

**IMPLEMENTATION OF AND COMPLIANCE WITH THE ENVIRONMENTAL
MANAGEMENT PLAN FOR THE CHOBE SAVANNA LODGE, KABBE SOUTH
CONSTITUENCY, ZAMBEZI REGION, NAMIBIA**



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TABLE OF CONTENTS

1	Introduction.....	5
1.1	Background	5
1.2	Terms of Reference	6
1.3	Environmental Assessment Practitioner	7
2	Chobe Savanna Lodge.....	8
2.1	Infrastructure	8
2.2	Activities	9
2.3	Engineering Services	9
3	Environmental Management Plan: Implementation and Compliance	10
3.1	Introduction.....	10
3.2	Compliance: Environmental Management Plan	10
3.3	Monitoring and Reporting	28
4	Conclusions and Recommendations	29
5	References	30

LIST OF TABLES

Table 1: List of the applications/reports submitted to the Ministry of Environment, Forestry and Tourism.....	6
Table 2: Environmental Management Plan for the Chobe Savanna Lodge, Kabbe South Constituency, Zambezi Region, Namibia.	11

LIST OF FIGURES

Figure 1: Map showing the location of the Chobe Savanna Lodge, Kabbe South Constituency, Zambezi Region, Namibia (<i>Source: Miss Maike Prickett, GIS Specialist, 09 July 2020</i>).....	5
Figure 2: Map showing the infrastructure layout of the Chobe Savanna Lodge (<i>Source: Miss Maike Prickett, GIS Specialist, 09 July 2020</i>).	8
Figure 3: Pictures showing: a) the Assistant Manager’s house; b) workshop / tool-shed; c) fuel store; and d) fuel tank and generator (to the right) (<i>Source: J. Steyn, 01 August 2023</i>).....	9
Figure 4: Pictures showing the layout of the rooms and the location of the emergency assembly point (<i>Source: J. Steyn, 01 August 2023</i>).	16
Figure 5: The vegetable garden at Chobe Savanna Lodge; beds were recently put in the second vegetable garden (<i>Source: J. Steyn, 01 August 2023</i>).	18
Figure 6: Pictures showing: a) the fenced-off waste site where waste was stored temporarily and/or incinerated (this site has since been closed) (<i>Source: L. Maartens, 02 July 2020</i>); b) the new waste site (in the same area) where waste is currently incinerated; and c) sorted waste for collection by Seapride Foods (<i>Source: J. Steyn, 01 August 2023</i>).	24
Figure 7: Reeds were planted (~June 2022) in an attempt to protect the river bank (<i>Source: J. Steyn, 01 August 2023</i>).....	26

ABBREVIATIONS / ACRONYMS / SYMBOLS / UNITS

The following is a list of the abbreviations, acronyms, symbols, and units used in this Report:

AC	Alternating Current
CFLs	Compact Fluorescent Globes

cm	centimetre
DEA	Directorate of Environmental Affairs
DEAF	Directorate of Environmental Affairs and Forestry
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GN	Government Notice
GRN	Government of the Republic of Namibia
HAN	Hospitality Association of Namibia
I&APs	Interested and Affected Parties
IBA	Important Bird Area
IEMA	Institute of Environmental Management and Assessment
IFC	International Finance Corporation
IWM	Integrated Waste Management
KAZA TFCA	Kavango Zambezi Transfrontier Conservation Area
km	kilometre
km ²	square kilometre
kVA	kilo Volt-Ampere
m	metre
m ³	cubic metre
MAWLR	Ministry of Agriculture, Water, and Land Reform
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MHSS	Ministry of Health and Social Services
MME	Ministry of Mines and Energy
MSDS	Material Safety Data Sheets
NCE	Namibia Chamber of Environment
NTB	Namibia Tourism Board
PPE	Personal Protective Equipment
SA	South Africa
SHE	Safety, Health and Environment
STP	Sewage Treatment Plant
TAWUN	Tourism and Allied Workers Union of Namibia
UK	United Kingdom
UNAM	University of Namibia
V	Volt
WWTP	Wastewater Treatment Plant

1 Introduction

1.1 Background

Desert & Delta Safaris, created in 1982, is considered the most established safari circuit in Botswana. It currently owns eight premier safari properties, seven in Botswana and one in Namibia: Xugana Island Lodge, Camp Okavango, and Camp Xakanaxa (Okavango Delta); Camp Moremi (Moremi Game Reserve); Leroo La Tau (Makgadikgadi Pans National Park); Savute Safari Lodge and Chobe Game Lodge (Chobe National Park); and Chobe Savanna Lodge (see <https://desertdelta.com/>).

Chobe Savanna Lodge, situated on the Chobe River floodplain, 15 kilometres (km) upstream from Impalila Island, Kabbe South Constituency, Zambezi Region, Namibia (see Figure 1) was built in 1999 (see Maartens, 2020); the present owner, Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge, has been leasing the property since.

Caprivi Fly Fishing Safaris (Pty) Ltd received a Right of Leasehold (25 years with an option to extend) from the Zambezi Communal Land Board, Ministry of Agriculture, Water and Land Reform (MAWLR) on 10 February 2022 (see Maartens, 2022a).

Access to the Lodge can be attained via flying to Katima Mulilo, driving from there to Kasane in Botswana (via the Chobe National Park), and then by boat; or via flying to Kasane, and from there by boat. Chobe Savanna Lodge has five boats, all with 4-stroke engines. A “service road” is used by the staff of Chobe Savanna Lodge (from Katima Mulilo and via gravel road to Nakabolewa, Mbalasinte, and Kasenu, and from there to the Lodge) during the dry season only (see Maartens, 2020).

