



CHOBE DISTRICT BUSH FIRE OPERATIONS MANAGEMENT PLAN



environment wildlife & tourism
MINISTRY



2016 - 2017

Chobe District Bush Fire Operations Management Plan

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1. GEOGRAPHY OF THE AREA

Chobe district is located in the Northern tip of Botswana, with abundant flora and fauna. The district is covered by thick forest inhabited by a rich diversity of wild animal species, attracting tourists from all over the world thereby making a significant contribution to the country's economic growth and development.

The district borders the following countries: Zambia at the North, Zimbabwe on the East, and Namibia on the west. This geographic positioning makes the district to be at the highest risk of importing communicable diseases to the country. Moreover, the district being surrounded by Caprivi-Chobe Rivers and Lake Liambezi, is at the greatest risk of flooding, as it has been documented in the past.

The district has been flooded almost every 10th year with damage to human life and property. Therefore, it is high time to plan ahead in order to mitigate any perceived risk of anthropogenic or natural calamities in the district. It is with this notion that the District Disaster Management Committee developed this disaster mitigation and response plan.

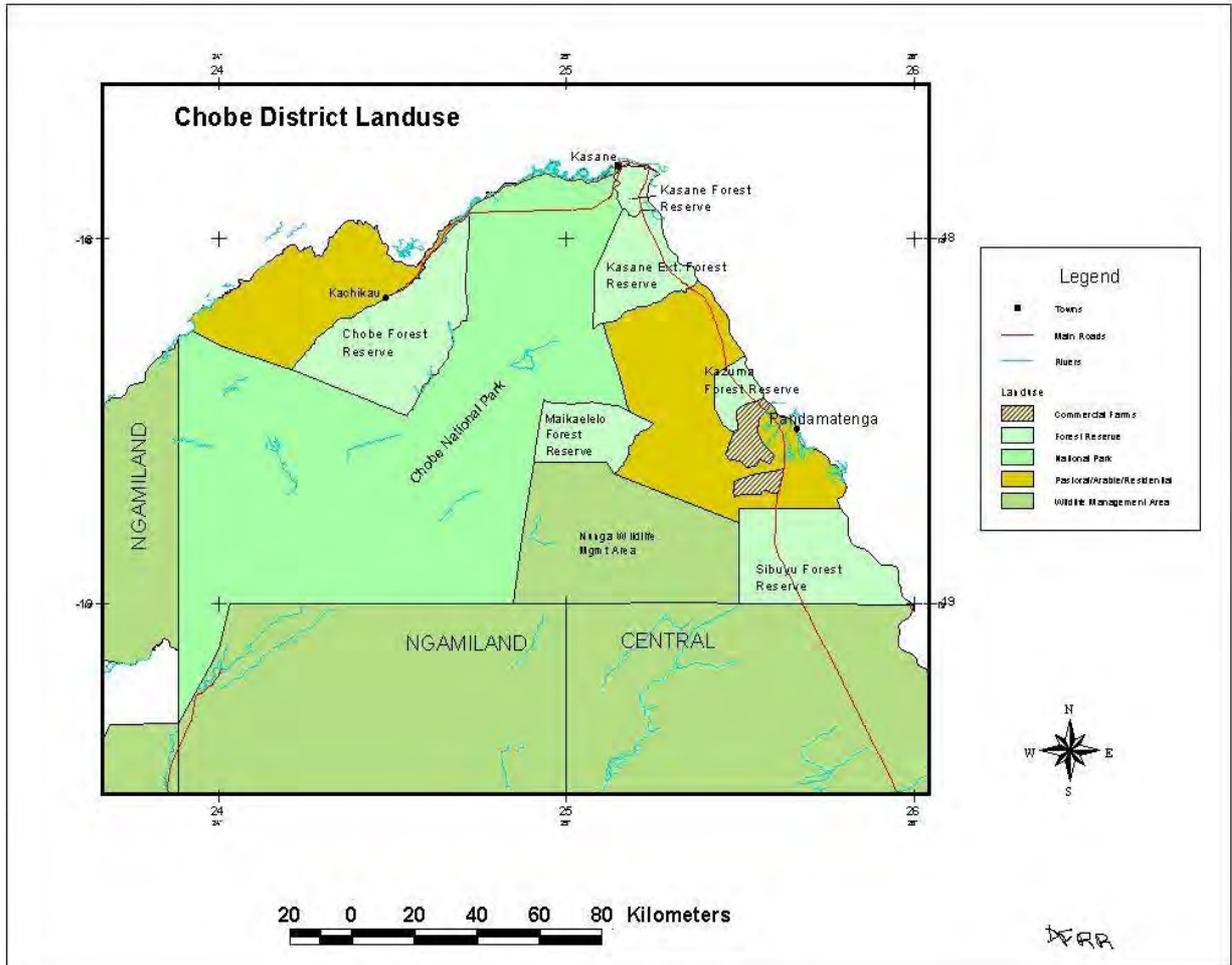
This mobilisation plan will operate in Chobe District. The area is bounded by the latitude line 19° 00' 00'' in south, the Linyanti/ Chobe and Zambezi rivers which form the border with Namibia in the north, the Botswana/ Zimbabwe boundary in the east, and the Chobe/ Ngamiland district boundary in the west. The Botswana/ Zimbabwe and the Ngamiland/ Chobe boundaries are clearly marked with firebreaks running along them.

