

BOTSWANA

**DFRR (Department of Forestry
and Range Resources)**

**(BOTSWANA)
Project for Capacity Development
for the Conservation and Sustainable Use
of Forest and Range Resources through
the Process of Master Plan Development
(Project Completion Report)**

January 2025

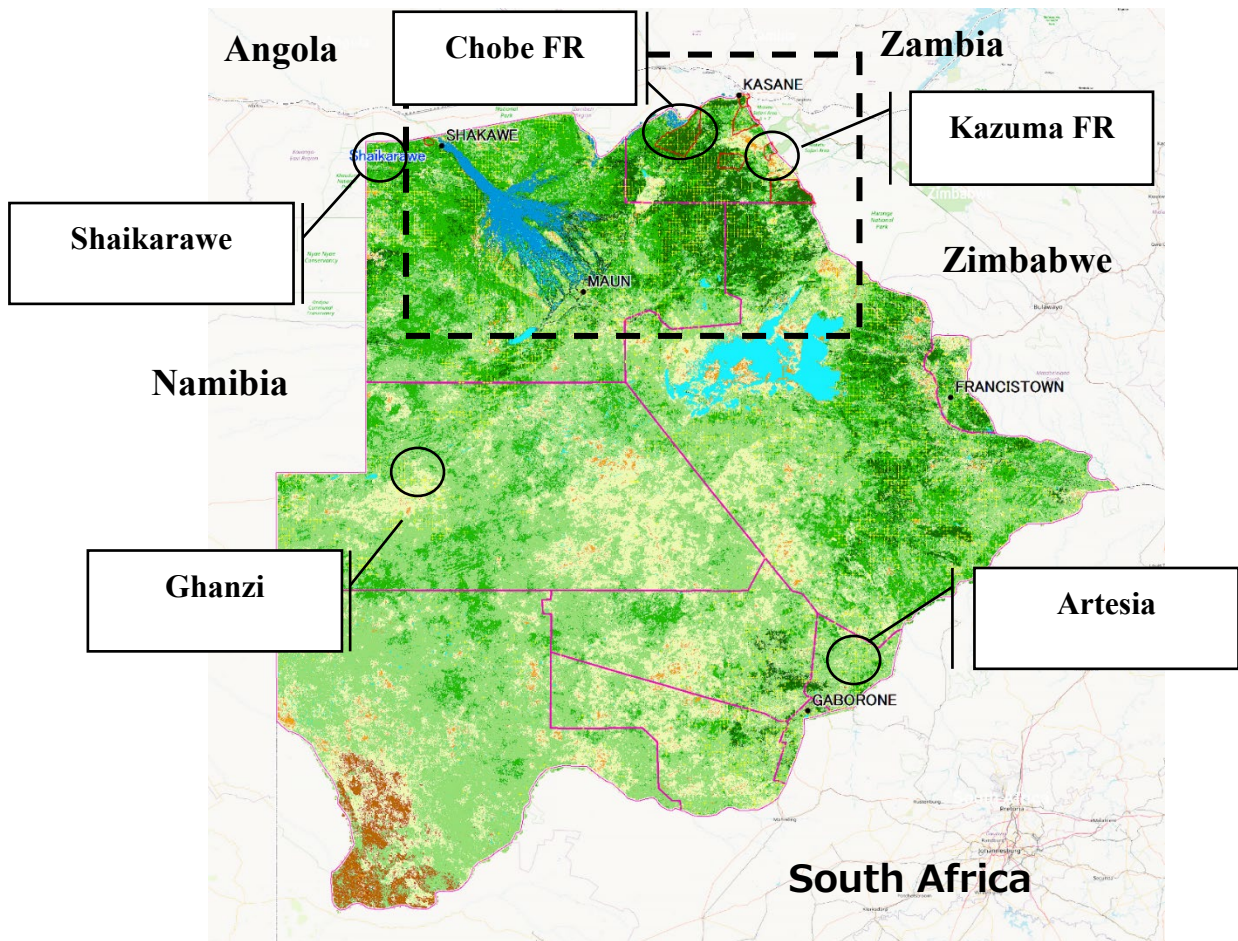
Japan International Cooperation Agency (JICA)

Japan Forest Technology Association (JAFTA)

Nippon Koei Co., Ltd.

GE
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25-012

Botswana Map, Location of Main Pilot Activities



Botswana North-East Map (Zoom in)

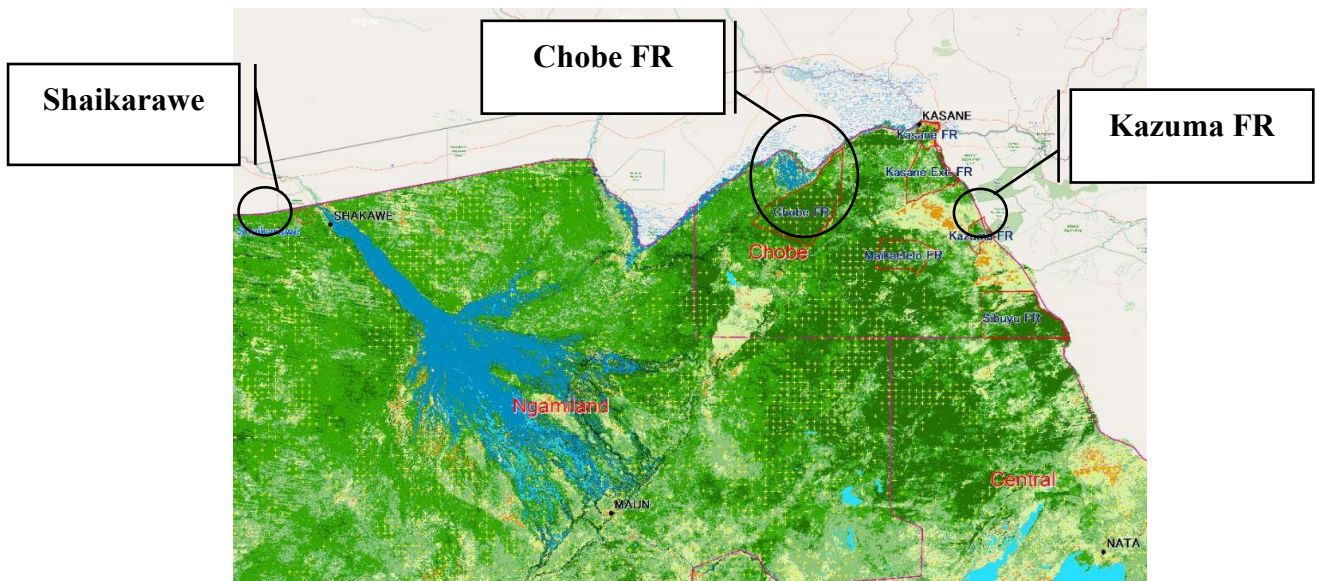


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ANNEX 1: Results of the Project

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Separate Volume: Copy of Products Produced by the Project

Separate volume data is not disclosed.

Abbreviation

AF	Agroforestry
BFDM	Botswana Forest Distribution Map
BIUST	Botswana International University of Science & Technology
BMS	Botswana Meteorological Service
BSAT	Burnt Scar Analysis Tool
BTV	Botswana Television
BWIS	Botswana Wildfire Information System
CBD	Convention on Biological Diversity
CBFM	Community Base Fire Management
CBNRM	Community Base Natural Resource Management
CECT	Chobe Enclave Community Trust
CKGR	Central Kalahari Game Reserve
CI	Conservation International
COVID	Coronavirus disease
DAC	Development Assistance Committee - OECD
DEP	Department of Environment Protection
DFRR	Department of Forestry and Range Resources
DWNP	Department of Wildlife & National Parks
EIAs	Environmental Impact Assessments
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Fire Danger Index
FDM	Forest Distribution Map
FEWS	Fire Early Warning System
FFM	Forest Fire Management
FMPP	Forest & Range Resources Master Plan Project
FRs	Forest Reserves
GCF	Green Climate Fund
GEE	Google Earth Engine
GEF	Global Environment Facility
GHG	Green House Gase
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOJ	Government of Japan

IAS	Invasive Alien Species
ICPs	International Cooperation Partners
ICS	Incident Command System
ICT	Information and Communication Technology
JAFTA	Japan Forest Technology Association
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
JOCV	Japan Overseas Cooperation Volunteers
KAZA	Kavango–Zambezi
MESA	Monitoring of the Environment for Security in Africa
MET	Ministry of Environment and Tourism
M/M	Minutes of Meeting
MoA	Memorandum of Agreement
MOA	Ministry of Agricultural Development and Food Security
MODIS	Moderate Resolution Imaging Spectroradiometer
MoU	Memorandum of Understanding
NDMO	National Disaster Management Office
NDP	National Development Plan
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Products
OG	Overall Goal
OSS	Open-Source Software
PDM	Project Design Matrix
PFM	Participatory Forest Management
PO	Plan of Operation
PP	Project Purpose
PPE	Personal Protective Equipment
QGIS	Quantum Geographic Information System
R/D	Record of Discussions
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SADC	Southern African Development Community
SFM	Sustainable Forest Management
TAC	Technical Advisory Committee

TFCA	Trans Frontier Conservation Area
TICAD	Tokyo International Conference on African Development
TOR	Terms of Reference
TOT	Training of Trainers
TRC	Technical Review Committee
TWS	Technical Workshop
UB	University of Botswana
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
VIIRS	Visible Infrared Imaging Radiometer Suite
WS	Workshop

I. Basic Information of the Project

1. Country

THE REPUBLIC OF BOTSWANA

2. Title of the Project

Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

(Commonly referred to as “FMPP - Forest and Range Resources Master Plan Project”)

3. Duration of the Project (Planned and Actual)

Planned: 2021/2 - 2025/1 (48 Months)

Actual: 2021/2 - 2025/1 (48 Months)

4. Background (from Record of Discussions(R/D))

The Republic of Botswana is widely known to be one of the many global hotspots for biodiversity. As a signatory to various international environmental-related treaties and obligations, the country (Botswana) is committed to conserving its rich biodiversity resources. The country's Forest and Range Resources, wildlife, and ecosystems have become major international tourist attractions and generate significant revenue whilst in many areas local people still rely on local plant and wildlife resources for subsistence livelihoods.

The state and trends of the forestry resources are largely unknown. The existing information is fragmented and outdated. Reliable information on the country's forest resources is mainly constrained by the lack of institutional capacity. The National Forestry Master Plan has been identified as a priority area to facilitate development and implementation of national policy processes and programmes for the enhancement of sustainable forest management (SFM) while at the same time addressing socio-economic and environmental issues such as poverty reduction through eco-tourism related activities, environmental protection/conservation through Reducing Emissions from Deforestation and Forest Degradation (REDD) and Green House Gas (GHG) as international reporting obligations.

Developing the diversified sources of economic growth and sustainable use of natural resources is one of the priority areas of the National Development Plan 11 which started from April 2017. Tourism in Botswana has shown a steady growth over the past few years, with holiday arrivals rising by 90.2% from 106,800 in 1993 to 203,172 in 1998 and has increased to 274,701 by 2014.

In line with this new national development plan and the increasing needs of the tourism sector, the DFRR intends among others to open-up the Forest Reserves for the tourism sector. Botswana has six Forest Reserves that includes Kasane, Kasane Extension, Chobe, Kazuma, Maikaelelo, and Sibuyu Forest Reserves (FRs), occupying a total area of around 4,200 km² (0.7 % of the total land area of the country). All FRs located in the Chobe District which is rich in biodiversity including the Chobe National Park that attracts tourists from around the world.

The Forest Reserves do not only provide habitats for wildlife, but they are also home to other important natural resources including wood and non-wood forest products (timber, medicinal plants, wild fruits and grasses etc.), and watersheds. So, the Forest Reserves possess much potential for multi-purpose usages including eco-tourism related activities. And "Guidelines for Utilization of Forest Reserves for Ecotourism Activities" were developed for DFRR under the support of the UNDP. However, the formulation of this framework is still a work in progress. In a related matter, TICAD VI Nairobi Declaration adopted on 28 August 2016 "economic diversification" as a priority area of the first pillar of the declaration which seemingly is in congruent with the Botswana's governmental plan.

In view of all the above the need for the "National Forest and Range Resources Master Plan" became more apparent. Botswana requires a plan that provides a strategic direction and guidance over the next decade or so.

5. Overall Goal and Project Purpose (from Record of Discussions(R/D))

To optimize the contribution of the forest sector to the long-term socio-economic development of Botswana by ensuring equitable and sustainable flow of benefits to all segments of the population now and in the future".

The purpose is to define strategic direction for sustainable management and improvement of the productivity of Botswana's forests, and to develop the forest reserves master plan for further enhance their contribution to local livelihoods, and national socio-economic development.