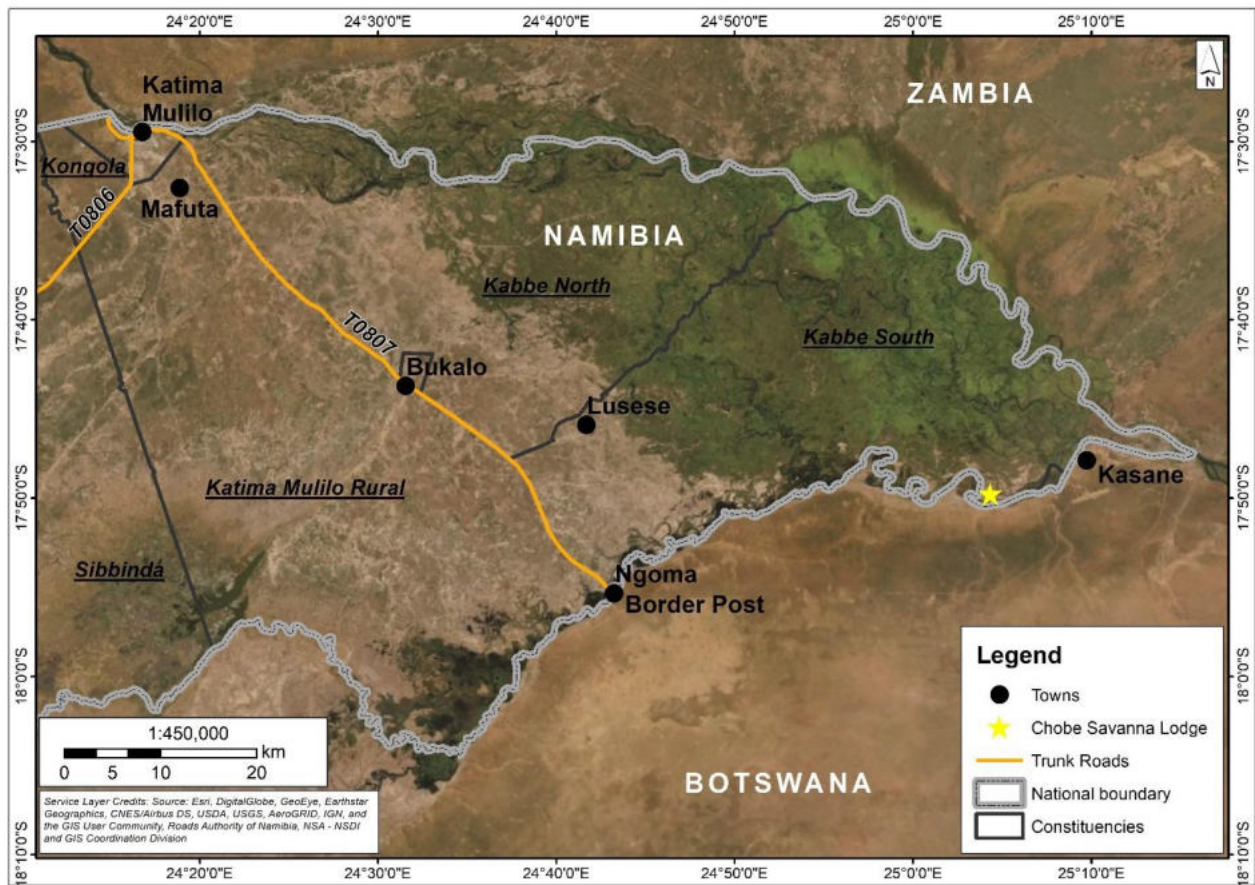


Figure 1: Map showing the location of the Chobe Savanna Lodge, Kabbe South Constituency, Zambezi Region, Namibia (Source: Miss Maïke Prickett, GIS Specialist, 09 July 2020).

The Lodge is located within the Kasika Conservancy (meaning “small Mangosteen”). The Conservancy was registered in 2005 and covers an area of 147 square kilometres (km²). Around 1,094 people reside in the Kasika Conservancy; the main language spoken is Subia (see <http://www.nacso.org.na/conservancies/kasika>).

The Eastern Caprivi Wetlands is a Globally Important Bird Area (IBA); the area is divided into five geographically distinct zones: the Upper Kwando (137 km²); the Lower Kwando and Linyanti Swamp (3,830 km²); the ephemeral Lake Liambezi (406 km²); the Chobe River and marsh (311 km²); and the Zambezi floodplains (1,800 km²) (Simmons *et al.*, 1999).

Chobe Savanna Lodge also falls within the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA) (see <https://www.kavangozambezi.org/en/> and <http://www.met.gov.na/national-parks/kavango-zambezi-transfrontier-conservation-area-kaza-tfca/297/>).

In line with the Commencement of the Environmental Management Act (EMA), 2007 (Act No. 7 of 2007) (06 February 2012; Government Notice (GN) No. 28), the Listed Activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (GN No. 29), and the Environmental Impact Assessment (EIA) Regulations (GN No. 30) (Government of the Republic of Namibia (GRN), 2012), Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge applied (online) to the Environmental Commissioner, Ministry of Environment and Tourism (MET; now Ministry of Environment, Forestry and Tourism (MEFT)) for an ECC on 09 July 2020. An Environmental Management Plan (EMP; see Maartens, 2020) was submitted to the Office of the Environmental Commissioner, MEFT on 29 July 2020 and an ECC was issued on 22 September 2020 (ECC-00930); the ECC is valid for a period of three years, i.e. until 22 September 2023.

1.2 Terms of Reference

LM Environmental Consulting was appointed by Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge in June 2023 to prepare a report, illustrating the implementation of and compliance with the Environmental Management Plan (EMP) (see Maartens, 2020), in aid of the application for the renewal of the ECC for the Chobe Savanna Lodge (see Table 1 for a list of the applications/reports submitted to MEFT to date).

Table 1: List of the applications/reports submitted to the Ministry of Environment, Forestry and Tourism.

Application / Report	Date of Submission	Status
Application for an Environmental Clearance Certificate (ECC) & Environmental Management Plan (EMP) for the Chobe Savanna Lodge, Zambezi Region, Namibia (see Maartens, 2020)	09 and 29 July 2020	ECC (22 September 2020)
Bi-Annual Environmental Report for the Chobe Savanna Lodge, Zambezi Region, Namibia (October 2020 to March 2021) (Maartens, 2021a)	06 April 2021 (online) and 07 April 2021 (hard copy)	No feedback received from the Directorate of Environmental Affairs (DEA), Ministry of Environmental, Forestry and Tourism (MEFT)
Bi-Annual Environmental Report for the Chobe Savanna Lodge, Zambezi Region, Namibia (April to September 2021) (Maartens, 2021b)	15 October 2021 (online and hard copy)	No feedback received from the Directorate of Environmental Affairs and Forestry (DEAF), MEFT
Bi-Annual Environmental Report for the Chobe Savanna Lodge, Zambezi Region, Namibia (October 2021 to March 2022) (Maartens, 2022a)	19 April 2022 (online) and 20 April 2022 (hard copy)	No feedback received from the DEAF, MEFT
Bi-Annual Environmental Report for the Chobe Savanna Lodge, Zambezi Region, Namibia (April to September 2022) (Maartens, 2022b)	04 November 2022 (*hard copy only)	No feedback received from the DEAF, MEFT
Environmental Monitoring Report for the Chobe Savanna Lodge, Zambezi Region, Namibia (October 2022 to March 2023) (Maartens, 2023)	21 April 2023 (*hard copy only)	No feedback received from the DEAF, MEFT

*The MEFT's Online Portal collapsed (all information was lost) in July 2022 and it was only reinstated in October 2022.

1.3 Environmental Assessment Practitioner

The author of this Report is Dr Lima Maartens who has more than 30 years' experience in natural resource management (*she gained her doctorate (Ph.D.) in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000*), lecturing (*University of Namibia (UNAM)*), environmental science and management (*De Beers Marine Namibia and the Canadian Forsys Metals Corp*), and consulting (*LM Environmental Consulting was established by Dr Maartens in October 2009*).

Sectors that she worked in as an Environmental Assessment Practitioner (EAP) include: exploration (including offshore oil and gas); mining and quarrying; renewable energy (solar and wind); tourism; manufacturing; agriculture; aqua- and mariculture; township, property (including medicine storage facilities) and waterfront developments, transport (rail and road), and infrastructure.

Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Environmental Management and Assessment (IEMA) in the United Kingdom (UK), a Full Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society.

She has published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 152 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.

2 Chobe Savanna Lodge

2.1 Infrastructure

A detailed description of the infrastructure (and changes since 2020) is provided by Maartens (2020; 2021a; 2021b; 2022a; 2022b; and 2023).

The infrastructure layout of the Chobe Savanna Lodge can be seen in Figure 2.

