANTING NON-EXCLUSIVE RIGHTS

Reference:

1. a) I the undersigned, copyright-holder of the above mentioned video(s) hereby grant to UNESCO free of charge the non-exclusive right to exploit, publish, reproduce, diffuse, communicate to the public in any form and on any support, including digital, all or part of the photograph(s) and to licence these rights to third parties on the basis of the rights herein vested in UNESCO
 - b) These rights are granted to UNESCO for the legal term of copyright throughout the world.
 - c) The name of the author/copyright holder will be cited alongside UNESCO's whenever his/her work is used in any form.
2. I certify that:
 - a) I am the sole copyright holder of the video(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.
 - b) The video(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address:

N/A

Signature :

Date:

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)
 Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687
 Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org; m.ravassard@unesco.org

Annex III to the Biosphere Reserve Periodic Review, December 2020

The Statutory Framework of the World Network of Biosphere Reserves

Introduction

Within UNESCO's Man and the Biosphere (MAB) programme, biosphere reserves are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Co-ordinating Council of the MAB Programme, at the request of the State concerned. Biosphere reserves, each of which remains under the sole sovereignty of the State where it is situated and thereby submitted to State legislation only, form a World Network in which participation by the States is voluntary.

The present Statutory Framework of the World Network of Biosphere Reserves has been formulated with the objectives of enhancing the effectiveness of individual biosphere reserves and strengthening common understanding, communication and co-operation at regional and international levels.

This Statutory Framework is intended to contribute to the widespread recognition of biosphere reserves and to encourage and promote good working examples. The delisting procedure foreseen should be considered as an exception to this basically positive approach, and should be applied only after careful examination, paying due respect to the cultural and socio-economic situation of the country, and after consulting the government concerned.

The text provides for the designation, support and promotion of biosphere reserves, while taking account of the diversity of national and local situations. States are encouraged to elaborate and implement national criteria for biosphere reserves which take into account the special conditions of the State concerned.

Article 1 - Definition

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework.

Article 2 - World Network of Biosphere Reserves

1. Biosphere reserves form a worldwide network, known as the World Network of Biosphere Reserves, hereafter called the Network.
2. The Network constitutes a tool for the conservation of biological diversity and the sustainable use of its components, thus contributing to the objectives of the Convention on Biological Diversity and other pertinent conventions and instruments.
3. Individual biosphere reserves remain under the sovereign jurisdiction of the States where they are situated. Under the present Statutory Framework, States take the measures which they deem necessary according to their national legislation.

Article 3 - Functions

In combining the three functions below, biosphere reserves should strive to be sites of excellence to explore and demonstrate approaches to conservation and sustainable development on a regional scale:

- (i) conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation;
- (ii) development - foster economic and human development which is socio-culturally and ecologically sustainable;
- (iii) logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.

Article 4 - Criteria

General criteria for an area to be qualified for designation as a biosphere reserve:

1. It should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.
2. It should be of significance for biological diversity conservation.
3. It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.

4. It should have an appropriate size to serve the three functions of biosphere reserves, as set out in Article 3.
5. It should include these functions, through appropriate zonation, recognizing:
 - (a) a legally constituted core area or areas devoted to long-term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives;
 - (b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place;
 - (c) an outer transition area where sustainable resource management practices are promoted and developed.
6. Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and carrying out the functions of a biosphere reserve.
7. In addition, provisions should be made for:
 - (a) mechanisms to manage human use and activities in the buffer zone or zones;
 - (b) a management policy or plan for the area as a biosphere reserve;
 - (c) a designated authority or mechanism to implement this policy or plan;
 - (d) programmes for research, monitoring, education and training.

Article 5 - Designation procedure

1. Biosphere reserves are designated for inclusion in the Network by the International Co-ordinating Council (ICC) of the MAB programme in accordance with the following procedure:
 - (a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4;
 - (b) the secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the secretariat requests the missing information from the nominating State;
 - (c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;
 - (d) ICC of the MAB programme takes a decision on nominations for designation. The Director-General of UNESCO notifies the State concerned of the decision of ICC.
2. States are encouraged to examine and improve the adequacy of any existing biosphere reserve, and to propose extension as appropriate, to enable it to function fully within the Network. Proposals for extension follow the same procedure as described above for new designations.
3. Biosphere reserves which have been designated before the adoption of the present Statutory Framework are considered to be already part of the Network. The provisions of the Statutory Framework therefore apply to them.

Article 6 - Publicity

1. The designation of an area as a biosphere reserve should be given appropriate publicity by the State and authorities concerned, including commemorative plaques and dissemination of information material.
2. Biosphere reserves within the Network, as well as the objectives, should be given appropriate and continuing promotion.

Article 7 - Participation in the Network

1. States participate in or facilitate co-operative activities of the Network, including scientific research and monitoring, at the global, regional and sub-regional levels.
2. The appropriate authorities should make available the results of research, associated publications and other data, taking into account intellectual property rights, in order to ensure the proper functioning of the Network and maximize the benefits from information exchanges.
3. States and appropriate authorities should promote environmental education and training, as well as the development of human resources, in co-operation with other biosphere reserves in the Network.

Article 8 - Regional and thematic subnetworks

States should encourage the constitution and co-operative operation of regional and/or thematic subnetworks of biosphere reserves, and promote development of information exchanges, including electronic information, within the framework of these subnetworks.

Article 9 - Periodic review

1. The status of each biosphere reserve should be subject to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4, and forwarded to the secretariat by the State concerned.
2. The report will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC.
3. ICC will examine the periodic reports from States concerned.
4. If ICC considers that the status or management of the biosphere reserve is satisfactory, or has improved since designation or the last review, this will be formally recognized by ICC.
5. If ICC considers that the biosphere reserve no longer satisfies the criteria contained in Article 4, it may recommend that the State concerned take measures to ensure conformity with the provisions of Article 4, taking into account the cultural and socio-economic context of the State concerned. ICC indicates to the secretariat actions that it should take to assist the State concerned in the implementation of such measures.
6. Should ICC find that the biosphere reserve in question still does not satisfy the criteria contained in Article 4, within a reasonable period, the area will no longer be referred to as a biosphere reserve which is part of the Network.
7. The Director-General of UNESCO notifies the State concerned of the decision of ICC.
8. Should a State wish to remove a biosphere reserve under its jurisdiction from the Network, it notifies the secretariat. This notification shall be transmitted to ICC for information. The area will then no longer be referred to as a biosphere reserve which is part of the Network.

Article 10 - Secretariat

1. UNESCO shall act as the secretariat of the Network and be responsible for its functioning and promotion. The secretariat shall facilitate communication and interaction among individual biosphere reserves and among experts. UNESCO shall also develop and maintain a worldwide accessible information system on biosphere reserves, to be linked to other relevant initiatives.
2. In order to reinforce individual biosphere reserves and the functioning of the Network and sub-networks, UNESCO shall seek financial support from bilateral and multilateral sources.
3. The list of biosphere reserves forming part of the Network, their objectives and descriptive details, shall be updated, published and distributed by the secretariat periodically.