6. Implementing Agency

Department of Forestry and Range Resources
/ Ministry of Environment and Tourism

II. Results of the Project

1. Results of the Project

1-1 Input by the Japanese side (Planned and Actual)

Total Project Cost:

USD = 153.234 yen (Nov. 2024 rate)

Planned Project Cost:	480 million yen (equivalent to 3.13 million USD)
Actual Project Cost:	467 million yen (equivalent to 3.04 million USD)

(2) Dispatch of Experts:

*M/M = Man Month, duration of the assignment

Name	Expertise	M/M in Botswana	M/M in Japan
Kei SUZUKI	Team Leader / Forest and Range Resource Management	6.50	1.10
Koji ASANO	Biodiversity Conservation	3.10	1.40
Takashi NANAUMI	Forest Fire Management	9.10	0.10
Masanori SHINTANI	Ecotourism	3.90	1.10
Văn Thanh Nguyễn	Remote Sensing / GIS	4.00	1.90
Shinichi AIKAWA	Community Development 1	1.63	-
Miho HANAMURA	Community Development 2	10.07	0.86
Misaki MATSUO	Community Development 3	1.97	-
Kazuki SHIBASAKI	Community Development Assistant	-	0.27
	Total	40.27	6.73

(3) Number of Trainees (Capacity Development Training / Workshop): 704

Capacity Development Training / Workshop (WS)	Number of Trainees		
	DFRR	Others	Community
Master Plan WS	16	0	0
Fire Management (CBFM)	19	0	91
Fire Management (FDI, FEWS, BSAT)	68	14	0

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Eco-Culture Training /WS	12	15	231
CBNRM (Mongongo, Business & Hygiene)	2	23	30
Agroforestry	29	9	34
Long Rooted Seedlings (LRS)	46	0	0
Forest Distribution Map (FDM)	29	3	0
Kazuma Forest Reserve WS	5	18	0
NFI (GHG Inventory)	10	0	0
Sum (704)	236	82	386

CBFM: Community Base Fire Management, FDI: Fire Danger Index, FEWS: Fire Early Warning System,

BSAT: Burt Scar Analysis Tool, CBNRM: Community Base Natural Resources Management, LRS: Long-rooted Seedlings, FDM: Forest Distribution Map, NFI: National Forest Inventory, GHG: Green House Gas

(4) Cost of Handover Equipment

USD = 153.234 yen (Nov. 2024 rate)

Item	Procurement Cost	
TOYOTA Landcruiser Pick-up D/CAB 4200 Diesel (2 Vehicle)	18 million (Yen)	0.12 million (USD)
Other Equipment Laptop PC, Printer, Smartphone, GPS	3 million (Yen)	0.02 million (USD)

1-2 Input by the DFRR (Planned and Actual)

(1) Counterpart: 15 (Technical Officials nominated by the DFRR for drafting Master Plan)

(2) Project Office: 2nd Floor, Loapi House, Plot 1277, Old Lobatse, Gaborone

- Suitable office space with furniture

(3) Other Input: Running expenses (utility cost, security cost, cleaning cost, wi-fi service cost of the above Project Office).

Other necessary expenses for the implementation of the Project (DFRR staff's travel expenses, light meal cost for capacity development training and workshops, DFRR staff's mobile vehicle to pilot sites and so on).

1-3 Activities (Planned and Actual)

The project activities are summarized chronologically from 1-2 on the monitoring sheet as follows.

Activities during February 2021 – December 2021 (Monitoring Sheet Ver.2)
- Due to the COVID-19 pandemic, the virtual meeting held on 2nd February 2021 was positioned as the kick-off of the project and the first phase of the project began. Since then, regular virtual meetings have been held every Tuesday with the DFRR to discuss the overall picture of the project, understanding of each component, and potential pilot activities for Output 2. - Based on the calming down of the COVID-19 infection situation, four Japanese experts were dispatched to Gaborone in July 2021, and the first trip assignment was realized. - Following this, all Japanese experts were dispatched for the second trip in September 2021. But activities were limited to the Gaborone area due to the re-emergence of COVID-19. In this assignment Japanese experts focused on the subcontracting work necessary for the pilot activities and to make a site visit to THUSANO LEFATSHENG, a candidate site for CBNRM activities. - In early November 2021, with the cooperation of the JICA office, the first field survey was conducted in Kasane, and preparations were made for the pilot activities, especially for the introduction of participatory ecotourism. - However, due to the spread of the disease and the emergence of the Omicron variant, travel restrictions were imposed again, and a field visit to Shaikarawe, a candidate site for the CBFM, CBNRM pilot activities, has not been realized. - On the other hand, as for the activities related to the formulation of the master plan, a drafting team was formed within the DFRR to prepare a system for writing the master plan, and TORs for external experts for assist writing the master plan were formulated and hired. ■Joint Coordinating Committee (On 12th July 2021) – 1st JCC meeting

Activities during February 2022 - July 2022 (Monitoring Sheet Ver.3)
- The 2nd phase of the project started on 24th February 2022. Since then, DFRR officials and JICA experts have had several virtual meetings via Zoom and have made various coordination under COVID-19 (Omicron Variant) pandemic situation before dispatching Japanese experts to Botswana.

- During this period, following progress has mainly been made.

■Capacity Development Trainings

- 1) Technology transfer training for the preparation of Forest Distribution Map (FDM)
- 2) Technology transfer training for the development of the Fire Danger Index (FDI)
- 3) Training of Prescribed Fire in Veld and Forest Ecosystems at a Given Community
- 4) Technology transfer training of the long-rooted seedlings

■Joint Coordinating Committee (On 28th April 2022) – 2nd JCC meeting

■Field study for finalizing Terms of Reference (TOR) of consignment of pilot activities on Agroforestry and CBNRM in Shaikarawe

■Obtaining consensus for output image of Eco-tourism pilot activities in Chobe Forest Reserve from DFRR Kasane branch, TAC (Technical Advisory Committee), CECT (Chobe Enclave Community Trust)

■Field study for finding potential Hard-Pan Plantation

■Obtaining consensus for terminating CBNRM pilot activities in Thusano Lefatsheng

Activities during August 2022 - February 2023 (Monitoring Sheet Ver.4)

- During this period, following progress has mainly been made.

■Capacity Development Trainings

On-site Training 1) Technology transfer for the Long-Rooted Seedlings - LRS

On-site Training 2) Technology transfer for Business Management / Food Safety & Hygiene - CBNRM

■Knowledge sharing Workshops / Meetings

On-site WS 1) Workshop for producing cooking oil using Mongongo nuts - CBNRM

On-site WS 2) Meeting for the Kazuma Forest Reserve Draft Management Plan

On-site WS 3) Meeting for the Revised Draft Master Plan

■Forest Fire (From 28th Aug to 4th Sep 2022) - Foster understanding among local stakeholders on envisaged plans and objectives of Forest Fire Pilot Activities at around Shakawe area and Site visit for studying Trans-boundary Fire along border with Namibia

■Eco-tourism (From 1st Oct to 9th Oct ,2022) - Conduct interviews with potential nature/cultural tourism, bird hide + bore hole subcontractors, visit to potential pilot sites, meet with the Chobe Enclaved Community Trust (CECT) and other community members at Chobe West area

■CBNRM / Agroforestry (From 11th Oct to 15th Oct ,2022) - Site visit for introducing experts (Subcontractor) for CBNRM / Agroforestry, Head Quoters' staff of Extension Division to local community

Activities during March 2023 - August 2023 (Monitoring Sheet Ver.5)

- During this period, following progress has mainly been made.
- Capacity Development Trainings
 - On-site Training 1) Technology transfer for the Long-Rooted Seedlings - LRS
 - On-site Training 2) Technology transfer for the Green House Gas Inventory - GHG-I
 - On-site Training 3) Technology transfer for the Agroforestry
 - On-site Training 4) Technology transfer for the Fire Early Warning System - FEWS
- Joint Coordinating Committee (On 20th April 2023) - 3rd JCC meeting
- Eco-tourism (From 23rd April to 7th May 2023) - Confirmation on eco-tourism activity in Chobe West area and workshop for sharing common understanding.
- Technical Review Committee (On 27th April 2023) - 1st TRC meeting
- Agroforestry (From 14th May to 20th May 2023) - Site visit for scoping and procurement of materials for agroforestry pilot activities in Shaikarawe.
- Agroforestry (From 10th July to 12th July 2023) - Site visit for learning Good Practice activity on Agroforestry.
- Eco-tourism / Biodiversity (From 3rd August to 12th August 2023) - Follow-up on development of Cultural Ecotourism Pilot Activity.
- Technical Review Committee (On 23rd August 2023) - 2nd TRC meeting
- Local Stakeholder Consultative Meeting on drafting Master Plan (On 29th & 31st August 2023) - Local Meeting on MP

Activities during September 2023 - February 2024 (Monitoring Sheet Ver.6)

- During this period, Eco-cultural Tourism training for TAC (Technical Advisory Committee) and local communities were conducted by experts.
- Follow-up training in operation on Fire Management Tools was conducted by experts. After the training three (3) tools for supporting Fire Management were handed over to DFRR.
- As for the Agroforestry activities, follow-up workshop for pilot activity in Shaikarawe was conducted by the World Agroforestry (ICRAF) expert.
- PDM (Project Design Matrix) has also been revised to modify some Objectively Verifiable Indicators, Means of Verification.
- During this period, following progress has mainly been made.
- Eco-cultural Tourism (From 20th September to 3rd October 2023) - Field mission in Chobe West
- Fire Management (On 8th & 16th November 2023) - Stakeholder Meeting for sharing Fire Danger Index (FDI) 5-days forecast.

- Agroforestry (From 20th November to 23rd November 2023) - Site visit for following-up agroforestry pilot activities in Shaikarawe
- Technical Review Committee (On 5th December 2023) - 3rd TRC meeting
- General Project Monitoring (From 28th November to 19th December 2023) - Follow-up delayed activities.
- Eco-cultural Tourism (From 15th January to 16th February 2024) - Field mission in Chobe West

Activities during March 2024 - December 2024

- During this period, following progress has mainly been made.
- Inspection of the Eco-culture Outputs such as Interpretive Signboards, Landmark (During 17th April – 20th April 2024)
- Technical Review Committee (On 22nd April 2024) - 4th TRC meeting
- Joint Coordinating Committee (On 23rd April 2024) - 4th JCC meeting
- Eco-culture Pilot Tours in Chobe-West (During 27th May - 29th May 2024)
- Eco-culture Activity Handover Ceremony in Chobe-West (On 3rd June 2024)
- Field Survey in Artesia and in Ghanzi for the Long-Rooted Seedling (During 24th July - 31st July 2024)
- Ground truthing of Fire Management tools / Burt Scar Analysis Tool (During 13th July - 1st August 2024)
- Agroforestry follow-up activity (During 27th August - 30 August 2024)
- Validation Workshop of the Master Plan (On 28th November 2024)
- Handover Ceremony (On 17th December 2024)
- Project Completion Report (PCR) review meeting (On 18th December 2024)

2. Achievements of the Project

2-1 Outputs and indicators

(Target values and actual values achieved at completion)

Output 1. Draft of the National Forest & Range Resources Master plan is developed.
(Objectively Verifiable Indicators for Output 1)
O1-1: The draft approved by DFRR Management.
O1-2: At least 3 national, local or regional validation meetings conducted.
(Means of Verification for Output 1)
O1-1: Draft of the Master Plan.
O1-2: ▪ Local stakeholder meeting in Francistown (For the Northern Districts of Botswana) ▪ Local stakeholder meeting in Jwaneng (For the Southern Districts of Botswana) ▪ Validation meeting in Gaborone
(Achievement for Output 1)
O1-1: ▪ The drafting of the Forest & Range Resources Master Plan was completed by 20th November 2024, and approved at the Master Plan Validation Workshop held on 28th November, with the exception of instructions regarding minor wording revisions. Therefore, Indicator O1-1 is considered to have been 90% achieved, and the degree of achievement of this indicator can be described as “High”.
O1-2: ▪ The Local Stakeholder Consultative Meeting on drafting Forest & Range Resources Master Plan was held in Francistown for the Northern Districts on 29th August 2023. ▪ The Local Stakeholder Consultative Meeting on drafting Forest & Range Resources Master Plan was held in Jwaneng for the Southern Districts on 31st August 2023. ▪ The validation workshop on drafted Forest & Range Resources Master Plan was held in Gaborone on 28th November 2024. In the workshop, it became clear that, when implementing priority activities under the Master Plan, it is necessary to confirm whether those are complied with the EIAs (Environmental Impact Assessments) of the DEP

(Department of Environment Protection) and to conduct endorsement procedures in parallel. Since this process is an important procedure, it is expected to be addressed in parallel as part of capacity building on the part of DFRR for planning of the master plan, for example, in the implementation plan of activities when implementing priority activities based on the master plan to avoid omissions of procedures even after the project is completed.

- As mentioned above, Indicator O1-2 is considered to be “High” in terms of the degree of achievement of this indicator, since the three meetings described in the means of verification were held and 100% was achieved.

Output 2. Possible activities of the draft Master Plan are verified with implementation.