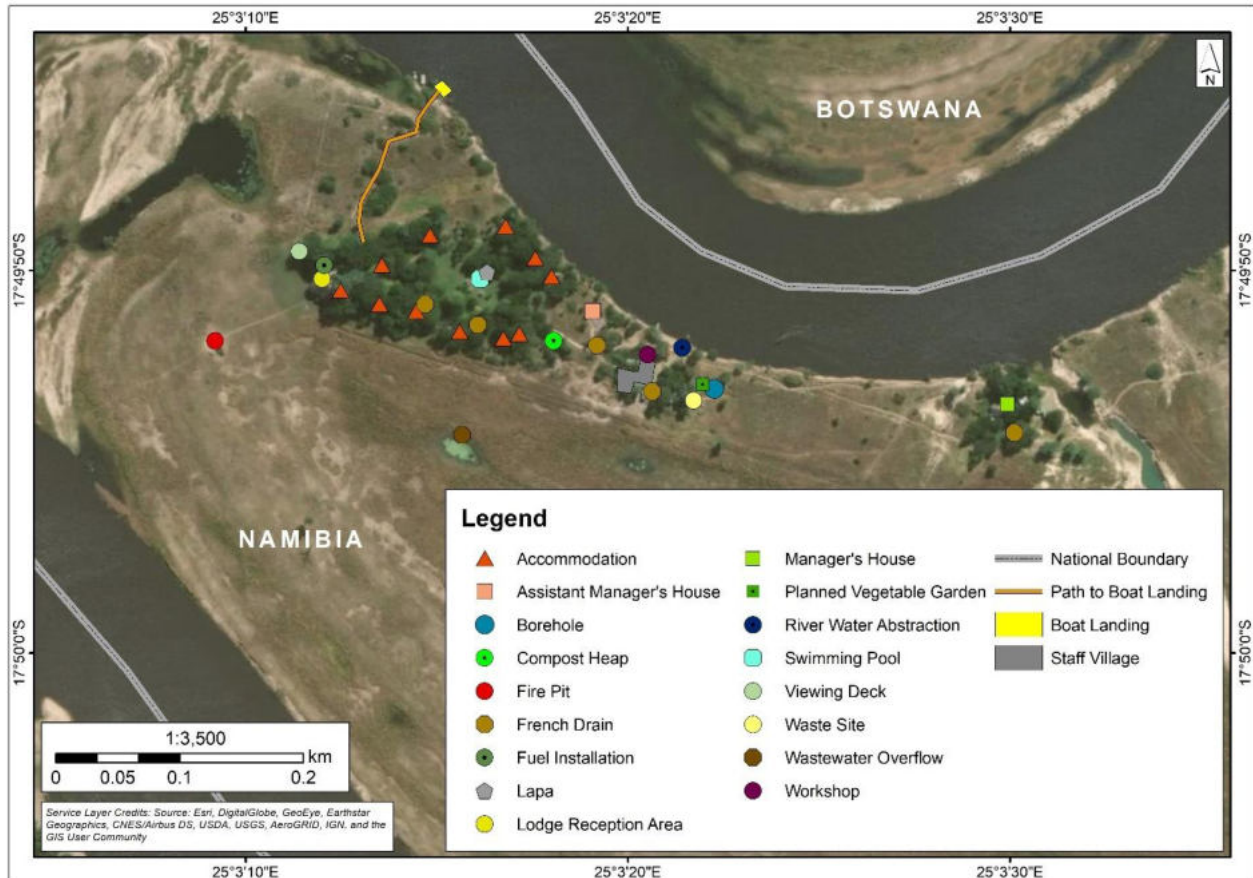


Figure 2: Map showing the infrastructure layout of the Chobe Savanna Lodge (Source: Miss Maike Prickett, GIS Specialist, 09 July 2020).

Infrastructure at Chobe Savanna Lodge consists of:

- A thatched, open-sided main building that features a 270 degree view over the Chobe River and Chobe National Park, and including: reception; public bathroom; lounge and dining areas; upstairs bar; and viewing deck;
- A camp fire-area, located in front of the main building out on the Chobe floodplain;
- Thatched chalets that can accommodate 26 guests at a time (ten twin-bedded chalets (two sets interleading) and one family room); each of the chalets has a private deck, an integrated bedroom and lounge area, and en-suite facilities (shower, toilet, basin); the chalets are air-conditioned, have its own complimentary mini bars, and Wi-Fi is also available;
- Attractive gardens (including two vegetable gardens), and a swimming pool and lapa-area;
- A boat station;
- Manager's house; and Assistant Manager's house (see Figure 3a; the house was under construction in 2020);
- A staff village, including: a kitchen; a laundry; four accommodation units, each with two beds; ablution (two toilets and two showers each for male and female staff); and two guide tents;
- A workshop / tool-shed and fuel store (see Figures 3b and 3c); and

- Fuel tank and diesel generator (see Figure 3d).



Figure 3: Pictures showing: a) the Assistant Manager's house; b) workshop / tool-shed; c) fuel store; and d) fuel tank and generator (to the right) (Source: J. Steyn, 01 August 2023).

2.2 Activities

The following activities are offered by Chobe Savanna Lodge: motorised boat safaris; fishing (catch-and-release for Bream or Tiger Fish); bird watching; and cultural excursions (to one of the surrounding communities) (also see <https://desertdelta.com/camps/chobe-savanna-lodge/>).

2.3 Engineering Services

Upgrades (and challenges) as far as the water and power supply and the treatment of sewage and waste is concerned, is dealt with under the Environmental Management Plan (EMP; see Table 2).

3 Environmental Management Plan: Implementation and Compliance

3.1 Introduction

As part of the EMP performance review, the following actions were carried out:

- A MS Teams Meeting was held with Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, and Mr Jacques Steyn, Lodge Manager (and Legal Public Officer), Chobe Savanna Lodge, on 27 July 2023.

The following documents were made available to LM Environmental Consulting / Chobe Savanna Lodge is in possession of / is a member of / was awarded:

- Deed of Leasehold in Respect of Right of Leasehold for Any Purpose Other than Agricultural Purposes Outside a Designated Area, Memorandum of Lease Between The Communal Land Board of Zambezi and Caprivi Fly Fishing Safaris Pty Ltd, Operating Chobe Savanna Lodge Situated in the Kasika Communal Area of the Masubia Traditional Authority in the Zambezi Region, Measuring 9.4 ha, and Valid for 25 years from 10 February 2022;
- The Namibian Wetlands Route Association (since 2021; awaiting confirmation);
- Certificate of Fitness (General Health Regulations, G121 of 14 October 1969) issued (19 April 2023; valid until 31 March 2024) by the Ministry of Health and Social Services (MHSS);
- Namibia Tourism Board (NTB) (with effect from 27 July 2021); and
- Hospitality Association of Namibia (HAN) (August 2023; since 2000).

Between March 2020, and due to the COVID-19 pandemic, Chobe Savanna Lodge did not have any guests until June 2021. Bed nights since sold amount to 155 in 2021 (June to December 2021); 1,390 in 2022; and 1,121 between January and July 2023 (see Maartens, 2021a; 2021b; 2022a; 2022b; and 2023; Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, pers. comm.).

3.2 Compliance: Environmental Management Plan

In order to illustrate compliance with the EMP (see Table 2), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not (Currently) Applicable
	Changes made to existing EMP

The EMP (see Maartens, 2020; also see International Finance Corporation (IFC), 2007a; b) is not a static document and the document should be updated as Chobe Savanna Lodge's activities progresses.

Table 2: Environmental Management Plan for the Chobe Savanna Lodge, Kabbe South Constituency, Zambezi Region, Namibia.