Chobe District covers a total area of 22,052 km² (2, 205, 200 ha). The 2011 Population and Housing census showed that the district had 23,347 people. The two main rivers, that is, Chobe/ Linyanti and Zambezi Rivers play a significant role on the lives of Chobe people through fishing, recreation and transportation among others.

About eighty percent (80%) of Chobe District consists of protected lands, which include the Chobe National Park, and six (6) forest reserves. In addition, some areas are classified as wildlife management areas. The remaining percentage of land is used for residential, pastoral and arable farming. The Pandamatenga commercial farms also cover a significant area of the district.

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Figure 1: Land use of Chobe district

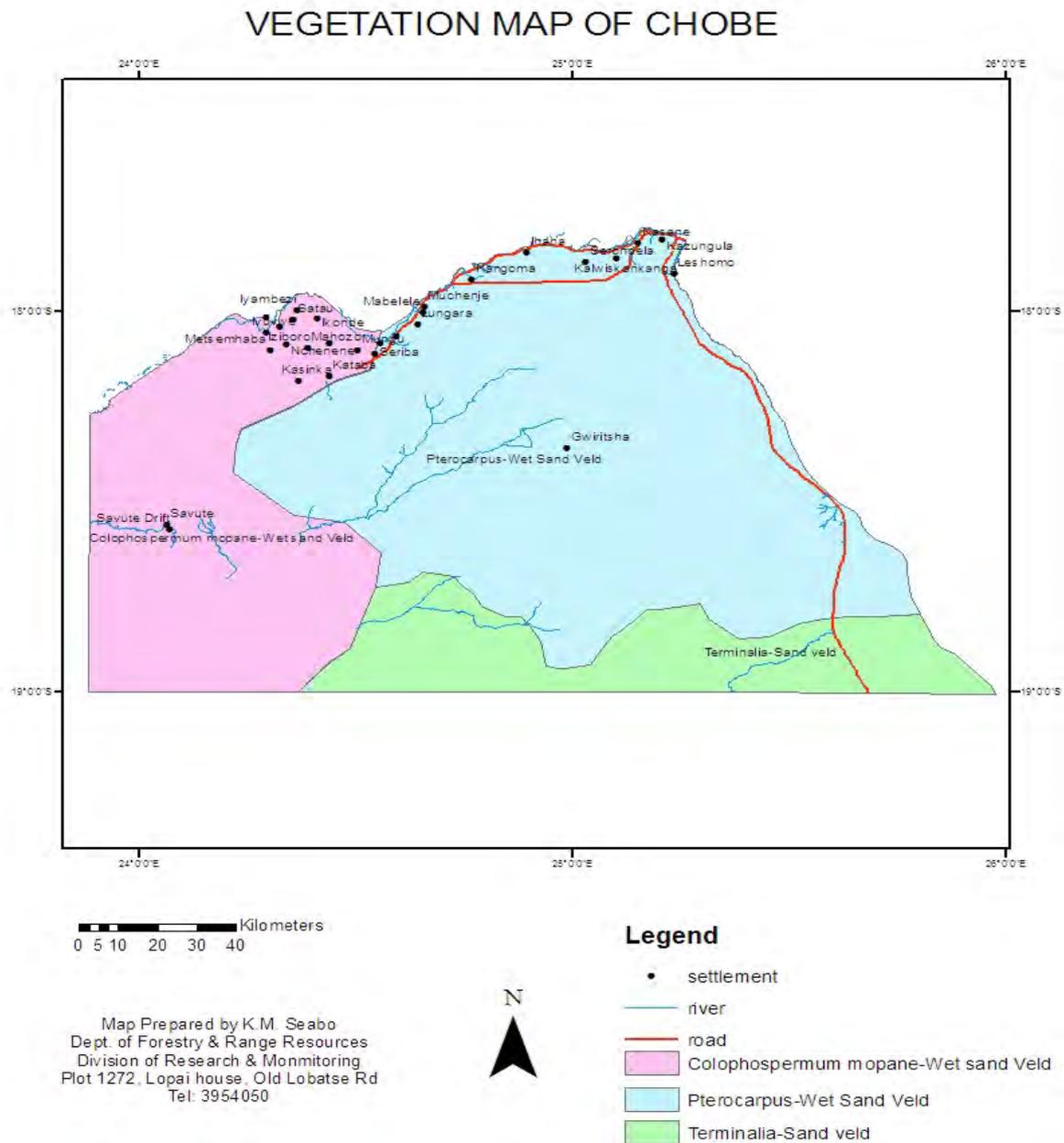


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2. VEGETATION

Mukwa (*Pterocarpus angolensis*), Mukusi (*Baikiaea plurijuga*) and Mosheshe/Monato (*Burkea africana*) are the dominant tree species in the district. There is also a dominance of three species of good thatching grass, these being motshikiri (*Eragrostis pallens*), Mokamakama (*Cymbopogon plurinodes*) and Dekgrass (*Hyparrhenia hirtha*). Species of good grasses for livestock grazing are however limited.