(Objectively Verifiable Indicators for Output 2)
O2-1: Findings of at least 9 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out.
O2-2: Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation.
O2-3: Direct beneficiary: ▪ At least 5% of target community trained on Fire Management, Ecotourism activities. ▪ At least 10% of target community trained on CBNRM and Agroforestry activities. Indirect beneficiary: ▪ At least 60% for target community benefitting from CBNRM, Agroforestry and Ecotourism activities.

(Means of Verification for Output 2)
O2-1: ▪ Draft of the Master Plan ▪ Progress report of the Project ▪ Survey by the Project
O2-2: ▪ Manuals
O2-3: ▪ Number of Participants attended the training in target community conducted by the Project

- Level of community livelihoods

(Achievement for Output 2)

O2-1:

- The finding, lesson learnt of five (5) activities, i.e., “Fire Management”, “Long-rooted Seedling technology”, “Agroforestry”, “CBNRM”, “Eco-tourism / Eco-culture” were compiled as an appendix in the Drafted Forest & Range Resources Master Plan.
- The progress of each pilot activity was reported as series of monitoring sheet. (ver2 [2021.07 - 2021.12], ver3 [2022.02 – 2022.07], ver4 [2022.08 – 2023.02], ver5 [2023.03 – 2023.08], ver.6 [2023.09 – 2024.02])
- A summary of the status of achievement for each pilot activity is described as below.

1) Community base Fire Management (CBFM)

This activity was a capacity development training activity to strengthen the fire management capacity of local people in five villages along the Namibian border (Samochina, Nxaunxau, Xaree, Kaputura, and Xauxwi) with a focus on cross-border fire management, mainly in the areas of “Awareness,” “Fire Prevention,” and “Fire Fighting”. In particular, the “Fire Prevention” and “Fire Fighting” training programs were mainly practical training in the field using the PPE (Personal Protective Equipment) provided, and the level of establishment in the five target villages can be evaluated as “High”. On the other hand, there are still issues to be addressed, such as how to secure sufficient “vehicles” in the event of an actual cross-border fire.

In addition to the above, this activity developed three tools and apps that contribute to fire management, with DFRR fire management staff as main users. Specifically, a “Fire Danger Index Map Display Tool,” a “Fire Early Warning Application,” and a “Burnt Scar Analysis Tool” were developed. Of these, the “Fire Danger Index Map Display Tool” has just begun to be considered for use not only by DFRR but also by DWNP (Department of Wildlife and National Parks) and DMS (Department of Meteorological Services), and the “Burnt Scar Analysis Tool” is being used for monthly reports on fire occurrence, mainly by DFRR headquarters fire management staff. On the other hand, the “Fire Early Warning App” is not being utilized at this moment due to reorganization and other factors within DFRR, although the level of understanding of the application was high during the capacity development training on its operation. Therefore, the overall degree of establishment of tools and applications that contribute to fire management can be rated as “Moderate”.

2) Eco-tourism activity in Chobe District

This activity was an ecoculture activity for five community cooperatives in Chobe West to provide local communities with options for community development using natural

resources, including wildlife in the Forest Reserve (FR), packaged with local traditional dances, basket weaving, village tour guides, etc. And community-specific interpretive signboards and landmark that contribute to the activities had been installed. At the same time, the capacity development training has strengthened the local community's capacity to engage in eco-cultural activities. This pilot activity has been highly supported by the community tribal leaders from the beginning, and tour operators in the region have been very positive about the activity, which indicates that the degree of establishment in the five community cooperatives that are the main implementers of ecoculture activities can be rated as "High".

3) CBNRM activity

In this activity, a workshop was held for the local community in Shaikarawe to introduce a machine to extract edible oil from mongongo fruit, and to conduct workshops on mongongo oil production, business management, and sanitation. Although it is now possible to produce cooking oil for consumption in the community using the introduced extraction machinery, there are still issues regarding food handling standards and hygiene standards that need to be addressed in order to commercialize the product and sell it to the general public, and further inputs and activities are needed. Therefore, the degree of establishment of this activity can be rated as "Moderate".

4) Agroforestry activity in North-West District

In this activity, lecturers were invited from ICRAF, and about 30 DFRR staff from all over Botswana were trained on basic knowledge about agroforestry and how to disseminate it through lectures and field activities. Based on the action plan prepared by DFRR staff as part of the capacity development training, agroforestry activities have already started in several areas (Mulambakwena, kgatleng, Bobojango, Mabule, Charles hill, and Tshane, etc.), and are expected to be developed in other areas, so the degree of establishment of this activity can be rated as "High".

5) Piloting of Long-rooted Seedlings Technology

g of Long-rooted Seedlings Technology

This activity was conducted to test the long-rooted seedling technology and to verify its effectiveness as a reforestation technology in semi-arid regions. In addition to planting trials in two areas with different environmental conditions (Artesia and Ghanzi) as demonstration activities for planting long-rooted seedlings, capacity development training was conducted through the development of a long-rooted seedling breeding manual, training for National Tree Seed Center staff in Botswana, and training abroad (Kenya Forestry Research Institute / KEFRI). As a result of the above activities, although it is difficult to say that this technology has completely taken root in Botswana because

afforestation and forestry are not established as industries in the country, the activities themselves have been taken over by the staff of the National Tree Seed Center, and it is expected that they will be used for seedling and seedling breeding in Botswana in the future. Therefore, this activity can be rated as “Medium” in terms of the degree of establishment of the technology in the country.

6) Update of Forest Distribution Map (every 5 years)

The 2015 Botswana Forest Distribution Map (BFDM2015) was produced under the “Project for enhancing National Forest Monitoring System for the promotion of sustainable natural resource management”, which was implemented from 2013 to 2017. The purpose of this activity was to provide capacity development training for technology transfer related to this method of updating Forest Distribution Maps. As a result of the capacity development training, the 2020 Botswana Forest Distribution Map (BFDM2020) has been prepared. In addition, the DFRR staff is currently preparing the 2025 Botswana Forest Distribution Map (BFDM2025) by themselves, utilizing the results of the capacity development training, which indicates that this activity has a “High” degree of establishment.

7) Utilization of the National Forest Inventory data

The Botswana government has invested national funds to complete the first national forest resources inventory survey, which combines ground surveys and remote sensing technology. This activity used these data to develop capacity for data analysis techniques that contribute to GHG inventories reporting. GHG inventories must be conducted on a regular basis in accordance with international commitments under the UNFCCC, and Botswana needs to adhere to this requirement. Given the DFRR staff's strong understanding of this activity during the capacity development training, the establishment of this initiative can be rated as “High”. On the other hand, it remains to be seen whether the transfer of technology within the DFRR will be carried out properly in the event of a transfer of staff members to other divisions.

8) Preparation of FR Management Plan

The DFRR has six Forest Reserves (FRs) in Chobe District, but its management plan has only been established for two of them, Chobe FR and Kasane FR. Therefore, a pilot activity was conducted to develop a management plan for Kazuma FR, for which no management plan had yet been developed, and to accumulate know-how on management planning through this process. In this activity, SWOT analysis was conducted to analyze the current situation, and ecotourism activities were drafted from the perspective of not only natural resource conservation, but also utilization of natural resources. On the other hand, management plans for the remaining three forest reserves have not yet been

initiated, and there is a need to formulate such plans in the future by utilizing the know-how gained in this area, etc. Therefore, the degree to which this activity has taken root can be rated as “Moderate”.

9) Installation of Flux tower in Chobe FR

The purpose of the flux observation tower is to observe the amount of greenhouse gases absorbed by forests from the atmosphere (flux), forest biomass, etc., using a micrometeorological method that allows long-term, continuous observation without deforestation. The data obtained from the flux observations will contribute to future GHG inventories and other reports based on more scientific evidence, which is very significant. In this activity, flux observation equipment owned by Botswana International University of Science and Technology (BIUST) was installed in an existing tower (Fire Watch Tower) for fire detection in the Chobe FR managed by the DFRR. While the installation and introduction of flux observation equipment, which was the initial objective of the activity, was completed as planned, data acquisition and data utilization are scheduled to be done after the project is completed, and therefore, the degree of establishment of this activity can be rated as “Moderate”.

- Based on the above, a comprehensive judgment of the degree of establishment for the indicator O2-1 can be rated as “Moderate”.

O2-2:

- Indicator O2-2 can be rated as “High” in terms of achievement because 100% of the following manuals and guidelines shown in the means of verification have been prepared.

┌ Forest & Range Resources Master Plan Guideline, KAZMA Forest Reserve Management Plan, Stakeholder Communication Plan, BFDM update manual, Botswana Wildfire Information System (BWIS) manuals which includes Fire Early Warning System (FEWS) operation manual, Burnt Scar Analysis Tool (BSAT) manual, System administration guidance, and A guide for local communities for participatory forest fire management (CBFM), Guidance on introducing Ecotourism, Implementation planning documents and implementation manuals (NTFP use), Implementation manual woodland creation (long-rooted seedling plantations]

O2-3:

- Population of the Chobe-West is 4,446 based on 2022 national census which was the target community for Eco-culture activity. And 231 villagers (equivalent to 5.2%) were capacitated there.
- The population of Shaikarawe is 200 where was the target community for CBFM,

CBNRM & Agroforestry activities. And 15, 30 and 34 villagers (equivalent to 7.5%, 15% and 17%) were capacitated respectively in each activity there.

- Population of the Chobe-West and Shaikarawe is almost 4,600. And considering TOT (Training of Trainers) effect by the trained villages, 2,800 (equivalent to 60%), level of community livelihoods can benefit from CBNRM, Agroforestry and Eco-culture activity.

- As stated above, Indicator O2-3 meets 100% of the percentages of beneficiaries listed under “Objectively Verifiable Indicators”, so the degree of achievement can be rated as “High”.

2-2 Project Purpose and indicators

(Target values and actual values achieved at completion)

Project Purpose (PP). Capacity of DFRR to develop the National Forest & Range Resources Master Plan is enhanced.

(Objectively Verifiable Indicators for PP)

PP1: Draft Master Plan approved by MET Technical Review Committee.

PP2: Number of research and surveys conducted by DFRR staff increased by 20%.

PP3: At least 30% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.

(Means of Verification for PP)

PP1:

- Draft of the Master Plan
- Progress report of the Project

PP2:

- Number of researches and surveys

PP3:

- Number of trainings conducted
- Number of courses / programmes

(Achievement for PP)
PP1 • The draft of the Master Plan has already been approved by the MET Technical Committee with the exception of minor wording changes, and can be considered to be almost 90% complete; therefore, the degree of achievement of this indicator can be rated as “high”. • Detail progress of each activity was reported in the series of monitoring sheets (Ver.2 : July 2021 - December 2021, Ver.3: February 2022 - July 2022, Ver.4: August 2022 - February 2023, Ver.5: March 2023 - August 2023, Ver.6: September 2023 - February 2024).
PP2: • The number of studies and surveys conducted by DFRR staff increased by 37.5% ($3 / 8 = 37.5\%$), as shown in the rationale below. Therefore, since the number of studies and surveys increased by more than 20% of the objectively verifiable indicators, the degree of achievement of this indicator can be rated as “High”. • There were following Research and Surveys as the baseline data. (1. Forest Inventory, 2. Range Health Assessment, 3. Invasive Alien Plant Species, 4. Veld Product Assessment, 5. Soil organic Carbon and Nitrogen Content in Savannas 6. Potential impacts of climate change, 7. Economic Valuation of Veld Products, 8. Impact of Sulphur dioxide on vegetation in the Eastern Part of Botswana around Selibephikwe) • There were Research and Surveys conducted by the Project such as 1. GHG Inventories training, 2. Long-rooted Seedling (LRS) technology, 3. installation of the Flux tower (Eddy Covariance).
PP3: • 33% ($36 / 109 = 33\%$) of DFRR staff were engaged in the project and their skills / competencies were improved. Therefore, since more than 30% of the DFRR staff has improved their skills / competencies, which is the objectively verifiable indicators, the degree of achievement of this indicator can be rated as “high”. • Currently there are 109 Technical / Professional staff working in DFRR as baseline data. • 36 Technical staff members directly engaged in the project. Skills enhanced through the project include GHG inventories, GIS and Remote Sensing, FDI, BSAT, Revision of the BFDM, Long-rooted Seedlings etc.

3. History of PDM Modification

Ver. 6.0 (Draft 13 December 2023)

The main revisions to the PDM and the reasons for them are listed below.

Revisions to verification indicators and means of verification of “Overall Goal”
Reason for revision: Since the content of the pilot activities to be implemented in the project was not defined in the original PDM, the following nine (9) activities were added as means of verification. 1) Community base Fire Management 2) Eco-tourism activity in Chobe District 3) CBNRM activity 4) Agroforestry activity in North-West District 5) Piloting of Long-rooted Seedlings Technology 6) Update of Forest Distribution Map (every 5 years) 7) Utilization of the National Forest Inventory data 8) Preparation of FR Management Plan 9) Installation of Flux tower in Chobe FR

Revisions to verification indicators of “Project Purpose”
Reason for revision: At the beginning of the project, the verification indicator was not set to a specific value of XX%, so a specific value was set after describing the baseline and other information that would serve as the basis for the value.