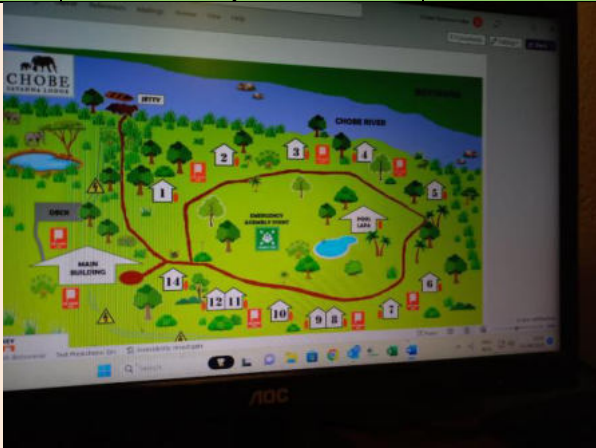

Aspect	Impact	Mitigation	Compliance & Comments
Social and Environmental Performance			
Management and Monitoring	Social and Environmental Performance	<p>Adhere to all Namibian Legislation, including Best Practice Guidelines.</p> <p>Ensure that all aspects related to the Environmental Management Plan (EMP) are implemented.</p>	Ongoing.
Consultation and Disclosure	Social and Environmental Performance	<p>Maintain open and direct lines of communication with the Authorities and Interested and Affected Parties (I&APs) (e.g. representatives from the Zambezi Communal Land Board, Kabbe South Constituency and Kasika Conservancy, the Ministry of Environment, Forestry and Tourism (MEFT), the Ministry of Health and Social Services (MHSS), the Namibia Tourism Board (NTB), etc.) with regards to environmental matters.</p> <p>Consult with I&APs throughout the project process and adequately incorporate I&APs' concerns.</p>	<p>Ongoing (see Maartens, 2021a; 2021b; 2022a; 2022b; 2023).</p> <p>Meetings were held in Katima Mulilo on 29 and 30 September 2022 (the Minutes of the Meetings were made available to LM Environmental Consulting) and 29 June 2023 (see https://informante.web.na/?p=343227).</p> <p>The meetings in September 2022 were attended by representatives/officials from the MEFT, the Conservancies, the Traditional Authority, the Operators, Integrated Rural Development and Nature Conservation (IRDNC), the World Wildlife Fund (WWF), and the Community Conservation Fund of Namibia (CCFN).</p> <p>The powers and functions of conservancies is stipulated in the <i>draft</i> Wildlife and Protected Areas Management Bill. The functions of Traditional Authorities in respect of conservancies are: <i>advise on the allocation and use of land and ensure that land is not allocated in a way that undermines a conservancy zonation plan; to advise on the drawing up of boundaries and zonation of a conservancy; to assist in conflict resolution at a conservancy and benefits sharing and distributions to the members.</i></p> <p>Caprivi Fly Fishing Safaris (Pty) Ltd makes quarterly payments to the Kasika Conservancy (the Memorandum of Understanding (MoU) expired (November 2022); Caprivi Fly Fishing Safaris (Pty) Ltd is waiting for the draft MoU / Benefit Distribution Plan (BDP) from the Kasika Conservancy).</p>

Aspect	Impact	Mitigation	Compliance & Comments
			<p>Conservancies (Kasika in this instance) are to pay the Landowner(s) and Traditional Authority (Masubia) as per BDP.</p> <p>A legal battle is currently underway between the rightful (Liswaniso Munihango clan) and claimed Landowners (Masuka family) (Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, pers. comm.).</p>
Grievance Mechanism	Social and Environmental Performance	<p>Implement a grievance mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance throughout the project life cycle.</p> <p>Inform all I&APs about the mechanism.</p> <p>Address concerns promptly and transparently and in a culturally appropriate manner.</p> <p>Keep a register of all concerns/issues received from I&APs, as well as the measures taken to address these.</p>	Ongoing. See above.
Training, including awareness and inductions	Social and Environmental Performance	<p>Train employees in matters related to the project's social and environmental performance and Namibia's regulatory requirements.</p> <p>Ensure adequate environmental awareness training for all personnel.</p> <p>Give environmental induction presentations to all personnel.</p>	<p>No formal training (e.g. first aid or firefighting training) has been provided to any staff (see Maartens, 2021a; 2021b; 2022a; 2022b; 2023).</p> <p>Cross and/or on the job training took place (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>
Employment and procurement opportunities	Social and Environmental Performance	<p>Source contracting companies/service providers/workers based on merit and expertise giving preference to local contractors/service providers/workers on condition that the local contractors/service providers/workers have the required experience and expertise. <i>Few contractors area used; these include: Seapride; the people that service the fire extinguishers; and people from Botswana that service the air conditioners (Mr Niel Hamman, Assistant Manager, Chobe Savanna Lodge, pers. comm.).</i></p>	Ongoing. The following contractors/suppliers are used by Chobe Savanna Lodge: Seapride Foods; Komnik & Franck; Baywash Chemicals; Build It Katima Mulilo; Bargain Building Supplies; Pick & Pay Katima Mulilo; Shoprite Katima Mulilo; Planet Upholstery; Hippo Cooling CC; Wenela Service Station; and ED Da Silva Investments (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).


Aspect	Impact	Mitigation	Compliance & Comments
		<p>Ensure that contractors/service providers adhere to the Namibian Labour, Social Security, Health and Safety, and Affirmative Action laws.</p> <p>Source maximally from local resources to ensure maximum economic beneficiation of local businesses in terms of new business sales.</p>	
Labour and Working Conditions	Social and Environmental Performance	<p>Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed.</p> <p>Comply with Namibia's labour and employment laws.</p> <p>Promote safe and healthy working conditions and the protection and promotion of worker health.</p> <p>Document and communicate the Working Conditions and Terms of Employment.</p> <p>Respect Collective Agreements and the right of workers to organise and bargain collectively.</p> <p>Implement a Grievance Mechanism.</p>	<p>Ongoing.</p> <p>Chobe Savanna Lodge currently employs eighteen people, i.e. a Lodge Manager (Mr Jacques Steyn), an Assistant Lodge Manager (Me Sarriety Mutimbwa), and a Service Manager (Mr Michael Hattingh), two waiters, one barman, two chefs, two guides, three housekeepers, two security staff, two groundsman, and one maintenance hand.</p> <p><i>Draft</i> staff contracts are being negotiated with the staff and (will be in future with) the Tourism and Allied Workers Union of Namibia (TAWUN) (Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, and Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge pers. comm.).</p> <p>When there are guests at Chobe Savanna Lodge, additional staff are called in to help out for the duration of the guests' visit (see Maartens, 2021a; 2021b; 2022a; 2022b; 2023; Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <p>The staff mainly comes from the Kasika-area and walk back to their homes after work. During the flood season, canoes are provided for transport by the Lodge. Approximately 15 of the 20 staff reside at the staff village (see Maartens, 2020).</p> <p>Staff complaints are handled by the Lodge Manager, then the Director, and then it is handed over to the Labour Commissioner (Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty</p>