Figure 2: Vegetation map of Chobe district



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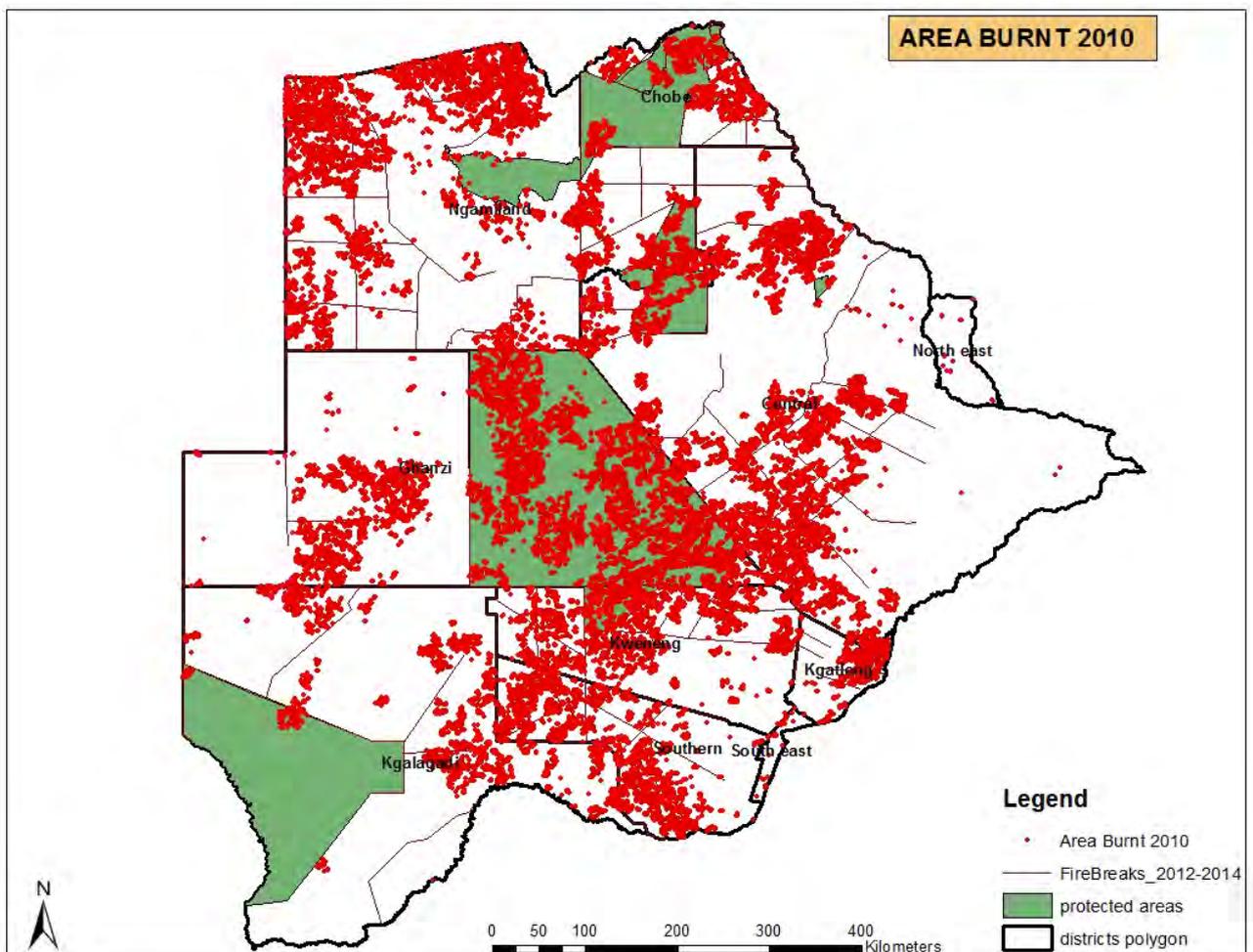
3. WEATHER

Chobe district has a subtropical climate, and receives an average of 600mm of annual rainfall. The rainfall pattern therefore leads to a high biomass accumulation or fuel load. The high fuel load explains the high incidences of intensive fires that are experienced in the district annually. The high temperatures between September and December averaging 35° Celsius worsen the situation by drying the fuel load. In most cases these high temperatures make it to be difficult to suppress bush fires during the day.