Revisions to verification indicators and means of verification of “Outputs”
Reason for revision: ▪ Since the verification indicators for Output 1 “Draft Forest and Range Resources Master Plan” had not been determined, local stakeholder meetings in northern and southern Botswana and a plenary verification workshop in Gaborone were added as verification indicators. ▪ Since the specifics of Output 2 “Pilot Activities” and their specific verification measures had not been determined, nine (9) pilot activities were added and a “manual” for each activity was added as a verification measure. In addition, a specific numerical value was set for the verification indicator, which was initially set at XX%, after describing the baseline and other information that would serve as the basis for the numerical value for each pilot activity.

4. Others

4-1 Results of Environmental and Social Considerations (if applicable)

Not applicable.

4-2 Results of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

Not applicable.

III. Results of Joint Review

1. Results of Review based on DAC Evaluation Criteria

(1) Relevance

Evaluation for Relevance: [3]

Criteria: The Relevance can be rated as [3] because it addresses all three of the following perspectives: “Consistency with development policy”, “Consistency with development needs”, and “Appropriateness of the project design/approach”.

<Consistency with development policy>

The project has directly contributed to ‘4) Sustainable use of natural resources’ of the six priority areas of the NDP11 by supporting the preparation of a draft Forest and Range Resources Master Plan. In addition, with regard to ‘1) Diversification of income sources for economic growth’ which is one of the six priority areas, and with the tourism (eco-tourism) sector being positioned as a priority sector for economic diversification and poverty reduction, the project made an effort to conduct pilot activities with the opening of Forest Reserve (protected forests) to tourism in mind, which is being considered by the government but it has replaced into alternative pilot activities to implement eco-culture pilot activities outside of the FRs to support local communities since the bill for a new forest act which permits open-up Forest Reserves to other activities has not yet passed in the Parliament. Although there were changes to alternative activities, various findings which are thought to be contributed to economic diversification were gained and those findings were properly reflected in the preparation of the draft Master Plan for Forest and Range Resources.

The 2011 Forest Policy states that the current legal framework for forests (the Forest Act 1968, the Agricultural Resources Conservation Act 1974 and the Range Land Conservation Act 1977) should be reviewed, revised and consolidated, and that a new Forest and Range Resources Master Plan should be developed to implement the forest policy. In addition, the Forest Policy sets out the goals of improving fire management capacity and providing a comprehensive fire management approach in ‘2. Forest fire management’ and promoting socio-economic and environmental benefits drawn from forest resources in ‘6. Ecotourism and other socio-economic opportunities’, among the 10 issue areas. The fire management and ecoculture activities that the project implemented as pilot activities would also contribute to achieving the objectives of each of these ‘Forest Policy’ issue areas. As described above, the project is consistent with the current NDP11 and the Forest Policy and it is quite reasonable.

<Consistency with development needs>

Drafting Forest and Range Resources Master Plan that the project has supported the development targeted vegetation in the whole eco-regions of Botswana. Main pilot activities, on the other hand, covered two northern districts, those are Chobe and North-West districts, where forest and woodland are concentrated in Botswana.

All of Botswana's protected forests (six Forest Reserves) are in the Chobe district. The region is also part of the Kavango-Zambezi Trans-frontier Conservation Area (KAZA TFCA), a transboundary conservation area that spans five countries (Botswana, Namibia, Zambia, Zimbabwe and Angola) and includes three World Heritage Sites and the largest population of African elephants and the African wild dog (*Lycaon*), while an estimated 2.5 million people in the villages surrounding the KAZA TFCA depends on natural resources for their livelihoods. In addition, the North-South Corridor is being developed in the region, which is considered an important project for intra-African integration, and the risk of drought and forest fires increasing due to climate change has been pointed out in the region. Thus, in the two northern districts, where both the promotion of development through intra-regional integration and the conservation of the natural environment and ecosystems of the region are urgent issues, the pilot activities targeted in this region for the sustainable management of forest and range resources are also in line with the development needs of the region.

<Appropriateness of project design/approach>

The 2011 Forest Policy states that the current legal framework for forests (the Forest Act 1968, the Range Land Conservation Act 1977 and the Agricultural Resources Conservation Act 1974) focuses on regulations for the management of forest reserves and state-owned lands, with little focus on public participation and sustainable use of natural resources, and that therefore, these three laws need to be reviewed, revised and integrated. The 2011 Forest Policy also states that a 'Forest and Range Resources Master Plan' should be developed to implement the policy.

For the former, the Forest Bill has already been prepared and about to be passed in the Botswana Parliament. In the case of the latter, the master plan drafting process, the DFRR has prioritized this issue to strategically advance the work under its jurisdiction. On this basis, this approach has also clarified in the project title of the 'Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of

Master Plan Development’, and the approach is thought to be quite appropriate.

(2) Coherence

Evaluation for Coherence: [3]

Criteria: The project is consistent with the “Development Cooperation Policies of the Government of Japan and JICA” and has been coordinated with “Other JICA projects (Technical Cooperation and Japan Overseas Cooperation Volunteers)” and “Organizations outside JICA” as shown below, and concrete results can be confirmed, so it can be rated as [3].

<Co-ordinations with the prior JICA project to achieve good outputs>

1. SADC “Project for Forest Conservation and Sustainable Management of Forest Resources in Southern Africa” (2016-2020)

In this project, three (3) guidelines have been developed as one of the outputs: “Forest Information System (FIS) Guidelines,” “Forest Fire Management (FFM) Guidelines,” and “Participatory Forest Management (PFM) Guidelines”. In the pilot activities, the CBFM Activities were conducted by referring to the five (5) fire management stages (Awareness, Fire Prevention, Fire Detection, Fire Fighting, and Land Rehabilitation) described in the “Forest Fire Management (FFM) Guidelines” from time to time. Similarly, in the CBNRM Activities, activities were carried out while referring to Good Practices in the Participatory Forest Management in SADC Member States as described in the “Participatory Forest Management (PFM) Guidelines”.

2. Botswana “Project for enhancing National Forest Monitoring System for the promotion of sustainable natural resource management” (2013-2017)

In this project, a Botswana Forest Distribution Map for 2015 (BFDM 2015) was prepared as one of the outputs. The results were used to produce the Botswana Forest Distribution Map 2020 (BFDM2020) during the capacity development training for technology transfer in the “Forest Distribution Map Update (Every 5 years) Activity,” as one of the pilot activities. And in the activity “Utilization of the National Forest Inventory data”, capacity development training in data analysis techniques for GHG inventory reporting was conducted using data from the first National Forest Inventory conducted in the above-mentioned project.

3. Individual JICA expert “Forest Management and Economic Evaluation” (2015-2017)

In this project implemented by the expert, “Economic Valuation of Non-Timber Forest Products (NTFPs)” was being piloted for the whole country of Botswana as one of the outputs.

In the pilot activity “CBNRM”, referred and utilized the report of the above-mentioned project to confirm the distribution of non-timber forest products (NTFPs) such as Mongongo fruit in the North-West District.

4. Support for the Nationwide Development of Digital Terrestrial Broadcasting System.

Prior to the development of the “Fire Danger Index Map Display Tool” and the “Fire Early Warning System (FEWS)” application for the fire management pilot activities, several meetings were held with the short-term experts implementing the “Support for the Nationwide Development of Digital Terrestrial Broadcasting System” in the presence of the First Secretary of the Embassy of Japan to explore the possibility of collaboration. As a result, it was concluded that there are no stations covering terrestrial digital broadcasting around the cities along the Namibian border (Shakawe and Shaikarawe in North-West District), which are the main pilot activity sites for the project's fire management pilot activities, and that there are limitations in the functions of the STBs (Set-Top Boxes) used for terrestrial digital broadcasting system, among other issues. It was concluded that it would be difficult to work with the “Support for the Nationwide Deployment of Digital Terrestrial Broadcasting System” due to the lack of stations covering digital terrestrial broadcasting.

<Co-ordinations between the Project and Japan Overseas Cooperation Volunteers (JOCV)>

Collaboration with the Japan Overseas Cooperation Volunteers (JOCV) was not envisioned prior to the beginning of the project, but the following collaborations were made because of the synergistic effects that could be expected during the review process of the pilot activities.

1. The co-ordinations with JOCV (Design) who's period of dispatch to Botswana National Museum is during 27 January 2023 - 22 January 2025.

Under the Eco-culture activity in Chobe, Interpretive Planning was an initial step in the planning and design process for informal learning-based institutions like national parks, ecotours, visitor centers, etc. It provides strategies to ensure that the site's messages truly connect and are understood by tourists. The volunteer contributed to design interpretive signages for arts and culture groups, as well as for the DFRR and Forest Reserve in the Chobe West despite the co-ordination was not initially planned. These interpretive signages designed by the volunteer were highly appreciated by local communities in terms of attractive design sense.

2. The co-ordinations with JOCV (Forestry and afforestation) who's period of dispatch to Botswana National Tree Seed Centre is during 26 January 2024 - 21 January 2026.

The volunteer tries to lay the groundwork for 'forest tree breeding' in Botswana. This activity requires dividing the country into several zones according to environmental conditions and selecting the appropriate tree species for each zone. Under the piloting of Long-rooted Seedlings Technology in the Project, around 20 tree species have been planted in Artesia and Ghanzi, respectively, in different environmental conditions. This planting will help in the selection of promising species in both regions. Hence, the pilot activity has contributed to Volunteer's future efforts and activities. Once a promising tree species has been selected, full-scale 'breeding' is then expected to commence, including propagation of good clones, seed collection, etc. And it is expected that the use of 'Long-rooted Seedlings', which are suited to local environmental conditions, will be promoted as well.

<Co-ordinations between the Project and other Donor Funded Project.>

When choosing pilot sites of the Community Base Fire Management (CBFM), to avoid duplication of interventions, specific co-ordinations with the following other donor-funded projects were made before conducting capacity development and provision of Personal Protective Equipment (PPE) for local communities.

1. UNDP / GEF [Ngamiland Sustainable Land Management Project]

The aim of this project was to build the capacity of communities to manage land which included fire management such as ignition management, hazard reduction (including prescribed burning), community education, protection of property and preparedness. And three (3) focus areas: Haina Veld Ranches, Lake Ngami and Tsodilo Hills were chosen as pilot fields considering the level of fire risk.

2. Australian AID [International Fire Savannah Management Initiative (ISFMI)]

The ISFMI explored the feasibility of adapting Australia's ground-breaking savanna burning methodology for Asia, Africa and Latin America. In Botswana, three (3) focus areas: Tsodilo Hills in the North-West District, Lesoma Village inside Kasane Forest Extension, Chobe District and CKGR region were chosen as pilot fields.

As a result, the project conducted the CBFM capacity development training targeted 5 villages (Samochina, Nxaunxau, Xaree, Kaputura and Xauxwi) along the Namibian border.

And it is worth mentioning that the following project has expressed interest in the fire management tools developed by the fire management activities and are expected to collaborate even after the project is completed.

3. MOA & CI / GCF [Ecosystem-Based Adaptation and Mitigation in Botswana's Communal Rangelands]

This project interventions are designed to significantly increase the adaptive capacity of the people of Botswana to respond to the negative impacts of climate change in the country's communal lands through following activities.

- 1) Strengthen institutions and support systems for climate-responsive planning and management in communal range lands.
- 2) Reduce emissions and negative livelihood impacts through rangeland rehabilitation and improved livestock management.
- 3) Sustain enhanced adaptive capacity and low-emissions development through value-chain and policy transformation.

Especially they are interested in BSAT (Burnt Scar Analysis Tool), one of the three tools (apps) developed in the Forest & Range Resources Master Plan Project. They are considering effective utilization for analyzing the frequency of past burning of the grasslands (Range lands) which is their important target, as well as in studying measures to restore the land's fertility.

(3) Effectiveness

Evaluation for Effectiveness: [3]

Criteria: Judging from the achievement rate for each of the verification indicators listed in "O2-2 Project Purposes and Indicators" and the fact that these are the results brought by the project activities, the Project Purposes were generally achieved. Therefore, the evaluation for Effectiveness can be rated as [3]. Among these Outputs, the Output 1, "Draft Master Plan for Forest and Range Resources," in particular, has a very high potential to contribute to the conservation and sustainable use of Forest and Range Resources.

As reference information, the following are the "Overall Goal", "Verifiable Indicators", and "Means of Verification" for evaluating "Effectiveness" after three (3) years of project completion.

(Overall Goal)

Sustainable forest and range resources management is strengthened under the Master Plan.

(Objectively Verifiable Indicators for Overall Goal)
1. The draft Master Plan approved by MET Minister.
2. 9 Activities being carried out along with the Master Plan.