Aspect	Impact	Mitigation	Compliance & Comments
Occupational and Community Health and Safety and Security	Social and Environmental Performance	<p>Adhere to all Namibia's Health and Safety Regulations (Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work).</p> <p><i>Chobe Savanna Lodge is in possession of a Certificate of Fitness (General Health Regulations, G127 of 14 October 1969) issued by the MHSS and that is valid until 31 March 2021.</i></p> <p>Ensure that an HIV/AIDS Policy and Programme and Health and Safety Plan is in place.</p> <p>A SHE (Safety, Health, Environment) Representative to be appointed once the staff complement reaches 20.</p> <p>Occupational Health and Safety Training to be provided to all employees.</p> <p>Ensure that qualified first aid can be provided at all times.</p> <p>Comply with all safety regulations re. electricity supply.</p> <p>Ensure that employees are trained in the use of appropriate fire fighting equipment and ensure that such equipment is on hand at all times. <i>All the fire extinguishers were serviced in 2019 (Mr Niel Hamman, Assistant Manager, Chobe Savanna Lodge, pers. comm.).</i></p> <p>Provide and ensure the active use of Personal Protective Equipment (PPE).</p> <p>Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of outbreaks of disease (e.g. Tuberculosis (TB)) and of adequate first aid services.</p>	<p>Ltd, and Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge pers. comm.).</p> <p>Ongoing.</p> <p>Chobe Savanna Lodge is in possession of a Certificate of Fitness (General Health Regulations, G121 of 14 October 1969) issued (19 April 2023) by the MHSS.</p> <p>The <i>CHOBE HOLDINGS WELLNESS POLICY</i> Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge Is a subsidiary of the Chobe Holdings group, dated 11 March 2016 (AMENDMENT OF 2007 VERSION), and the <i>Health and Safety Policy</i> (February 2022) was made available to LM Environmental Consulting (by Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd).</p> <p>Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, can provide first aid training (Level 3). Staff/guests that fall ill, are transported to the Clinic in either Impalila, or Mbalasinte. Staff/guests can be transported to the hospital in Kasane (all staff are in possession of border passes) (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge pers. comm.). Arrangements need to be put in place (e.g. with Dr C.M.J. Ward in Katima Mulilo) for should the Lodge Manager not be present at the Lodge.</p> <p>The fire extinguishers were serviced in November (and not October) 2022 (see Maartens, 2022b).</p> <p>See above.</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>Prevent communicable disease (e.g. Sexually Transmitted Infections (STIs) such as HIV transmission); provide surveillance and active screening and treatment of employees; prevent illness among employees (through health awareness and education initiatives); ensure ready access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.</p> <p>Ensure that security arrangements are in place. <i>There are two security guards that patrol the Lodge-area between 19h00 and 07h00 daily (Mr Niel Hamman, Assistant Manager, Chobe Savanna Lodge, pers. comm.).</i></p>	<p>There are two security guards that patrol the Lodge-area between 18h30 and 06h30 daily (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>
Flooding of the Chobe River	Occupational and Community Health and Safety	<p>Obtain the Daily Flood Bulletin from the Namibia Hydrological Services, Ministry of Agriculture, Water and Land Reform (MAWLR).</p> <p>Prepare an Emergency Preparedness and Response Plan / Disaster Management and Evacuation Plan.</p>	<p>The Daily Flood Bulletin is obtained from the MAWLR (Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, pers. comm.).</p> <p>There is an emergency assembly point (see Figure 4; Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <p>It is advised that Caprivi Fly Fishing Safaris (Pty) Ltd prepares an Emergency Preparedness and Response Plan / Disaster Management and Evacuation Plan.</p>

Aspect	Impact	Mitigation	Compliance & Comments
			
<p>Figure 4: Pictures showing the layout of the rooms and the location of the emergency assembly point (Source: J. Steyn, 01 August 2023).</p>			
<p>Chobe Savanna Lodge</p>			
<p>Operational activities</p>	<p>Negative impact on floral species</p>	<p>Avoid/prevent the planting of potentially invasive alien plant species for ornamental purposes as part of the landscaping (these species often “escape” and become invasive causing further ecological damage); rather incorporate indigenous vegetation into the overall landscaping of the area (this would create a natural ambiance and indigenous species require less water and overall maintenance).</p> <p>Promote appropriate guest and staff behaviour (e.g. do not allow any native plant species to be removed/damaged).</p>	<p>Ongoing.</p>
<p>Operational activities</p>	<p>Pollution of biophysical environment (surface and groundwater)</p>	<p><u>Fertilizers:</u> Conduct regular soil testing (to establish nutrient needs) in order to determine fertilizer application rates/correct doses. Store fertilizers in their original packaging in a dedicated, locked area, with proper signage, and with access limited only to authorised personnel. Use slow-release and/or natural organic fertilizers. Manure can be an alternative, but if over applied it may also cause pollution.</p>	<p>Ongoing.</p> <p>Compost is used, also chicken manure, bonemeal and Seagro (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>Prepare a management plan covering the measures for containment, storage and ultimate destruction of obsolete fertilizers in accordance to the Food and Agriculture Organization (FAO) guidelines (and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions).</p> <p><u>Pesticides:</u> Consider non-chemical methods (e.g. use beneficial organisms to perform the biological control of pests, or use mechanical controls, i.e. traps, barriers, light and sound to kill/relocate/repel pests, or use mechanical weed control/thermal weeding) before resorting to chemical application. Maintain a pesticide logbook: e.g. field observations, weather data, time and dosage of treatment, and effectiveness and apply pesticides based on these criteria. Ensure that only the minimum effective dose is applied. Avoid the use of pesticides that fall under the World Health Organization (WHO) Recommended Classification of Pesticides by Hazard Classes 1a and b, and by Hazard Class II. Also those that are listed in Annexes A and B of the Stockholm Convention (except under the conditions noted in the convention). Only use pesticides that are manufactured under license, registered and approved by the appropriate authority and in accordance with the FAO's International Code of Conduct on the Distribution and Use of Pesticides. Only use pesticides that are labeled in accordance with international standards and norms. Pesticide application equipment to be maintained and calibrated in accordance with manufacturer's recommendations. Store pesticides in their original packaging in a dedicated, dry, cool, frost-free, well aerated, locked area, with proper signage, and with access limited only to authorised personnel. Also ensure that spill containment measures are in place.</p>	<p>Deltakill is used for the control of stink bugs in the thatched roofs; Cypermethrin is used for the control of all kind of pests; Coopers' Ultrakill AntForce and bicarbonate of soda is also used to kill/deter the ants (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>Ensure that the personnel applying pesticides are properly trained; mixing and transfer of pesticides to be done in ventilated and well-lit areas using containers designed/dedicated for the task. Contaminated containers to be handled and treated as hazardous waste (see Hazardous materials management). Purchase and store only the required amounts of pesticides. <i>Pesticides used include: Raid; Doom; and Peaceful Sleep (Mr Niel Hamman, Assistant Manager, Chobe Savanna Lodge, pers. comm.).</i></p>	
<p>A vegetable garden was planted and tomatoes, eggplant, pumpkin, onions, spring and garlic onions, carrots, spinach, lettuce in different forms, green beans and broad beans, peppers, chilli, and various herbs were/are organically grown.</p> <p>Manure is bought from the local community and this is mixed with the existing soil and compost made at the Lodge. Use is made of intercropping and the crops are also rotated. The only pesticide used is a NEEM oil solution and a combination of chili seeds, garlic and soapy water. Mealie meal is sprinkled to deter any ants and this has proved to be very successful. Marigold/Tagetes/Afrikaners were planted to deter the nematodes (see Maartens, 2021a; 2021b; 2022a; 2022b; 2023; Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <div style="display: flex; justify-content: space-around;">  </div> <p>Figure 5: The vegetable garden at Chobe Savanna Lodge; beds were recently put in the second vegetable garden (Source: J. Steyn, 01 August 2023).</p>			
Traffic on the Gravel / "Service" Road	Air quality (dust or Particulate Matter (PM) pollution) and Occupational and community health and safety	<p>Maintain the road surface to preserve surface characteristics (e.g. texture and roughness).</p> <p>Use dust control/suppression methods, such as applying (semi-purified) water to minimise</p>	Ongoing. The roads at the Lodge are maintained; the Conservancy is responsible for the remainder of the roads. No dust suppression is used (Mr Johan Bruwer, Director, Caprivi Fly Fishing Safaris (Pty) Ltd, pers. comm.).