4. FIRE HISTORY

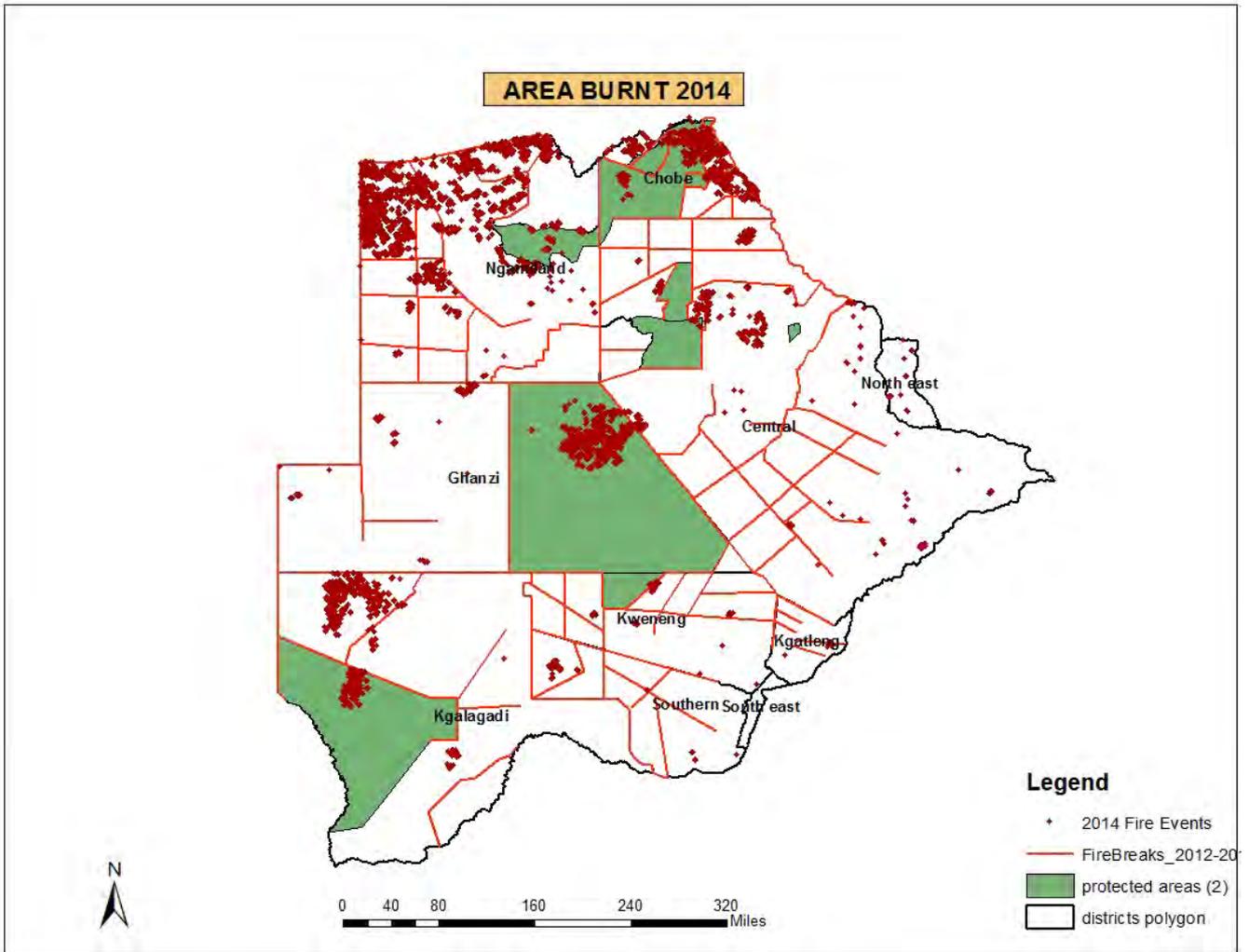
Fires are generally observed to cross from neighbouring Zimbabwe into Botswana (and the other way around) near Lesoma and Pandamatenga villages. Yearly fires mostly occur at Kasane Extension Forest Reserve, Chobe National Park around Phoha Camp and Sibuyu Forest Reserve. This are one of the fire prone areas in the District.

Figure 3: Map of Burnt Area Scars in 2010.



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Figure 4: Map of Burnt Area Scars in 2014.



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4.1 Town/ Village details

The District has the east and west villages. There is nine (9) villages in the District with some assets that provide service to local communities at all times.