(Means of Verification for Overall Goal)
1. Report of DFRR
2. Report on each activity Envisaged activities are as below. 1) Community base Fire Management 2) Eco-tourism activity in Chobe District 3) CBNRM activity 4) Agroforestry activity in North-West District 5) Piloting of Long-rooted Seedlings Technology 6) Update of Forest Distribution Map (every 5 years) 7) Utilization of the National Forest Inventory data 8) Preparation of FR Management Plan 9) Installation of Flux tower in Chobe FR

(Achievement of the Overall Goal)
1. In terms of the “Objectively Verifiable Indicators 1”, the objective can be said to have been achieved as it was approved at the validation meeting except minor correction of terminology, which was held on 28 th November 2024, attended by TRC members including key members of the MET. But it is important to note that these TRC members were under a new administrative structure following the most recent national elections in October 2024.
2. In terms of the “Objectively Verifiable Indicators 2”, the objective can almost be said to have been achieved judging from the outputs of nine (9) pilot activities although “2) Eco-tourism activity in Chobe District” had been changed to “2) Eco-culture activity in Chobe District” due to delays in parliamentary deliberations of the new Forest Bill. (Under the current Forest Act 1968, it has not yet allowed to open-up Forest Reserves to private sector-led Eco-tourism activities.)

(4) Efficiency

Evaluation for Efficiency: [4]
Criteria: The difference between planned and actual project costs was 13 million yen

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(equivalent to US\$0.08 billion) and project activities were completed within the original planned budget. Since the project cost is within 100% of the plan, it can be rated as [4].

Project costs are as follows.

(Project Cost)

USD = 153.234 yen (Nov. 2024 rate)

Planned Project Cost:	480 million yen (equivalent to 3.13 million USD)
Actual Project Cost:	467 million yen (equivalent to 3.04 million USD)

(Project Costs)

- The Project activities have been completed within the initial planned budget. And the difference between the planned and actual total project cost was 13 million yen which is equivalent to 0.08 million USD.
- The table below shows the breakdown of project costs by activity in Botswana (excluding any Japanese Expert Expenses) just for reference.

Table - Breakdown of the Project Costs by activity in Botswana

USD = 153.234 yen (Nov. 2024 rate)

Activity	Planned Cost		Actual Cost	
	Yen (Million)	USD (Million)	Yen (Million)	USD (Million)
Master Plan Development	18.0	0.12	10.0	0.07
Fire Management (CBFM)	31.0	0.20	17.0	0.11
Eco-culture in Chobe-West	14.0	0.09	22.0	0.15
CBNRM	19.0	0.12	13.0	0.08
Agroforestry	10.0	0.07	11.0	0.07
Long Rooted Seedlings	0.0	0.00	4.0	0.03
Preparation for FR Mgt. Plan	5.0	0.03	13.0	0.08
Flux tower installation	7.0	0.05	2.0	0.01
General Cost	57.0	0.37	56.0	0.37
Total	161.0	1.05	148.0	0.97

Duration of the Project: February 2, 2021 - February 2, 2025 (4 years)

- The handover ceremony for the final deliverables took place on 17 December 2024 and the project completion report (PCR) was approved on 18 December 2024. And the project was

completed within the timeframe as originally planned.

Special Remarks :

- 1) Eco-Tourism activities originally planned to be conducted in the FR (Construction of Bird Hide and Borehole) were not approved due to the delay of the Forest Bill deliberation at the Parliament, despite our efforts to apply for a waiver to the Minister of Environment and Tourism. The Eco-Culture activities were conducted outside of the FR as an alternative activity.
- 2) The candidate sites for hardpan plantation were carefully examined in consideration of soil conditions, etc., but due to salinity and other issues, a suitable site could not be selected, and the LRS activities (Artesia, Ghanzi) were substituted.
- 3) It was initially considered CBNRM activities in Thusano Lefatsheng near Gaborone. But it was decided against it from the perspective of future sustainability of business operations, etc., and changed to Agroforestry activities in Shaikarawe and CBNRM activities.
- 4) The introduction of drones and training in drone operation was initially considered for fire management activities to contribute to cross-border fire management along Namibian border, but this was changed to the development and capacity development training of the BSAT (Burnt Scar Analysis Tool), which is a higher priority issue.

(5) Impact

Evaluation for Impact: [3]

Criteria: The expected impact of the project was generally achieved as planned. In addition, the project has achieved the expected benefits and effects and is expected to have little negative impact on society, the environment, and the economy over the long term. Therefore, the evaluation for Impact can be rated as [3].

1. Perspective from **Prediction for achieving Overall Goal**

- The Overall Goals “Sustainable Forest and Range Resources management is strengthened under the Master Plan” is expected to be fully realized as an effect of the project.
- As stated in (1) Relevance “Appropriateness of project design/approach”, the achievement of the Overall Goals is expected to have sufficient impact on the future development plan.
- One factor that may hinder the achievement of the Overall Goals is the delay in Parliamentary deliberation of the Forest Bill for the new Forest Act.

2. Perspective from **Relation between Cause and Effect**

- There is no divergence between the Overall Goals and the Project Purposes.
- An external condition for moving from the Project Purposes to the Overall Goals is the passage of a new Forest Act, which is expected to be passed in a short time.

3. Perspective from **Ripple Effect**

The effects and impacts other than the Overall Goals are described below.

- The results of the Eco-culture activities outside FR implemented in the project (such as provision of Interpretive Signboards to 5 community cooperatives in Chobe-West and capacity development of the local communities for Eco-culture) are expected to have a positive ripple effect in attracting tourism to this area and developing the local economy even after the project is completed. Currently, of the five community cooperatives, the Lwaavo community cooperative has experience in attracting tourists from other areas such as Bobonong by large tourist coaches.
- Among the fire management tools developed under the project, the “Fire Danger Index Map Display Tool,” in particular, has already been considered for utilization by BMS (Botswana Meteorological Services) and DWNP (Department of Wildlife and National Parks) outside of DFRR. It is expected to be widely used by many beneficiaries after the project is completed, including NDMO (National Disaster Management Office), MOA (Ministry of Agriculture Development and Food Security), BTV (Botswana Television), and other related donors. Similarly, the “Burnt Scar Analysis Tool” is currently being used at DFRR headquarters to prepare monthly forest fire reports, and other donors such as Conservation International have expressed interest in using it to “Analyze past fire frequency in Rangeland Resources. It is expected to be widely used by many beneficiaries as well.
- The Flux tower (Eddy Covariance) installed in the project will now move into the data acquisition phase and data utilization phase, and the university (BIUST) that manages the equipment recently hired a specialist to ensure sustainable operation. In addition, a review of the MoU between MET and BIUST, a review of the MoA between DFRR and BIUST on the use of the Flux tower is underway, and a wide range of beneficiaries, including industry, government, and academia, are expected to use the data after the project is completed although capacity building for DFRR staff to utilize the data has not been implemented at this time.
- In Agroforestry activities, about 30 DFRR staff members from all over Botswana were trained on basic knowledge and dissemination methods of agroforestry through lectures and field activities. Based on the action plans prepared by DFRR staff during the capacity development training, agroforestry activities have already started in Mulambakwena,

kgatleng, Bobojango, Mabule, Charles hill, and Tshane, and are expected to be developed in other areas. The development of agroforestry in other regions is highly appreciated in the future.

(6) Sustainability

Evaluation for Sustainability: [3]

Criteria: Based on the following “1. Evaluation from the perspective of Policy / Institution: [4]”, “2. Evaluation from the perspective of Current Structure: [3]”, “3. Evaluation from the Technical / Operational aspect: [3], [2]”, and “4. Evaluation from the Financial aspect: [3]” the overall evaluation for Sustainability can be rated as [3].

1. Perspective from **Policy / Institution**, Evaluation: [4]

- As described in (1) Relevance “Consistency with development policy”, the policy and institutional aspects are consistent with the national policy and are expected to be sustainable. One concern is that the Forest Bill has not been deliberated in Parliament and a new Forest Act has not yet been enacted at this time. However, the contents of the Forest Bill have already been confirmed by the relevant authorities and Parliamentary deliberation could be taken place soon.

2. Perspective from **Current Structure**, Evaluation: [3]

- Sustainability of project implementation after project completion needs to be improved in terms of organization and human resources. At least during the implementation of the project, the project manager and the person in charge of each activity changed frequently, which did not allow for efficient activities and capacity development. The aging of the organization, with many of its staff approaching retirement age, and the lack of participation by younger staff members are also areas requiring improvement.
- Ownership of the project has been secured for some time, but there is room for improvement in delegating ownership to younger staff.

3. Perspective from **Technical / Operational aspect**, Evaluation: [3],[2]

- The tools and systems developed for Fire Management activities, update tool for the Botswana Forest Distribution Map (BFDM) are coded in the Cloud System Development Environment (GEE) using “Python Script”. Therefore, to ensure the sustainability of tools and system maintenance, it is necessary to have a level of technology that allows outsourcing of work to specialized companies with such an environment in mind, but currently there might be a lack of such personnel (young, highly adaptable staff). So currently, prospects for improvement and resolution can be rated as “Low”.

- The ecoculture activities have been highly supported by the community tribal leaders from the beginning, and local tour operators have been very positive about the activities, suggesting that the ecoculture activities themselves are highly sustainable. However, the cultural and artistic activities of the five (5) community cooperatives, which are the main actors in the eco-culture activities, are currently mainly carried out by elderly women in the villages, and the question is whether the activities can be properly passed on to their children to ensure their sustainability. Therefore, it can be said that “Some problems exist, but the prospects for improvement and resolution can be rated as Moderate” in terms of technology transfer.
- CBNRM activities have introduced machinery to extract edible oil from the Mongongo fruit and have been able to produce edible oil for consumption within the community but have yet to commercialize the product and sell it to the public. To commercialize the product and sell it to the public, issues remain regarding food handling standards and sanitation standards, and further input and activities are needed. Therefore, currently “Prospects for improvement and resolution can be rated as Moderate”.
- Agroforestry activities have already started in several regions based on the action plans prepared by DFRR staff using the basic knowledge on agroforestry and dissemination methods acquired through the capacity development training conducted under this activity. Although there are some challenges, the “Prospects for improvement and resolution can be rated as Moderate”.
- Although the capacity of the staff of the National Tree Seed Center has been strengthened, there are issues to be addressed to establish this technology in Botswana on a sustainable basis, since afforestation and forestry are not yet established as industries in the country. Therefore, when considering the nationwide deployment of the long-rooted seedling technology, it can be said that “Some problems exist, and the prospects for improvement and resolution can be rated as Low”.
- The use of National Forest Inventory (NFI) data is premised on timely surveys and data acquisition in accordance with the NFI data plan, but there is a challenge of securing sufficient vehicles for surveys to ensure sustainability. Regarding the procurement of vehicles, it can be said that “There are some problems, but the prospects for improvement and resolution can be rated as Moderate,” especially during the dry season when forest fires are common, and vehicles are assigned to fire management activity on a priority basis.
- Capacity development for DFRR staff to utilize data obtained from the Flux Tower (Eddy Covariance) has not been implemented, and the sustainability of the technology level will need to be monitored closely. Based on the MoU between MET and BIUST, the MoA

between DFRR and BIUST, which is currently being revised, industry-government-academia exchanges need to be promoted after the project is completed to appropriately strengthen capacity. Therefore, it can be said that, at present, “There are some problems, but the prospects for improvement and resolution can be rated as Moderate”.

4. Perspective from **Financial aspect, Evaluation: [3]**

- DFRR constantly secures a budget of about 300 million USD per year for expenses such as nation’s fire break maintenance and considered to be financially sustainable if budget allocations are appropriately made for the high priority activities identified in the Forest & Range Resources Master Plan. Therefore, currently “Prospects for improvement and resolution can be rated as Moderate”.

2. Key Factors Affecting Implementation and Outcomes

Key Factors for implementing priority issues of the Master Plan

Under the current Forest Act (1968), the emphasis of Forest Reserves is on conservation, and the use of natural resources by local communities and others is prohibited. In this connection, the Project was not able to conduct the originally planned Eco-tourism pilot activities (Bird hide’s eco-tourism) within the Forest Reserves. And it was forced to change to Eco-culture activities outside Forest Reserves. As a key factor to effectively implement the priority issues of the master plan developed in the project, a new Forest Law, which is the Forest Act (2025), which balances conservation and utilization, must be enacted.