Aspect	Impact	Mitigation	Compliance & Comments
		<p>dust (oil and oil by-products is not a recommended measure to control road dust).</p> <p>Fleet owners/operators to implement manufacturer recommended engine maintenance programs (to control vehicle emissions: Carbon Monoxide (CO), Carbon Dioxide (CO₂), Nitrogen Oxide (NO_x), Sulphur Dioxide (SO₂), Particulate Matter (PM) and Volatile Organic Compounds (VOCs)).</p> <p>Adopt best transport safety practices by implementing the following measures: emphasise safety aspects among drivers; improve driving skills and require licensing of drivers; adopt limits for trip duration; avoid dangerous routes and times of day; and use speed control devices.</p> <p>Regularly maintain vehicles and use manufacturer approved parts.</p> <p>Use locally sourced materials (where possible) to minimise transport distances.</p>	
Chobe Savanna Lodge: Resource Use			
Energy Management	Resource use (e.g. coal) / depletion of natural resources	<p>Promote the sustainable use of energy (that will result in the reduction of use and cost reductions) (e.g. energy efficient light sources).</p> <p>Raise awareness amongst the residents, staff (and contractors).</p> <p>For reduction of energy consumption associated with heating, ventilation, and air conditioning (HVAC), lighting, and cooking and refrigeration equipment see IFC (2007b).</p>	<p>Ongoing.</p> <p>Power is obtained from Botswana via the grid and AC (Alternating Current) 220 V (Volt) mains power is available 24 hours a day. A 86 kVA (kilo Volt-Ampere) standby generator automatically switches on whenever a power failure occurs (see Maartens, 2020; 2021a).</p> <p>Caprivi Fly Fishing Safaris (Pty) Ltd is looking at connecting the Lodge to the existing power network at Kasika (2021b; 2022a; 2022b; 2023)</p> <p>INGPLAN CONSULTING ENGINEERS & PROJECT MANAGERS will visit the Lodge in August 2023. It is proposed to install a powerline (3873,53 m in length) between Chobe Savanna Lodge and the school at Kasika; INGPLAN indicated that Norred supports the idea (Mr Johan Bruwer,</p>

Aspect	Impact	Mitigation	Compliance & Comments
			Director, Caprivi Fly Fishing Safaris (Pty) Ltd, pers. comm.).
Water-efficient design features	Resource use (water) / depletion of natural resources	Use, where feasible, water saving equipment including ultra-low-flush toilets, spray nozzles, urinals, faucet aerators, and low-flow showerheads, infrared and ultrasonic sensors, water spigots, and pressure-control valves.	Not audited.
Water Management	Resource use / depletion of natural resources	<p>Implement a water conservation program, promoting the continuous reduction in water consumption.</p> <p>Promote and enforce a policy on landscape and garden designs that minimise water consumption e.g. the use of indigenous plants.</p> <p>Raise awareness amongst the residents, staff (and contractors) re the importance of saving water.</p>	<p>Water for the irrigation of the gardens is abstracted from the Chobe River; water for the Chobe Savanna Lodge, staff village, and Manager and Assistant Manager's houses is abstracted from one borehole (15 metres (m) deep), stored in one 5,000 litre tank (<i>the 10,000 litre tank is broken</i>), after which the water is put through a filtration system (to obtain potable water) (see Maartens, 2020).</p> <p>As water is abstracted for commercial purposes (and from an International water course), it was advised that Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge apply for a permit to abstract surface (Chobe River), as well as groundwater (from the borehole) from the Directorate of Water Resource Management, MAWLR (see Maartens, 2020; and it is a Condition of Approval to the ECC).</p> <p>An Application for a Licence to Utilize a Protected Water Source (including: a map showing the location of the soak away, septic tanks, river pump, and borehole; Certified Copy of Identification Document - Dr Andre Birkenstock; Contents of Register of Directors, Auditors and Officers; and Copy of the ECC) was submitted to the Deputy Director of Policy and Water Law Administration, MAWLR on 22 October 2020.</p> <p>A permit (number 11,543) authorising the abstraction of 15,570 cubic metres (m³) and use of water for domestic and irrigation purposes from the Chobe River at Kabbe, Katima Mulilo District, Zambezi Region, was issued by the MAWLR on 19 November 2020. The permit is valid from 30 November 2020 to 29 November 2025.</p> <p>Two water meters were obtained from South Africa on 25 July 2023 and will be installed (Mr Jacques</p>

Aspect	Impact	Mitigation	Compliance & Comments
			Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).
<p>Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge needs to adhere to especially conditions 3. <i>All water abstracted shall pass through a water meter and the permit holder shall bear all costs for the supply, installation and maintenance of this meter The Executive Director shall be informed beforehand if a water meter is to be installed so that an inspection, if necessary, can be conducted. Installation of the meter shall be to the satisfaction of the Executive Director and 4. The permit holder shall keep daily readings in cubic metres of the above-mentioned water meter and enter it quarterly on the prescribed return form WA-003, which shall be submitted on or before the 10th day of the following quarter, in respect of the previous quarter, to the Control Officer: Abstraction Control. If no water was abstracted during a quarter, a nil return form shall be submitted. If the permit holder fails to send in regular returns, it could lead to the withdrawal of the permit (see Maartens, 2021a; 2021b; 2022a; 2022b; 2023).</i></p>			
Chobe Savanna Lodge: Hazardous Materials Management			
Hazardous materials management	Social and Environmental Performance	<p>Establish hazardous materials management priorities (based on hazard analysis of risky operations).</p> <p>Avoid, or minimise the use of hazardous materials.</p> <p>Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion.</p> <p>Implement management controls (procedures, inspections and training, communication and drills) to address residual risks.</p>	Not audited (see Figures 3b, c).
Hazardous materials management	Pollution of biophysical environment (soil and water)	<p>Implement prevention and control measures for the use, handling and storage of hazardous materials:</p> <p><u>Materials transfer:</u> regularly inspect, maintain and repair fittings/pipes/hoses; make use of drip trays/other drip containment measures at connection/possible overflow points;</p> <p><u>Overfill protection:</u> use trained filling operators; install gauges on tanks to measure the volume inside; make use of dripless hose connections (vehicle tanks) and fixed connections (storage tanks); use a catch basin/drip tray around the fill pipe to collect spills;</p> <p><u>Reaction, fire, and explosion prevention:</u> hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material</p>	<p>Fuel (diesel) for the generator is brought in via boat in 200 litre drums and is stored in a steel tank. It was advised that the fuel tank be put into a banded enclosure with a net capacity of at least 120% of the net capacity of largest tank (Environment Protection Authority (EPA), 2004) (<u>Note</u> A consumer fuel installation certificate is required from the Ministry of Mines and Energy (MME) should someone wish to have in possession more than 200 litres of petrol or diesel in an urban area or more than 600 litres of petrol or diesel in a rural area) (see Maartens, 2020).</p> <p>A concrete slab was thrown underneath the steel tank to contain any spills (the basin for the diesel tank has a 10 centimetre (cm) high wall). The amount of diesel kept at any time in the tank never exceeds more than 200-300 litres (see Maartens, 2021a; also see Maartens, 2021b; 2022a; 2022b; 2023).</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate fire fighting equipment and ensure that such equipment is on hand at all times.</p> <p>Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.</p> <p>Immediately report and clean up any accidental hydrocarbon spill: Sunisorb, Drizit, Peatsorb can be used to clean up small spills; in case of larger spills, the spill together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.</p>	<p>At the moment, fuel (petrol and diesel) is brought in via road/boat in 25 litre containers (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>
Hazardous materials management	Occupational health and safety	<p>Implement hazard communication and training programmes (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these.</p> <p>Provide and ensure the active use of PPE.</p>	Not audited.
Chobe Savanna Lodge: Waste Management			
Waste management: non-hazardous and hazardous	Pollution of biophysical environment	<p>Identify all the waste streams and prepare an Integrated Waste Management Plan. The generation of waste should be avoided as far as practicable; where it cannot be avoided, waste should be reduced, re-used and recovered (including recycling and composting) (e.g. set up collection points for the recycling of solid waste); where waste cannot be reduced, re-used and/or recovered, it should be disposed of in an environmentally sound manner.</p> <p>Waste reduction can be achieved by: buying in bulk quantities; using refillable, bulk dispensers (e.g. toiletries) (vs. individually packaged</p>	<p>Ongoing.</p> <p>Tins and glass are taken by Seapride Foods to Katima Mulilo (<i>Seapride delivers food and cleaning materials to the Lodges in the area on a weekly basis, and removes the waste; the Lodge's truck travels to and from Katima twice per month, but only during the dry season</i>).</p> <p>Paper, carton and the plastic are burnt.</p> <p>Scrap metal is collected and taken via truck to Katima Mulilo).</p> <p>Only rechargeable batteries are used.</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>products); working with suppliers in order to limit the use of, and establishing recycling for, product packaging; avoiding the use of polystyrene foam altogether; using glass/durable plastic rather than disposable plastic items (straws/cups); providing in-room recycling procedures and appropriate receptacles.</p> <p>Raise awareness amongst residents, staff and contractors (to reduce, re-use, and recover waste).</p> <p>Stamp down on any form of littering.</p> <p>Non-hazardous and hazardous waste to be collected and stored separately.</p> <p>Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported by an approved contractor to a recognised hazardous waste disposal site (Kupferberg outside Windhoek).</p>	<p>The oil from the boats and vehicles is disposed of at a garage (where the vehicles are serviced) in Katima Mulilo.</p> <p>Light bulbs are collected and will be disposed of at Kupferberg in Windhoek (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <p>It is advised that the plastic be recycled (vs burnt). Also, all hazardous waste (e.g. fuel, oil, pharmaceuticals (i.e. medicines), obsolete computer equipment, fluorescent tubes and compact fluorescent globes (CFLs), etc.) be removed and disposed of at a licensed hazardous waste facility (e.g. Kupferberg in Windhoek).</p> <p>In the past, there has been some challenges related to the management of solid waste. For example, refuse was deposited in pits all over the property and their positions are revealed by erosion of the topsoil during high floods. It was advised that these areas be cleaned up and the waste removed and disposed of at Katima Mulilo landfill site (see Maartens, 2020). During previous reporting periods, first one load, then five loads and then 20 vehicle loads were taken to the Katima Mulilo landfill site (see Maartens, 2021a; 2021b; 2022a; 2022b) (<i>note that according to the Lodge Manager, the Katima Mulilo landfill site has reached its capacity</i>). The work is ongoing; areas have to be dug up in order to remove the waste (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <p>It is advised that records (photos, receipts, etc.) be kept of all waste that is disposed of in Katima / Windhoek, as well as the waste that is dug up / removed.</p>