Town	Location	Population	Assets	Fire or community Resources	Hazards
Kasane	17°49'S025°09'E Located near Chobe River and attached to Plateau to Kasane Forest Reserve. Located Latitude Between S17° and S18°. Longitude Between 25° and 26°	9250	Homes BHC Houses 3x Schools Hospital, Lodges, Roads Communication towers & Telephone line Power station Businesses Government Buildings / properties Cultural village Cemetery Kasane Fruit Farms Fish Farm Shell Fuel Filling Station CTO Fuel Filling Station 2 x Shopping Malls International Airport Water purifying Plant	Fire Brigade DFRR Fire team BDF Police Enviro- 911 Community Teams	Close to cross border fires from Zimbabwe Border and the township surrounded by large vegetation. Regular uncontrolled burning conducted in the Wetland area between Zambezi and Chobe river on the Namibian Side pose a threat to lodges found along the chobe river.
Kazungula	17°48'14"S025°14'28"E Adjacent to Kasane Forest Reserve	1860	Homes, Houses Chobe Land Board Staff Council Staff Houses, School Engen Fuel Station, Lodges BDF Ferry Camp Shell Fuel Station Botswana/Zimbabwe Immigration Facility Botswana/Zambia immigration Facility, Roads Shopping Mall Cattle, Cemetery	Fire Brigade DFRR Fire Brigade BDF Police Enviro- 911 Community Fire Fighting Teams	Close to cross border fires from Zimbabwe border and the township surrounded by thick forest.

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Lesoma	17°54'21"S25°14'15"E Adjacent to Kasane Forest Reserve Extension	410	School, Quarry Lodges, Camp Site, Kgotla Cemetery, Cattle Ploughing Fields	Fire Brigade DFRR Fire Brigade BDF, Police Enviro – 911 Community Fire Fighting Teams	Close to cross border fires from Zimbabwe border and the village surrounded by thick forests.
Pandamatenga	18°32'35"S25°38'35"E Surrounded by Commercial Farms and some patches of forests.	1685	Commercial Farms; Ploughing Fields, School Police, Camp sites, Police Botswana / Zimbabwe Immigration Facilities, Cattle Meteorological Station, Homes Businesses Thatching Grass land Area 171 Forest Camp BDF Training Camp, Air-strip Cemetery	Fire Brigade DFRR Fire Brigade, BDF, Police Enviro – 911 Community Fire Fighting Teams	Close to cross border fires from Zimbabwe border and the village surrounded by Grassland and some thick forests.
Parakarungu	18°02'7"S24°19'27"E Adjacent to Chobe Forest Reserve and surrounded by Grass land areas.	806	Thatching Grass Area, Kgotla School, Homes Businesses Power Lines Ploughing fields Cattle, Cemetery BDF Camp	Fire Brigade DFRR Fire Brigade BDF Police Enviro – 911 Community Fire Fighting Teams	Close to cross border fires from Namibia and the village surrounded by thick grass and
Satau	18°0'45"S24°24'22"E Near Flood plains and surrounded by ploughing fields	730	Thatching Grass Area Kgotla Ploughing Fields School Homes Cattle Cemetery	Fire Brigade DFRR Fire Brigade BDF Police Enviro – 911 Community Fire Fighting Teams	Close to cross border fires from Namibia
Kachikau	18°9'26"S24°30'00"E Adjacent to Chobe Forest Reserve	961	Thatching Grass Area, Cattle Police Station School, Clinic	Fire Brigade DFRR Fire Brigade BDF, Police	Fuel load around the village

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			Homes, Water Tank, Kgotla Forest Camp Cemetery	Enviro – 911 Community Fire Fighting Teams	
Kavimba	18°4'20"S24°35'7"E Adjacent to Chobe Forest Reserve	519	Camp Site Kgotla, School Ploughing Fields Cattle, Clinic Cemetery	Fire Brigade DFRR Fire Brigade, BDF, Police Enviro – 911 Community Fire Fighting Teams	Fuel load around the village
Mabele	17°55'46.99"S24°43'13.84"E Adjacent to Chobe Forest Reserve	773	Communication tower, School Kgotla Camp sites Businesses Lodges; Cemetery	Fire Brigade DFRR Fire Brigade BDF Police Enviro -911 Community Fire Fighting Teams	Fuel load around the village

5. VULNERABLE ASSETS IN DISTRICT

Town/ Location	Asset Name	Asset Description	Risk Rating (from RMP)
Parakarungu, Satau, Kachikau, Legothwane, Sibuyu, 256km area, cattle posts (Chobe West and East) and Kazuma areas	Thatching Grass areas	People from various parts of the country harvest and sell the grass locally and outside the Country	High
Chobe National Park Concessionary areas and Forest Reserves, (Kasane, Kasane Ext, Kazuma, Sibuyu, Maikaelelo, Chobe)	Fauna	Wild Animals	High
Chobe National Park (Savuti, River Front, Ghoha, Ihaha, HATAB camping sites), Kasane township, Pandamatenga, Lesoma and Mabele	Lodges, Campsites	Local and International visitors accommodated there	Critical
Kavimba, Mabele, Lesoma, Kazungula, Pandamatenga and Concessionary areas.	Camp Sites	Local and International visitors accommodated there	Critical
Forest Reserves (Kasane, Kasane Ext, Kazuma, Sibuyu, Maikaelelo, Chobe), Chobe National Park and Concessionary areas.	Flora	Vegetation (trees, shrubs, Grasses) available	High