3. Evaluation on the results of the Project Risk Management

(1) Results of the Project Risk Management

N/A (Descriptions from the Monitoring Sheets 1-6)

(2) Results of the utilization of the lessons learnt

Lessons learnt for the Project
In the project pre-evaluation document, as “Lessons learnt from similar projects in the past and their application to this project,” the following lessons are listed from the Knowledge Lessons Learnt in the Field of Natural Environment Conservation (January 2015) as points to keep in mind when introducing a participatory approach for the residents. - The project may proceed with unclear linkage between livelihood improvement activities and nature conservation, or it may be difficult to continue activities after the project is completed due to insufficient personnel, budget, and capacity. - In addition, when the target area of participatory management is a protected area, the ownership/usage rights of the land are not clear, and the communities may not be able to participate in the conservation of the natural environment. - A decision-making platform that enables consultation and coordination among multiple relevant organizations is needed.
Results of the utilization of the lessons learnt
- Considering the above knowledge lessons learnt, when implementing CBFM capacity development, CBNRM capacity development, Agroforestry capacity development in Shaikarawe, and implementing Eco-culture activities in Chobe-West, the project had consultations several times with TAC (Technical Advisory Committee) which includes representatives from regional governments, the private sector, academia, and civil society with a focus on development practitioners and researchers. It led to the smooth implementation of respective capacity development and activities in local communities. - When implementing Eco-culture activities in Chobe-West, the project had consultations with CECT (Chobe Enclave Community Trust) which is the legal entity to organize community participatory activities to avoid land tenure issues.

4. Lessons Learnt

Lessons Learnt
Lessons learnt were obtained from key pilot activities of the project as below. <Fire Management Activity> - It is critical to maintain CBFM in all community managed areas, including capacity building of those communities. - To make the CBFM feasible and effective, provision of enough PPE (Personal Protective Equipment) to the target community is necessary. - And securing enough transportation is always a challenge to the target community to implement CBFM. - Development and implementation of fire management protocols which should be applied between Botswana and Namibia on Botswana's western border with no natural barriers such as rivers. <Eco-tourism Activity> - Before implementing the ecotourism development activities in village areas, it is important to visit villages to make good relationships with locals and find possible unique activities, interesting stories, and key people that can coordinate ecotour activities. - Once you have decided on the target village sites, it is important to invite local key people such as tourism group leaders from the beginning of ecotourism development. - The project will fail if you don't have clear business plans, even if you do good activities. Ensure that you invite tour companies, especially local tour agents that can sell the products sustainably to receive feedback. - Interpretive planning is an initial step in the planning and design process for informal learning-based institutions like national parks, ecotours, visitor centers, etc. It provides strategies to ensure that the site's messages truly connect and are understood by tourists. <Agroforestry Activity> - To create an atmosphere for the rapid intake of Agroforestry technologies, it is important that the AF concept, its advantages over traditional cultivation be explained prior to the commencement of piloting. Ideally focus groups that should be targeted are existing groups such as producer cooperatives, traditional leaders and community trusts. - The use of producer cooperatives and community trusts can facilitate positive competition and peer learning within and across groups and make extension services more efficient as well. - Where there are no community trusts or cooperatives, initial training on the formation of

participatory governance and robust accountability systems are needed. In addition to training in organizational management, such groups could be further incentivized to collaborate and participate fully by the provision of initial training capital using the formation of trusts or cooperatives as a precondition.

<CBNRM Activity>

- It turned out that to commercialize a product and sell it to the public, producers should be aware of all the compliance requirements food handling and health standards required by government. Hence a clear understating of the requirements in food processing; handling, packaging, policies, law requirements could have been provided by certified private consultants or by the government departments in charge of health and industry.
- One basic background work to support sustainable use is to conduct a resource assessment to estimate with allowable quantities in the wild, collection guidelines and if need be, the deliberate planting and/or assisted natural regeneration of Mongongo trees.

<Long-rooted Seedling Activity>

- In Artesia pilot site, the species such as *Kigelia africana* (sausage tree), *Sclerocarya birrea* (marula), and *Azanza garkeana* (African chewing gum) showed relatively higher survival rates.
- In Ghanzi pilot site, however, other species such as *Adansonia digitata* (Baobab), *Colophospermum mopane* (mopane), *Kigelia africana* (sausage tree), and *Senegalia galpinii* (monkey thorn) showed relatively higher survival rates.
- In Artesia pilot site, the volumetric water content of soil at depths of 10 cm and 40 cm were less than 1%, which were below the wilting point. On the other hand, the values at depths of 100 cm and 150 cm were greater than 3%, indicating that the amount of water available for plants was maintained.
- While LRS technology is an effective one for reforestation in semi-arid regions, it still requires some optimization of on the target area, including selection of tree species and root length of seedlings.
- The description of soil in the two sites above will help us understand if soil variability is also a factor in seedling survival and establishment.

Approach on how to utilize the Lessons Learnt

<Fire Management Activity>

- On a strategic level beyond the pilot, quantification of economic damage – the depiction or illustration of losses associated with ill-timed and uncontrolled fires.
- Identification of critical regions or sites within regions.

<Eco-tourism Activity>

- At a strategic level suggested by the Botswana Forest Management Plan, Botswana should

consider developing a capacity building and then apply a voluntary rating scheme for eco-cultural tourism enterprises and thereby create a register and a national tourism guide for the same.

<Agroforestry Activity>

- Studies of site suitability and more importantly, the matching of crop species and varieties to specific sites is one key to the success of any Agroforestry programme.

<CBNRM Activity>

- It is advisable to conduct a feasibility study before the commencement of the project to adequately cover the basic costs of production in terms of realistic budget.

<Long-rooted Seedling Activity>

- The study could have benefitted more from the application of a robust experimental design which would lend itself to credible statistical analysis. For instance, the study could have used completely randomised (CRD), completely randomised block (CRBD) and nested design (ND), each of which has its own protocols in the analysis of variance and the estimation of standard error which is important in drawing robust conclusions.

IV. For the Achievement of Overall Goals after the Project Completion

1. Prospects to achieve Overall Goals

(Overall Goal)

Sustainable forest and range resources management is strengthened under the Master Plan.

(Objectively Verifiable Indicators for Overall Goal)

1. The draft Master Plan approved by MET Minister.

2. 9 Activities being carried out along with the Master Plan.

- 1) Community base Fire Management
- 2) Eco-tourism activity in Chobe District
- 3) CBNRM activity
- 4) Agroforestry activity in North-West District
- 5) Piloting of Long-rooted Seedlings Technology
- 6) Update of Forest Distribution Map (every 5 years)
- 7) Utilization of the National Forest Inventory data
- 8) Preparation of FR Management Plan
- 9) Installation of Flux tower in Chobe FR

Prospects to achieve Overall Goals

• As for the “Objectively Verifiable Indicators 1.”, the prospects to achieve are comparatively high if the risk factors described below can be properly avoided. Note that especially, “2) Eco-tourism activity in Chobe District” depends on the enactment of the new Forest Law.

• As for the Flux tower (Eddy Covariance) installed in the project (“Objectively Verifiable Indicators 2. 9)” will now move into the data acquisition and data utilization phase, the achievement of this activity depends on avoidance of the following risk factors as well.

Risk factors to achieve Overall Goals

- Delays of enactment of new Forest Law, namely the Forest Act (2025), which balances forest conservation and natural resources utilization in its forest.
- Delays in concluding revision of the MoU on Flux tower (Eddy Covariance) utilization between MET and BIUST can be risk factors for acquisition of real time data and utilization of data.

2. Plan of Operation and Implementation Structure of the DFRR side to achieve Overall Goal

The Overall Goal of the Project is “Sustainable Forest & Range Resources management is strengthened under the Master Plan”. To achieve this objective, the following Plan of Operations could be considered.

- 1) Follow up on the passage of the new Forest Law, which is a prerequisite for the implementation of the Master Plan, i.e., follow up on the Forest Bill deliberations in Parliament.
- 2) Determine the organization that will implement the prioritized activities in the Master Plan.
- 3) To confirm whether the prioritized activities properly comply with the EIAs of the DEP and to conduct endorsement procedures.
- 4) Conduct a feasibility study of the prioritized activities and secure relevant budget toward the full-scale implementation.
- 5) Conduct full-scale prioritized activities and collect lessons & learnt.
- 6) Prepare for manuals which contain proper procedure with reflecting the above lessons & learnt towards the update of the current Master Plan.
- 7) Update the current Master Plan for the next Master Plan.

3. Recommendations for the DFRR

Recommendation 1:

Monitoring Forest bill, new Forest Act, Master Plan’s government approval

Under the current Forest Act (1968), the emphasis of FRs is on conservation, and the use of natural resources by local communities and others is prohibited. To effectively implement the priority issues of the master plan developed in the project, a new Forest Law, which is the Forest Act (2025), which balances conservation and utilization, must be enacted. Therefore, it is necessary to follow up on the Forest Bill deliberations in Parliament, follow up on the passage of the new Forest Act, and in parallel, follow-up of lobbying for government approval of the Master Plan under the New Administration should be conducted concurrently.

It is recommended that the necessary items for the government approval process be manualized through this approval process, and that the DFRR be prepared for a smooth handover for the next revision of the Master Plan. For example, during the Validation WS discussion, it was clarified that, when implementing priority activities under the Master Plan, it is necessary to confirm whether those are comply with the EIAs (Environmental Impact Assessments) of the DEP (Department of Environment Protection) and to conduct endorsement procedures in parallel. It is also recommended that this process be monitored in conjunction

with the new Forest Act passage, and that the necessary items for the government approval process described above be included in the manual to ensure that no omissions occur during the next master plan revision process.

Recommendation 2:

Monitoring revision of MoU between MET and BIUST on Flux tower

For the Flux tower (Eddy Covariance) that has been installed, DFRR needs to continue to work with BIUST, the owner of the equipment, to accelerate the revision of the MoU between MET and BIUST, and to accelerate the procurement of the malfunctioning Data Logger. In addition, efforts should be made to accelerate the use of real-time data obtained from the Flux tower (Eddy Covariance), including the establishment of a TWS (Technical Workshop) composed of beneficiaries from various fields, to encourage industry, government, and academia to use the data. At the same time, it is recommended that DFRR and BIUST take the lead in developing a public database of acquired data and establish a system to make the information available through a portal website.

4. Monitoring Plan from the end of the Project to Ex-post Evaluation

The Overall Goal of the Project is “Sustainable Forest & Range Resources management is strengthened under the Master Plan”. And the risk factor is “Delays of enactment of new Forest Law, namely the Forest Act (2025), which balances forest conservation and natural resources utilization in its forest”. Therefore, it is necessary to follow up on the Forest Bill deliberations in Parliament, follow up on the passage of the new Forest Act and in parallel, follow-up of lobbying for government approval of the Master Plan under the New Administration should be conducted concurrently as already mentioned “3. Recommendations for the DFRR” above.

Normally the sequence of the follow-up of the above issues is starting from 1) DFRR Director and next 2) MET PS/DPS and finally 3) MET Minister. Therefore, as a Monitoring Plan from the end of the Project, JICA needs to sustainably confirm the status on how the Forest Bill is deliberated in Parliament to the DFRR Director. And JICA needs to push government approval of the Master Plan under the New Administration through DFRR Director as well.

ANNEX 1: Results of the Project

(List of Dispatched Experts, List of Counterparts, List of Trainings, Revised PO)

ANNEX 2: List of Products (Report, Manuals, Handbooks, etc.) Produced by the Project

ANNEX 3: PDM (All versions of PDM)

Separate Volume: Copy of Products Produced by the Project

ANNEX

ANNEX 1 (1_1 ~ 1_4)

ANNEX 2 (2_1)

ANNEX 3 (3_1 ~ 3_6)

ANNEX 1

ANNEX 1.1 List of Dispatched Experts

ANNEX 1.2 List of Counterparts

ANNEX 1.3 List of Training & Meeting

ANNEX 1.4 Revised PO

ANNEX 1.1 List of Dispatched Experts

ANNEX1.1 List of Dispatched Experts

Name	Speciality of Experts	Organization	M/M in Botswana
Consultant			
Mr. Kei SUZUKI	Team Leader / Forest and Range Resource Management	JAFTA	6.50
Mr. Koji ASANO	Biodiversity Conservation	Nippon Koei	3.10
Mr. Takashi NANAUMI	Forest Fire Management	JAFTA	9.10
Mr. Masanori SHINTANI	Ecotourism	Nippon Koei	3.90
Mr. Van Thanh Nguyen	Remote Sensing / GIS	JAFTA	4.00
Mr. Shinichi AIKAWA	Community Development 1	JAFTA	1.63
Mr. Miho HANAMURA	Community Development 2	JAFTA	10.07
Mr. Misaki MATSUO	Community Development 3	JAFTA	1.97
		Total:	40.27

ANNEX 1.2 List of Counterparts

ANNEX1.2 List of Counterparts (Master Plan Drafting Team)

Officer,s name	Division	Position
L. Basalumi	Research and Monitoring	Principal Forest and Range Resources Officer II
K. Magobadi	Research and Monitoring	Senior Forest and Range Resources Officer
N. Mufwanzala	Conservation and Management	Principal Forest and Range Resources Officer II
M. Sekgopo	Research and Monitoring	Principal Forest and Range Resources Officer I
W. Mokgopa	Conservation and Management	Senior Forest and Range Resources Officer
E. Kagiso	Research and Monitoring	Forest and Range Resources Officer I
K. Seaneng	Extension Services	Forest and Range Resources Officer II
O. Modise	Technical Support Services	Forest and Range Resources Officer I
O. Manene	Conservation and Management	Forest and Range Resources Officer I
P. Sello	Conservation and Management	Forest and Range Resources Officer II
A. Hijamakutu	Central District	Principal Forest and Range Resources Officer II
K. Mazebedi	Research and Monitoring	Chief Forest and Range Resources Officer
S.W. Mokgwathi	Conservation and Management	Chief Forest and Range Resources Officer
K. Gaebuse	Extension Services	Chief Forest and Range Resources Officer
G.J. Mafoko	Technical Support Services	Chief Forest and Range Resources Officer