Aspect	Impact	Mitigation	Compliance & Comments
			

Figure 6: Pictures showing: a) the fenced-off waste site where waste was stored temporarily and/or incinerated (this site has since been closed) (Source: L. Maartens, 02 July 2020); b) the new waste site (in the same area) where waste is currently incinerated; and c) sorted waste for collection by Seapride Foods (Source: J. Steyn, 01 August 2023).

Waste management: sanitary	Pollution of biophysical environment	<p>Ensure that the discharge of sanitary wastewater to land conform to the regulatory requirements (Ministry of Agriculture, Water and Land Reform's Water Quality Standards for Effluent, 2008).</p> <p>Use bio-degradable toilet cleaners that do not kill the bacteria in the septic tanks.</p>	<p>See below.</p> <p>Prozyme is used (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>
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A septic tank and soak away system (French drain) have been in use since **1999** (the pipes are sometimes blocked by the roots of trees planted at the time of the construction of the Lodge; also, **it was recognised that the overflow from the soak away, especially during the flood season, is unacceptable**).

The installation of a bio-filtering system (wastewater treatment) was envisaged and provision for such a system was made in the 2019-budget; this system was not installed (see Maartens, 2020).

Maartens (2020) advised (and it is a Condition of Approval to the ECC) that Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge apply for a permit to discharge effluent/wastewater from the Directorate of Water Resource Management, Ministry of Agriculture, Water and Land Reform (MAWLR).

An Application for Wastewater Discharge License (including: a Site Plan (W914-001/W Rev2); Certified Copy of Identification Document - Dr Andre Birkenstock; Contents of Register of Directors, Auditors and Officers; and Copy of the ECC) was submitted to the Deputy Director of Policy and Water Law Administration, MAWLR on 22 October 2020.

Aspect	Impact	Mitigation	Compliance & Comments
<p>On 27 July 2021, the Executive Director, MAWLR issued a temporary wastewater and effluent disposal exemption permit (permit number 772) with two recommendations and several general conditions. A new Wastewater Treatment Plant (WWTP) was recommended for Chobe Savanna Lodge as the current French Drain System is unsuitable due to possible contamination of the Chobe River. The permit is valid for three years, until 30 August 2024, allowing Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge time to construct a suitable WWTP. Management was also requested to submit a Plan of Action to the Directorate of Water Resource Management (to avoid further possible contamination into Chobe River), and indicating the timeframe and how the Lodge will handle the matter by 30 September 2021.</p> <p>On 08 October 2021, an e-mail with a copy of the proposed Sewage Treatment Plant (STP) to be installed at Chobe Savanna Lodge, most likely in the 2022 financial year, and available funds permitting, was submitted to Me Tuuliki Kandjinga, Hydrologist, Division Water Environment, Directorate of Water Resource Management, MAWLR; the same e-mail was forwarded to Mr James M. Mouton, Administrative Officer, Directorate of Water Resource Management, MAWLR on 11 October 2021. Me Tuuliki Kandjinga indicated that she was happy with the proposal (telephonic conversation with Dr Maartens, 19 October 2021) and requested that all the information, previously sent via e-mail, be pasted into a letter (as they needed a letter to place on file vs an e-mail). The documents/drawings, inclusive a letter, was submitted by Dr Birkenstock, Managing Director, Chobe Savanna Lodge to Me Tuuliki Kandjinga on 20 October 2022.</p> <p>To date, a STP has not been installed at Chobe Savanna Lodge (also see Maartens, 2021a; 2021b; 2022a; 2022b; 2023).</p>			
Wastewater management	Pollution of biophysical environment	<p>Ensure that the discharge of process wastewater and/or sanitary wastewater and/or wastewater from utility operations and/or stormwater conform to the regulatory requirements (i.e. of the Ministry of Agriculture, Water and Land Reform).</p> <p>Ensure that the Kitchen and the other developments are equipped with the required means to ensure that effluent disposal remains within the set limits.</p> <p>Ensure that the disposal of chemicals is as per the prescriptions in the relevant MSDS.</p> <p>Minimise the use of the laundry through asking guests to reuse the towels and bedding. <i>Guests are requested to re-use their towels (to reduce the amount of detergent used).</i></p> <p>Control the consumption of cleaning materials. If feasible, substitute cleaning materials with biodegradable products.</p> <p>Avoid/minimise the use of cleaning agents that contain phosphates, nitrilotriacetic acid or any of its salts, ethylene diaminetetraacetic acid and ethylene dinitrilotetraacetic acid or any of their salts, alkylphenol ethoxylate, halogenated</p>	<p>See above.</p> <p>It is advised that a fat trap be installed and the contents be disposed of in an environmentally sound manner.</p> <p>Not audited.</p> <p>Ongoing</p> <p>The following products, supplied by Baywash, is used: LIQUID TOILET CLEANER AND DESTAINER; DC DRAIN CLEANER; K3 ACID DESCALER; AKTI-SUDS HIGH FOAMING CHLORINATED DETERGENT DISINFECTANT POWDER; ROTOBRITE POLYMER FLOOR DRESSING; SPOTLESS HARD SURFACE CLEANER; SUPERDET GENERAL PURPOSE LIQUID DETERGENT; AIR FRESHENER; DC PINE GELL; AUTOWHITE LAUNDRY DETERGENT; and</p>

Aspect	Impact	Mitigation	Compliance & Comments
		<p>organic solvents, butoxy-ethanol, and VOCs in excess of 10 percent by mass.</p> <p>Runoff from areas where surface water might have become contaminated should be captured and treated to sewage effluent standards; uncontaminated runoff should be diverted around areas where such water might become contaminated.</p>	<p>LAV-SOFT FABRIC SOFTENER (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p> <p>See above.</p>
Wastewater management - stormwater management	Soil erosion	Regular inspection and maintenance of permanent erosion and runoff control features.	Ongoing.