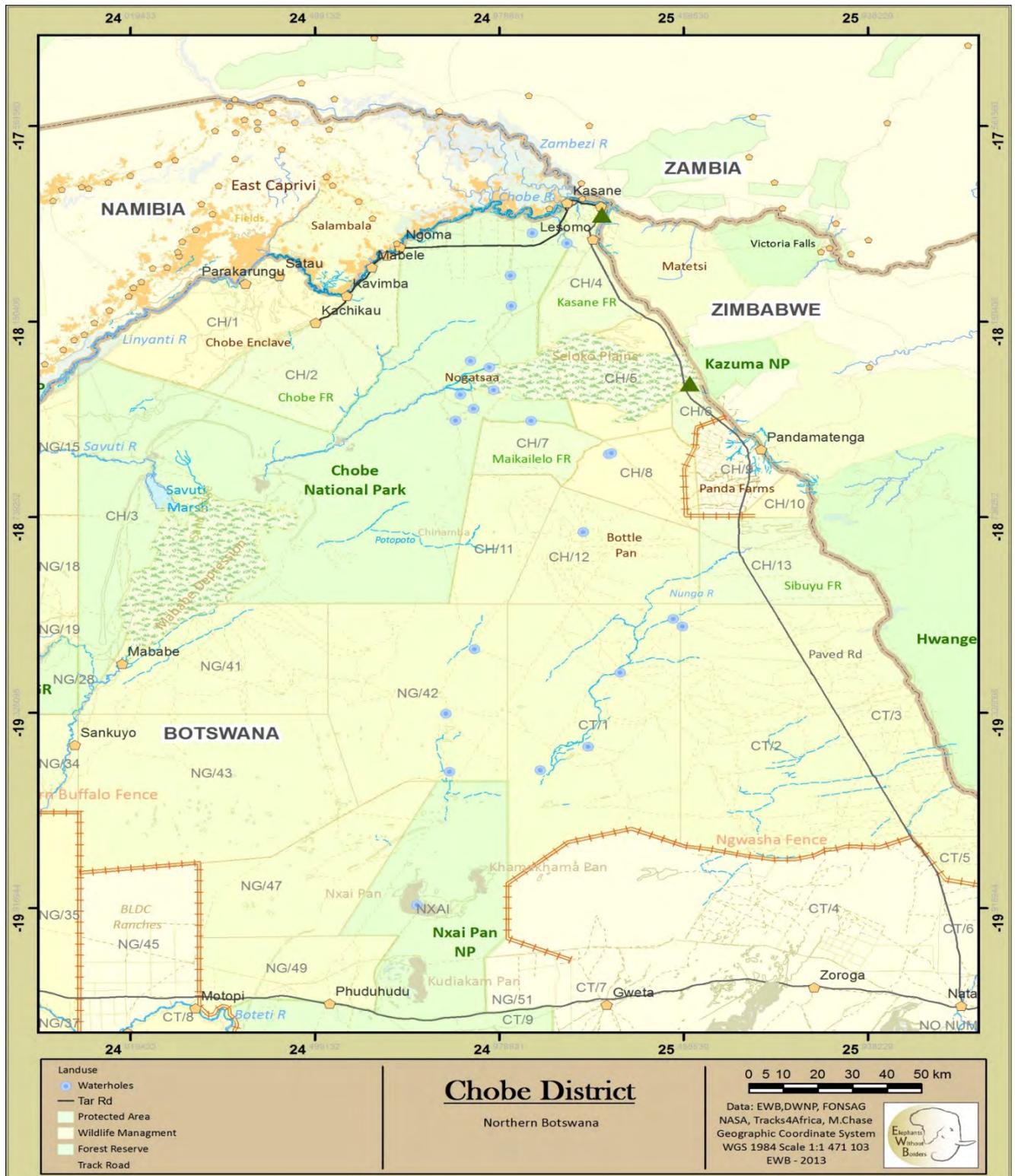
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256 Area Cattle posts, Kasane, Kazungula, Lesoma, Pandamatenga, Parakarungu, Satau, Kachikau, Kavimba, Mabele and Kataba.	Settlements (Homes), Cemetery	Households, houses and fences	Medium
Kasane, Mabele, Kachikau, Lesoma Pandamatenga,	Communication Towers	Towers for mobile phones	Low
Chobe West villages	Power and telecommunication lines	Supported with wood poles	High
Kasane	Kasane International Airport	Receives tourist, business people from various parts of the world	High
Pandamatenga, Kasane and Kasane Airport	Weather stations	Gather and Provide all weather data in the area	Low
Pandamatenga	Commercial Farms	Produce Sorghum, Maize, and Sunflower for national food security.	High
Around the following villages Parakarungu, Satau, Kachikau, Kavimba, Mabele, Lesoma and Pandamatenga	Subsistence farmers Ploughing fields	Local farmer produce food (maize, sorghum and water melons)	Medium
Pandamatenga, Pandamatenga Commercial Farms, Concession areas.	Air Strips	Used by locals tourism industry in its operations and local business people.	Medium
Kasane and Kazungula	Chobe and Zambezi Rivers	Rivers that provide food (water lily and Fish)	High

6. CHOBE ACCESS ROUTES

The map below shows some of the routes that can be used as an alternative to access to burning areas.