ANNEX 1.3 List of Training & Meeting

ANNEX1.3 List of Training& Meeting

No.	Year	Month	Place	Name of Training	Days	Category	No. of Attendees
1	2021	3	Virtual (On line)	Revision of the Forest Distribution Map Training (FDM) -1	2 days	FDM	10
2	2021	7	Gaborone / DFRR HQs	Revision of the Forest Distribution Map Training (FDM) -2	2 days	FDM	10
3	2021	9	Gaborone / DFRR HQs	Development of Fire Danger Index Training (FDI) -1	3 days	FDI	7
4	2021	12	Shakawe / North-West.D	Firewise training for community Training (CBFM) -1	5 days	CBFM	57
5	2022	5	Gaborone / DFRR HQs	Revision of the Forest Distribution Map Training (FDM) -3	3 days	FDM	12
6	2022	5	Gaborone / DFRR HQs	Development of Fire Danger Index Training (FDI) -2	3 days	FDI	5
7	2022	6	Shakawe / North-West.D	Firewise training for community Training (CBFM) -2	4 days	CBFM	53
8	2022	7	Gaborone / Tree Seed Center	Long-rooted Seedlings Training (LRS) -1	1 day	LRS	18
9	2022	10	Gaborone / Tree Seed Center	Long-rooted Seedlings Training (LRS) -2	5 days	LRS	14
10	2022	11	Shaikarawe / North-West.D	Mongongo Oil Processing Workshop (CBNRM) -1	1 day	CBNRM	33
11	2022	11	Kazungla / Chobe.D	Kazuma Forest Reserve Management Plan Workshop (ML)	1 day	ML	23
12	2022	12	Gaborone / DFRR HQs	Draft Forest & Range Resources Master Plan Workshop (MP)	3 days	MP	16
13	2022	12	Shaikarawe / North-West.D	Bizz Management & Food Security Workshop (CBNRM) -2	2 days	CBNRM	22
14	2023	2	Artesia / Kgatleng.D	Long-rooted Seedlings Training (LRS) -3	1 day	LRS	5
15	2023	2	Ghanzi / Ghanzi.D	Long-rooted Seedlings Training (LRS) -4	2 days	LRS	9
16	2023	4	Gaborone / DFRR HQs	GHG Inventory Training (GHG)	1 day	GHG	10
17	2023	7	Shaikarawe / North-West.D	Agroforestry Training (AF) -1	5 days	AF	56
18	2023	8	Gaborone / Cresta Lodge	Fire Early Warning System (FEWS) Training (FFM) -1	2 days	FFM	33
19	2023	9	Kasane / Chobe.D	Eco-cultural tourism Training (CBET) -1	1 day	CBET	16
20	2023	9	Satau / Chobe-West	Eco-cultural tourism Training (CBET) -2	1 day	CBET	41
21	2023	9	Mabele / Chobe-West	Eco-cultural tourism Training (CBET) -3	1 day	CBET	30
22	2023	10	Gaborone / Cresta Lodge	Fire Early Warning System (FEWS) Training (FFM) -2	2 days	FFM	37
23	2023	11	Shaikarawe / North-West.D	Agroforestry Training (AF) -2	1 day	AF	16
24	2024	5	Mabele / Chobe-West	Eco-cultural tourism Training (CBET) -4	3 days	CBET	171

No.	Year	Month	Place	Name of Meeting	Days	Category	No. of Attendees
1	2021	2	Virtual (On line)	Project Kick-off Meeting	1 day	Virtual	8
2	2021	7	Gaborone / Cresta Lodge	1st Joint Coordinating Committee (JCC) -1	1 day	JCC	9
3	2022	4	Gaborone / Cresta Lodge	2nd Joint Coordinating Committee (JCC) -2	1 day	JCC	19
4	2023	4	Gaborone / Cresta Lodge	3rd Joint Coordinating Committee (JCC) -3	1 day	JCC	29
5	2023	4	Gaborone / DFRR HQs	Technical Review Committee (TRC) -1	1 day	TRC	19
6	2023	8	Gaborone / DFRR HQs	Technical Review Committee (TRC) -2	1 day	TRC	21
7	2023	8	Francistown /North-East.D	Local Stakeholder Consultative Meeting (MP) -1	1 day	MP	27
8	2023	8	Jwaneng /Southern.D	Local Stakeholder Consultative Meeting (MP) -2	1 day	MP	30
9	2023	12	Gaborone / DFRR HQs	Technical Review Committee (TRC) -3	1 day	TRC	28
10	2024	4	Gaborone / DFRR HQs	Technical Review Committee (TRC) -4	1 day	TRC	25
11	2024	4	Gaborone / Cresta Lodge	4th Joint Coordinating Committee (JCC) -4	1 day	JCC	17
12	2024	11	Gaborone / Travelodge hotel	Validation Workshop/Meeting (MP) -3	1 day	MP	37
13	2024	12	Gaborone / MET	Handover Ceremony	1 day	JCC	35
14	2024	12	Gaborone / DFRR HQs	Follow-up on PCR (Recommendations, Impact, Sustainability)	1 day	MP	11

Category of Training		Total	704
AF: Agroforestry	←	AF	72
CBET: Community Base Eco-tourism	←	CBET	258
CBFM: Community Base Fire Management	←	CBFM	110
CBNRM: Community Base Natural Resource Management	←	CBNRM	55
FDI: Fire Danger Index	←	FDI	12
FDM: Forest Distribution Map	←	FDM	32
FFM: Forest Fire Management	←	FFM	70
GHG: Green House Gas	←	GHG	10
LRS: Long-rooted Seedlings	←	LRS	46
ML: Kazuma Forest Reserve Management Plan	←	ML	23
MP: Forest & Range Resources Master Plan	←	MP	16

Category of Meeting
MP: Master Plan (Local Consultative Meeting, Validation WS)
JCC: Joint Coordinating Committee
TRC: Technical Review Committee
Virtual: On-line Meeting (Kick-off)

←
←
←
←

Total	315
MP	105
JCC	109
TRC	93
Virtual	8

ANNEX 1.4 Revised PO

Project Monitoring Sheet II (Plan of Operation)

Version 7
Dated December 17, 2024

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Monitoring

Inputs										Year	1st Year				2nd Year				3rd Year				4th Year				Remarks	Issue	Solution
											I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			
Expert																													
Chief advisor/forest and range resources management										Plan																			
										Actual																			
Biodiversity conservation										Plan																			
										Actual																			
Remote sensing & GIS										Plan																			
										Actual																			
Ecotourism										Plan																			
										Actual																			
Forest Fire Management										Plan																			
										Actual																			
Coordinator / Community Development										Plan																			
										Actual																			
Equipment																													
Vehicle										Plan																			
										Actual																			
Smart phone										Plan																			
										Actual																			
Training in Japan																													
Training on Sustainable use and conservation of water resources										Plan																			
										Actual																			
In-country/Third country Training																													
Rangeland Management										Plan																			
										Actual																			
Long-rooted Seedlings Technology / KEFRI Training										Plan																			
										Actual																			

Activities							Year	1st Year				2nd Year				3rd Year				4th Year				Responsible Organization		Achievements	Issue & Countermeasures		
								I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	GoJ	GoB				
Output 1: Draft of the National Forest Master plan is developed.																													
1-1.	Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs.						Plan																		JICA	DFRR			
							Actual																						
1-2.	Prepare the outline of the Master Plan (including its valid term-length).						Plan																		JICA	DFRR			
							Actual																						
1-3.	Assess national land use policy, legal framework, and institutional arrangement.						Plan																		JICA	DFRR			
							Actual																						
1-4.	Identify data and information necessary for developing the Master Plan according to each thematic area.						Plan																		JICA	DFRR			
							Actual																						
1-5.	Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.)						Plan																		JICA	DFRR			
							Actual																						
1-6.	Conduct survey to collect additional, necessary information and data.						Plan																		JICA	DFRR			
							Actual																						
1-7.	Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities)						Plan																		JICA	DFRR			
							Actual																						
1-8.	Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem.						Plan																		JICA	DFRR			
							Actual																						
1-9.	Draft the Master Plan, and revise it through validation meetings.						Plan																		JICA	DFRR			
							Actual																						
1-10.	Finalize the draft for approval in the MET process.						Plan																		JICA	DFRR			
							Actual																						
Output 2: Possible activities of the draft Master Plan are verified with implementation.																													
2-1.	Identify a few possible activities of the draft Master Plan (e.g. forest-fire risk management, eco-tourism)						Plan																			JICA	DFRR	Community Based Ecotourism (CBET) activities were re-designed to arts and culture activities in Chobe West targeting 5 community cooperatives.	
							Actual																						
2-2.	Identify and analyze concerned communities/stakeholders.						Plan																		JICA	DFRR			
							Actual																						
2-3.	Plan, implement, monitor, and adjust as necessary, the activities/projects.						Plan																		JICA	DFRR			
							Actual																						
2-4.	Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings)						Plan																		JICA	DFRR			
							Actual																						
2-5.	Ensure the sustainability of activities/projects in line with the draft Master Plan.						Plan																		JICA	DFRR			
							Actual																						

ANNEX 2

ANNEX 2.1 List of Products

ANNEX2.1 List of Products

PRODUCTS	CONTENTS	PGS.
森林・草原資源マスタープラン Forest & Range Resources Master Plan	成果 1 の中核を成す成果品 Core deliverables for Output 1	10
森林・草原資源マスタープラン策定ガイドライン Forest & Range Resources Master Plan Guideline	上記の検討プロセスについて、作業ステップごとに解説し、次期計画の策定が可能となるようなガイドライン Guidelines for the above study process, explaining each of the working steps and enabling the development of the next plan.	5
KAZMA森林保護区管理計画書 KAZMA Forest Reserve Management Plan	KAZMA森林保護区について森林保護区管理計画書を策定したもの Forest Reserve Management Plan developed for the KAZMA Forest Reserve.	5
利害関係者コミュニケーションプラン Stakeholder communication plan	FPIC の概念をベースに、必要なステークホルダーの特定・ジェンダーバランスを考慮した参加者の想定、協議に必要な時間、議題などを示したプラン。 A plan based on the FPIC concept, with assumptions of participants, time required for consultations, agenda, etc., considering the identification of necessary stakeholders and gender balance.	5
BFDM更新マニュアル BFDM update manual	マスタープラン策定に必要な科学的データを収集する目的を掲げ、衛星データを用いた森林分布図改訂マニュアル Manual for revision of Forest Distribution Map using satellite data, with the objective of collecting scientific data necessary for master planning.	5
ボツワナ火災情報システム (BWIS) マニュアル Botswana Fire Information System (BWIS) Manual	火災早期警報システム (FEWS) 操作マニュアル、火災痕解析ツール (BSAT) 操作マニュアル、BWISシステム管理者向けガイドブック Fire Early Warning System (FEWS) Operating Manual, Burnt Scar Analysis Tool (BSAT) Operating Manual, BWIS System Administrator's Guidebook.	5
参加型森林火災管理 (CBFM) のための地域住民向けガイド A guide for local communities for participatory forest fire management (CBFM)	パイロット活動で提案した住民参加型による防火帯管理や伝統知見を用いた事前火入れなどに関する地域の火災戦略書やマニュアル Local fire strategy documents and manuals on fire break management with community participation and prescribed burning using traditional knowledge, as proposed in the pilot activities.	5
エコツーリズム導入ガイダンス Guidance on introducing Ecotourism	パイロット活動で提案した住民参加型によるエコツーリズム導入に関する導入ガイダンス Introductory guidance on the introduction of ecotourism through community participation as proposed in the pilot activities.	5
シェイカラウエにおける Agroforestry 導入ガイド Guide to Agroforestry implementation in Shaikarawe.	Agroforestry の導入ガイドラインとシェイカラウエにおける実施計画書 Agroforestry implementation guidelines and implementation plan in Shaikarawe.	5
実施計画文書及び実施マニュアル (NTPF 利活用) (NTPF utilization)	シェイカラウエにおける NTPF 利活用実施計画書と NTPF 利活用マニュアル	5

Implementation planning documents and implementation manuals (NTP use)	NTP utilization implementation plan and NTP utilization manual in Shaikarawe.	
実施マニュアル薪炭林造成（長根苗植林） Implementation manual woodland creation (long-rooted seedling plantations)	半乾燥地帯における植林技術マニュアル Technical manual for afforestation in semi-arid areas.	5

ANNEX 3

ANNEX 3.1 PDM (Final)