One of the challenges include the erosion of the river bank and topsoil. In 2020, seedlings were grown and planted on the river bank in an attempt to stabilise the bank (see Maartens, 2020). In June 2022, reeds were planted in another attempt to stabilise/protect the river bank (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).



Figure 7: Reeds were planted (~June 2022) in an attempt to protect the river bank (Source: J. Steyn, 01 August 2023).

Chobe Savanna Lodge: Occupational and Community Health and Safety

Food quality	Occupational and community health and safety	<p>Apply international standards/implement systems re. the handling, preparation and storage of food, e.g. SANS 10049:2001 (Food Hygiene Management) and/or ISO (International Organization for Standardization) 22000:2018 (Food Safety Management System (FSMS)). <i>Kitchen staff recently received health and safety training (Mr Niel Hamman, Assistant Manager, Chobe Savanna Lodge, pers. comm.).</i></p>	<p>No formal system is in place.</p> <p>Five members of staff have been declared medically fit by Dr C.M.J. Ward in Katima Mulilo on 15 September 2022 (documentation made available to LM Environmental Consulting).</p>
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Aspect	Impact	Mitigation	Compliance & Comments
Indoor air quality	Occupational and community health and safety	<p>Use low VOC-emitting products.</p> <p>Avoid, where possible, the use of aerosols, sprays and air fresheners.</p> <p>Housekeeping and cleaning products to be used during unoccupied hours.</p> <p>HVAC system: conduct periodic, preventive maintenance (incl. cleaning drain pans and changing filters); keep duct lining dry; ensure clean mechanical rooms; and fix leaks and clean spills immediately.</p>	<p>Ongoing. The following products, supplied by Baywash, is used: LIQUID TOILET CLEANER AND DESTAINER; DC DRAIN CLEANER; K3 ACID DESCALER; AKTI-SUDS HIGH FOAMING CHLORINATED DETERGENT DISINFECTANT POWDER; ROTOBRITE POLYMER FLOOR DRESSING; SPOTLESS HARD SURFACE CLEANER; SUPERDET GENERAL PURPOSE LIQUID DETRRENT; AIR FRESHENER; DC PINE GELL; AUTOWHITE LAUNDRY DETERGENT; and LAV-SOFT FABRIC SOFTENER.</p> <p>Hippo Cooling CC from Rundu is used to maintain the HVAC system (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).</p>
Swimming pool	Community health and safety	Implement a pool water sanitisation programme; the programme should include the monitoring of water quality (also see WHO, 2006).	A Pace Floater is used in the swimming pool; the water quality is not monitored (Mr Jacques Steyn, Lodge Manager, Chobe Savanna Lodge, pers. comm.).

3.3 Monitoring and Reporting

In order to illustrate Chobe Savanna Lodge’s compliance with the proposed “monitoring and reporting” (see Maartens, 2020), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not Applicable

The following monitoring and reporting, at least but not limited to, need to be carried out:

Type	Parameter	Frequency	Responsible Person	Compliance
Water abstraction from the Chobe River and Production borehole	Volumes of surface and groundwater abstracted	Monthly and reported quarterly to the Department of Water Affairs (DWA) (or as per water abstraction permits’ requirements)	Designated Person(s)	
	Rest Water Level (Borehole)	Once every three months (or as per water abstraction permit requirement)	Designated Person(s)	
*Wastewater discharge	As per the Department of Water Affairs (DWA), Ministry of Agriculture, Water and Land Reform’s Effluent Numeric Requirements	As per DWA Effluent/Wastewater Discharge Permit requirements	Designated Person(s)	
Swimming pool water sanitisation	Monitor the water quality to establish treatment need and frequency	<i>Ad hoc</i>	Designated Person(s)	
Stormwater and soil erosion	Soil erosion rates	<i>Ad hoc</i> (rainy season)	Designated Person(s)	
Alien invasive plant species	Identification and removal of any alien invasive species	Three-monthly monitoring	Designated Person(s)	
Environmental Management Plan	Environmental performance / corrective measures to be taken as or when required	Bi-Annual Environmental Reports to be submitted to the Directorate of Environmental Affairs (DEA), Ministry of Environment, Forestry and Tourism (MEFT)	Designated Person(s)	See Maartens (2021a; 2021b; 2022a; 2022b; 2023)

*The Department of Water Affairs and Forestry, Ministry of Agriculture, Water and Forestry prepared Water Quality Guidelines and these were adopted in 1998. Subsequently (in 2008), draft Water Quality Guidelines and Standards for Potable Water, as well as Water Quality Standards for Effluent were prepared to become Regulations under the Water Resources Management Act 24 of 2004 (which never came into force). The latter Guidelines/Standards may be used, but are not yet enforceable.

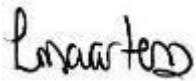
4 Conclusions and Recommendations

The Chobe Savanna Lodge, situated on the Chobe River floodplain, was built in 1999. The present owner, Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge, received a Right of Leasehold (on 10 February 2022; for 25 years with an option to extend) from the Zambezi Communal Land Board, Ministry of Agriculture, Water and Land Reform.

It is advised that Chobe Savanna Lodge (and their employees and contractors) should implement and observe the Environmental Management Plan on an ongoing basis. Environmental performance should be regularly monitored (so that the lessons learnt can be incorporated into the improvement of the Environmental Management Plan over time) and corrective measures taken as or when required.

Specific recommendations include (that Caprivi Fly Fishing Safaris (Pty) Ltd T/A Chobe Savanna Lodge):

- Put arrangements in place (e.g. with Dr C.M.J. Ward in Katima Mulilo) re the provision of first aid (should the Lodge Manager not be present at the Lodge);
- Prepare an Emergency Preparedness and Response Plan / Disaster Management and Evacuation Plan;
- Implement the recommendations (i.e. install a Sewage Treatment Plant), and adhere to the conditions imposed by the Directorate of Water Resource Management, Ministry of Agriculture, Water and Land Reform re the discharge of wastewater;
- Adhere to the conditions of the permit to Utilize a Protected Water Source; also, water samples to be taken (borehole and river) and sent for analyses at Analytical Laboratory in Windhoek;
- Install a fat trap at the kitchen and dispose of the contents in an environmentally sound manner; and
- Solid waste: i) recycle the plastic (vs burning it); ii) remove and dispose of all hazardous waste at a licensed hazardous waste facility (e.g. Kupferberg in Windhoek); and iii) keep records (photos, receipts, etc.) of all waste that is disposed of in Katima / Windhoek, as well as the waste that is dug up / removed.



Dr Lima Maartens
LM Environmental Consulting

5 References

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