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7. FIRE MITIGATION OPTIONS (RECOMMENDED FROM RISK ASSESSMENT)

Town/ Location	Mitigation strategy (from Risk Management Plan)
Kazungula, Lesoma to Pandamatenga Areas	Department of Roads to do lawn mowing by tractor along A33 road reserve from 19 Parallel Firebreak to Kazungula in the months of March to June annually.

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	<p>Early burning exercise along the Botswana/ Zimbabwe Boarder by DFRR, Community Teams from Lesoma area to Pandamatenga jointly with Zimbabwe Wange National Park employees annually from May to July.</p> <p>Another Early burning exercise from Sedudu gate to Phoha gate by DWNP and Community Fire Fighting Teams and DFRR from May to July annually.</p> <p>Regular Internal Fire Break (10m) wide Maintenance by DFRR and DWNP by use of Tractor and some with grader in all Forest Reserves.</p>
Thatching Grass Areas- (Sibuyu Forest Reserve, Kazuma Flood plains, 256 Area, Parakarungu, Satau, and Kachikau)	<p>Facilitation, Creation and protection of Thatching Grass harvesters Camps to reduce fires from the camp and in to the camp by DFRR and Community.</p> <p>Training of Grass harvesters on Basic Bush Fire Fighting.</p> <p>Zoning of Thatching Grass Areas.</p>
Chobe West Villages (Muchenje, Mabele, Kavimba, Kachikau, Satau and Parakarungu) CECT villages	<p>Maintenance of Ngoma- Ghoha Fire Break along Chobe Forest Reserve by DFRR.</p> <p>Controlled burning at Satau flood plains where Molapo farming is being practiced in partner with DFRR.</p> <p>Formation of Fire Teams with the Community Trust involvement and DFRR.</p> <p>Partnership with Namibian SALAMBALA Community Development Trust in combatting cross border fires by sourcing funds for Fire Management through KAZA to buy fire management equipment.</p> <p>Basic Bush Fire Training to be intensified in the villages by DFRR.</p> <p>Engagement of aerial fire fighting/ water bombers.</p>
HATAB	<p>Training of 2-3 personnel on training of trainers per lodge need to be done as soon as possible so that they can train others.</p>
Chobe National Park	<p>Rotational Burn needed in the Bush Encroached areas by DWNP.</p> <p>Early burning exercise along the easterly boundary of the Park to reduce chances of fires from Zimbabwe Border from entering the park.</p> <p>Regular Internal Fire breaks Maintenance.</p>
Forest Reserves - (Kasane, Kasane Extension, Kazuma, Maikaelelo, Sibuyu, and Chobe)	<p>Regular Maintenance of Internal and External Fire Breaks.</p> <p>Regular patrols and surveillance</p> <p>Research on impact of fires.</p>
Pandamatenga Commercial Farms	<p>Regular maintenance of 5m inside and 5m outside the perimeter fence around the farms by Pandamatenga Farmers association.</p>
All Settlements	<p>Training and formation of Community Groups.</p>

8. DISTRICT RESOURCES SUMMARY

Agencies to be accessed during fire operations:

Agency	Role(s)	Resource	Contact Person	Contact numbers
Office of the	Incident	1x Toyota Land	Mrs G.N Moremi/	73875660/71585725/62

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District Commissioner (ODC)	Commander: <ul style="list-style-type: none"> • Facilitates acquisition & mobilisation of required resources. • Information dissemination to NDMO. 	Cruiser 3x Personnel	Mrs K. Tsokedi	50346 gmoremi@gmail.com/ gtshupoyamodimo@gov.bw ;
Department of Forestry & Range Resources (DFRR)	Lead Agency: <ul style="list-style-type: none"> • Coordinates all activities at the fire site. • Provide fire fighting equipments. • Education and awareness campaign. • Maintenance of firebreaks 	20x personnel 3x Land Cruiser 1x Diesel Tanker 1x Open Truck 1x Bell Water Damper (converted fire engine) 3 x Walkie Talkies 1x Grader 2 camp sites (171km and Kachikau) 2 x boom sprayers 2 knapsack sprayers 10 x shovels 24 x fire balls 2 x fire rakes 2 x mobile phones 1 x first Aid kit 2 x garden rakes 2 x drip torches Food rations and water 1 x camera 2 x GPS devices 1 x computer	Ms K. O Tselakgosi/ Mr K. Rauwe/ Mr C. Sakhu	6250688/ 73592549 Ktselakgosi@gov.bw
Elephants Without Borders	<ul style="list-style-type: none"> • Provide manpower and resources 	5 x Personnel 1 x Land Rover 1 x Toyota Land Cruiser Aircraft Cessna 206 (4 seats) 2 x Satellite phones 2 x Aerial Radio (Ground to plane) 3 x GPS Cell phones 3 x Cameras Computer and mapping programmes 5 x Shovels First Aid/Trauma Kit and BVMs Camping	Mrs K. Landen and Mr. R. Sutcliffe and EWB Office	76658212,71577358,62 50202