ANNEX 3.2 PDM (Ver.2)

ANNEX 3.3 PDM (Ver.3)

ANNEX 3.4 PDM (Ver.4)

ANNEX 3.5 PDM (Ver.5)

ANNEX 3.6 PDM (Ver.6)

ANNEX 3.1 PDM (Final)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment and Tourism (MET)

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – January 31, 2025 (4 years)

Project Site: Entire Botswana

Version 6

Dated 13 December, 2023

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal Sustainable forest and range resources management is strengthened under the Master Plan.	1. The draft Master Plan approved by MET Minister. 2. 9 Activities being carried out along with the Master Plan.	• Report of DFRR. • Report on each activity Envisaged activities are as below. 1) Community base Fire Management 2) Eco-tourism activity in Chobe District 3) CBNRM activity 4) Agroforestry activity in North-West District 5) Piloting of Long-rooted Seedlings Technology 6) Update of Forest Distribution Map (Every 5 year) 7) Utilization of the National Forest Inventory data 8) Preparation of FR Management Plan 9) Installation of Flux tower in Chobe FR	
Project Purpose Capacity of DFRR to develop the National Forest & Range Resources Master Plan is enhanced.	1. Draft Master Plan approved by MET Technical Review Committee. 2. Number of researches and surveys conducted by DFRR staff increased by 20%. 3. At least 30% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project • Number of researches and surveys • Number of trainings conducted • Number of courses / programmes	
Outputs 1. Draft of the National Forest & Range Resources Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 9 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. Direct beneficiary: At least 5% of target community trained on Fire Management, Ecotourism activities. At least 10% of target community trained on CBNRM and Agroforestry activities. Indirect beneficiary: At least 60% for target community benefitting from CBNRM, Agroforestry and Ecotourism activities.	• Draft of the Master Plan • Local stakeholder meeting in Francistown (For the Northern Districts of Botswana) • Local stakeholder meeting in Jwaneng (For the Southern Districts of Botswana) • Validation meeting in Gaborone • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals • Number of Participants attended the training in target community conducted by the Project • Level of community livelihoods	Significant change/transfer of DFRR staff does not occur.
Activities		Inputs	Important Assumption

BM

	The Japanese Side	The Botswana Side	
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator) and revise it through validation meetings. 1-10. Finalize the draft for approval in the MET process. 2-1. Identify a few possible activities of the draft Master Plan (e.g., forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	DFRR coordinates with concerned department/ministries for necessary data collection. Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated
			Pre-Conditions
			Significant changes of land use are not planned.

BM

ANNEX 3.2 PDM (Ver.2)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Version 2

Version 0

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment, Natural Resources Conservation, and Tourism (MENT)

Dated August, 2022

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – December XX, 2024 (4 years)

Project Site: Entire Botswana

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal			
Sustainable forest and range resource management is strengthened under the Master Plan.	1. The draft Master Plan approved by MENT Minister. 2. XX Activities being carried out along with the Master Plan.	• Report of DFRR. • Interview survey with DFRR staff	
Project Purpose			
Capacity of DFRR to develop the National Forest Master Plan is enhanced.	1. Draft Master Plan approved by MENT Technical Committee. 2. Number of researches and surveys conducted by DFRR staff increased by XX%. 3 At least XX% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project	
Outputs			
1. Draft of the National Forest Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 2 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. At least XX% of surveyed community members of the activities acknowledge positive effects of these forest and range resource management practices.	• Progress report of the Project • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals	Significant change/transfer of DFRR staff does not occur.
Activities	Inputs		Important Assumption
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator), and revise it through validation meetings 1-10. Finalize the draft for approval in the MENT process. 2-1. Identify a few possible activities of the draft Master Plan (e.g. forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	The Japanese Side	The Botswana Side	DFRR coordinates with concerned department/ministries for necessary data collection. Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated
	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	
			Pre-Conditions
			Significant changes of land use are not planned.

ANNEX 3.3 PDM (Ver.3)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Version 3

Version 0

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment, Natural Resources Conservation, and Tourism (MENT)

Dated August, 2022

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – December XX, 2024 (4 years)

Project Site: Entire Botswana

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal			
Sustainable forest and range resource management is strengthened under the Master Plan.	1. The draft Master Plan approved by MENT Minister. 2. XX Activities being carried out along with the Master Plan.	• Report of DFRR. • Interview survey with DFRR staff	
Project Purpose			
Capacity of DFRR to develop the National Forest Master Plan is enhanced.	1. Draft Master Plan approved by MENT Technical Committee. 2. Number of researches and surveys conducted by DFRR staff increased by XX%. 3 At least XX% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project	
Outputs			
1. Draft of the National Forest Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 2 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. At least XX% of surveyed community members of the activities acknowledge positive effects of these forest and range resource management practices.	• Progress report of the Project • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals	Significant change/transfer of DFRR staff does not occur.
Activities	Inputs		Important Assumption
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator), and revise it through validation meetings 1-10. Finalize the draft for approval in the MENT process. 2-1. Identify a few possible activities of the draft Master Plan (e.g. forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	The Japanese Side	The Botswana Side	DFRR coordinates with concerned department/ministries for necessary data collection.
	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated
			Pre-Conditions
			Significant changes of land use are not planned.

ANNEX 3.4 PDM (Ver.4)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Version 4

Version 0

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment, Natural Resources Conservation, and Tourism (MENT)

Dated March, 2023

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – December XX, 2024 (4 years)

Project Site: Entire Botswana

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal			
Sustainable forest and range resource management is strengthened under the Master Plan.	1. The draft Master Plan approved by MENT Minister. 2. XX Activities being carried out along with the Master Plan.	• Report of DFRR. • Interview survey with DFRR staff	
Project Purpose			
Capacity of DFRR to develop the National Forest Master Plan is enhanced.	1. Draft Master Plan approved by MENT Technical Committee. 2. Number of researches and surveys conducted by DFRR staff increased by XX%. 3 At least XX% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project	
Outputs			
1. Draft of the National Forest Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 2 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. At least XX% of surveyed community members of the activities acknowledge positive effects of these forest and range resource management practices.	• Progress report of the Project • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals	Significant change/transfer of DFRR staff does not occur.
Activities	Inputs		Important Assumption
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator), and revise it through validation meetings 1-10. Finalize the draft for approval in the MENT process. 2-1. Identify a few possible activities of the draft Master Plan (e.g. forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	The Japanese Side	The Botswana Side	DFRR coordinates with concerned department/ministries for necessary data collection.
	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated
			Pre-Conditions
			Significant changes of land use are not planned.

ANNEX 3.5 PDM (Ver.5)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Version 5

Version 0

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment and Tourism (MET)

Dated September, 2023

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – January 31, 2025 (4 years)

Project Site: Entire Botswana

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal			
Sustainable forest and range resource management is strengthened under the Master Plan.	1. The draft Master Plan approved by MET Minister. 2. XX Activities being carried out along with the Master Plan.	• Report of DFRR. • Interview survey with DFRR staff	
Project Purpose			
Capacity of DFRR to develop the National Forest Master Plan is enhanced.	1. Draft Master Plan approved by MET Technical Committee. 2. Number of researches and surveys conducted by DFRR staff increased by XX%. 3 At least XX% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project	
Outputs			
1. Draft of the National Forest Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 2 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. At least XX% of surveyed community members of the activities acknowledge positive effects of these forest and range resource management practices.	• Progress report of the Project • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals	Significant change/transfer of DFRR staff does not occur.
Activities	Inputs		Important Assumption
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator), and revise it through validation meetings 1-10. Finalize the draft for approval in the MET process. 2-1. Identify a few possible activities of the draft Master Plan (e.g. forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	The Japanese Side	The Botswana Side	DFRR coordinates with concerned department/ministries for necessary data collection.
	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated
			Pre-Conditions
			Significant changes of land use are not planned.

ANNEX 3.6 PDM (Ver.6)

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Project for Capacity Development for the Conservation and Sustainable Use of Forest and Range Resources through the Process of Master Plan Development

Version 6

Implementing Agency: Department of Forestry and Range Resources (DFRR) of Ministry of Environment and Tourism (MET)

Dated 13 December, 2023

Target Group: Staff of DFRR and relevant departments

Period of Project: January 28, 2021 – January 31, 2025 (4 years)

Project Site: Entire Botswana

Model Site: Northern Part of Botswana

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal Sustainable forest and range resources management is strengthened under the Master Plan.	1. The draft Master Plan approved by MET Minister. 2. 9 Activities being carried out along with the Master Plan.	• Report of DFRR. • Report on each activity Envisaged activities are as below. 1) Community base Fire Management 2) Eco-tourism activity in Chobe District 3) CBNRM activity 4) Agroforestry activity in North-West District 5) Piloting of Long-rooted Seedlings Technology 6) Update of Forest Distribution Map (Every 5 year) 7) Utilization of the National Forest Inventory data 8) Preparation of FR Management Plan 9) Installation of Flux tower in Chobe FR	
Project Purpose Capacity of DFRR to develop the National Forest & Range Resources Master Plan is enhanced.	1. Draft Master Plan approved by MET Technical Review Committee. 2. Number of researches and surveys conducted by DFRR staff increased by 20% . 3 At least 30% of DFRR staff engaged in the Project recognize enhanced skills/capacities at evaluation by the Project.	• Draft of the Master Plan • Progress report of the Project • Number of researches and surveys • Number of trainings conducted • Number of courses / programmes	
Outputs 1. Draft of the National Forest & Range Resources Master plan is developed. 2. Possible activities of the draft Master Plan are verified with implementation.	1-1. The draft approved by DFRR Management. 1-2. At least 3 national, local or regional validation meetings conducted. 2-1. Findings of at least 9 possible activities on effective forest and range resource management are utilized for drafting the Master Plan while they are being carried out. 2-2. Manuals for concerned communities/stakeholders are prepared on the activities for their continued implementation. 2-3. At least 5% of target community trained on Fire Management, Ecotourism activities. At least 10% of target community trained on CBNRM and Agroforestry activities. At least 60% for target community benefitting from CBNRM, Agroforestry and Ecotourism activities.	• Draft of the Master Plan • Local stakeholder meeting in Francistown (For the Northern Districts of Botswana) • Local stakeholder meeting in Jwaneng (For the Southern Districts of Botswana) • Validation meeting in Gaborone • Draft of the Master Plan • Progress report of the Project • Survey by the Project • Manuals • Number of Participants attended the training in target community conducted by the Project • Level of community livelihoods	Significant change/transfer of DFRR staff does not occur.

Activities	Inputs		Important Assumption
1-1. Establish a structure (e.g., inter-ministerial technical review committee) to ensure the quality of project tangible outputs. 1-2. Prepare the outline of the Master Plan (including its valid term-length). 1-3. Assess national land use policy, legal framework, and institutional arrangement. 1-4. Identify data and information necessary for developing the Master Plan according to each thematic area. 1-5. Collect and review existing information and data (consistency with land use legislation, current status and changes of vegetative cover, biodiversity & ecosystem, impact of climate change, tourism, socioeconomic contribution of forest & range resources, etc.) 1-6. Conduct survey to collect additional, necessary information and data. 1-7. Prepare a communication plan, and hold stakeholder consultative meetings to identify issues including their needs (with central and local government, private sector, NGOs, CBOs, local communities) 1-8. Analyze the collected information and data, then identify prioritized approaches to address issues in each ecosystem. 1-9. Draft the Master Plan (including indicator and direction to achieve the indicator) and revise it through validation meetings. 1-10. Finalize the draft for approval in the MET process. 2-1. Identify a few possible activities of the draft Master Plan (e.g., forest-fire risk management, eco-tourism) 2-2. Identify and analyze concerned communities/stakeholders. 2-3. Plan, implement, monitor, and adjust as necessary, the activities. 2-4. Incorporate the findings of possible activities implementation in the process of drafting the Master Plan (e.g., consolidating the direction based on the findings) 2-5. Ensure the sustainability of activities in line with the draft Master Plan.	The Japanese Side	The Botswana Side	
	1. Dispatch of experts (Japanese/Local/Third country) (Chief advisor/forest management, Coordinator/community development, remote sensing & GIS, ecotourism, wildlife management) 2. Provision of the equipment (vehicle, PCs for the project office, tablets for site survey, and others upon discussion) 3. Training for Counterpart Personnel upon necessity (in Japan/third country) 4. Local cost (expenses for possible activities, etc.)	1. Allocation of Counterpart Personnel (Project Director, Project Coordinator, Project Manager, forest-conservation, forest inventory officer, Forest remote sensing officer, technical staff in the field) 2. Office space with furniture and utility cost for Japanese experts (DFRR), 3. Coordination with other stakeholders 4. Local cost (GoB's travel expenses, seminar/meetings related budget)	DFRR coordinates with concerned department/ministries for necessary data collection. Alignment among Forest Act, Forest Policy the draft Master Plan maintains. Appropriate number of DFRR staff are allocated Pre-Conditions Significant changes of land use are not planned.