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		Equipment First Aid trained responders		
Kubu Lodge	<ul style="list-style-type: none"> Provide manpower and resources 	Water and Food	Sharon	71265000/71886952 / 75896840; kubu@botsnet.bw
Department of Wildlife and National Parks (DWNP)	<ul style="list-style-type: none"> Lead agency in protected areas (Parks & Reserves). Maintenance of fire breaks around wildlife management areas. Provide manpower and resources 	2 x Vehicles 10 x Personnel	Mr. B. Marotsi	bmarotsi@gov.bw 6250486/71436929
Chobe District Council- Fire Brigade Services	<ul style="list-style-type: none"> Provide manpower and resources 	5 x Manpower 1 x Fire appliances	Mr. G. Khachana	71546418
Civil Aviation Authority of Botswana (CAAB)	<ul style="list-style-type: none"> Maintenance of fire breaks around airport. Provide manpower and resources 	2 x Aviation fire appliances	Mr. Stanley	74237632
Enviro 911/Caracal	<ul style="list-style-type: none"> To conduct researches and provide fire information. 	Fire information and Research	Mr. M. Vandewalle	6252392
Tribal Administration	<ul style="list-style-type: none"> Community mobilisation, Law enforcement, Facilitate acquisition of resources 	2x manpower 1x Toyota Land cruiser 1x Tent	Ms Lorato Mogopodi	6250127/75494199
Central Transport Organisation (CTO)	<ul style="list-style-type: none"> Maintenance and services of vehicles involved in fire 	4 x Mechanics 2x Land Cruisers	Mr. Madande	6250330

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	<ul style="list-style-type: none"> • suppression. • Provide transport and fuel. • Provide back up to fleet engaged in fire suppression 			
Bio Chobe Project	<ul style="list-style-type: none"> • Provide fire suppression equipment's. 	Funding in fire activities	Ms R. Masilo-Rakgoasi	71824056
KAZA	<ul style="list-style-type: none"> • Provide fire suppression equipment's. 	Funding	Mr. Dipotsi	6251452/71690984
Chobe Land Board	<ul style="list-style-type: none"> • Provide manpower and resources 	3x Vehicles 6 personnel	Mrs D. Tshukudu	6250371
Botswana Police	<ul style="list-style-type: none"> • Provide manpower (fire suppression. • Law enforcement. • Incident investigation 	1x Vehicle 5x Personnel	Sgt. E. Edward	71700148 esayaedward@yahoo.com
BDF	<ul style="list-style-type: none"> • Communication logistics. • Provide manpower and resources 	2 x vehicles 10 x personnel	Colonel Jeba Jeba/ Lt Colonel K.M Setso	71373447/ 76214601
Farmers Association (Chobe West and Chobe East)	<ul style="list-style-type: none"> • Provide manpower and resources 	5x Personnel	Mr. L.B Chika	73150386
Chobe Enclave Conservation Trust (CECT)	<ul style="list-style-type: none"> • Provide manpower and resources 	3x Personnel	Mr. K Masule	73282763/6240120 cect@botsnet.co.bw
Chobe District Council	<p>Deputy Incident Commander:</p> <ul style="list-style-type: none"> • Facilitates acquisition & mobilisation of required resources. • Information dissemination to NDMO 	5 Vehicles 15 x Personnel	Ms R. Jeremiah	6250275/6/71588277

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Botswana Tourism Organisation (BTO)	<ul style="list-style-type: none"> • Provide manpower and resources. 	1x Vehicle 2x Personnel	Mr. M. Ntana	71356752
University of Botswana (UB)- Okavango Research Institute	<ul style="list-style-type: none"> • To conduct research, monitoring on fires and provide advices. 	Research and Monitoring	Mr. Masunga	6862538
Ministry of Agriculture (Dept. of Crops and Veterinary Services).	<ul style="list-style-type: none"> • Provide manpower (Fire suppression). • Provide data on affected arable areas. • Incident reporting using extension staff. 	3 xVehicles 6x Personnel	Mr. R.B. Sebadieta	6250251
Dept. of Labour	<ul style="list-style-type: none"> • Provide manpower and resources 	1x Vehicle 3x Personnel	Mr. D.Lekokoto	6250216/71744448
District Health Management Team	<ul style="list-style-type: none"> • Provide health medicals to fire fighters. • Provide manpower and resources 	Nurses	Chief Admin Officer	6250091
Other governments departments and parastatals	<ul style="list-style-type: none"> • Provide manpower and resources 	Vehicles Personnel		