

CI-GEF PROJECT AGENCY

GEF Project Document

**The deployment of EarthRanger, a data visualization
and analysis software to strengthen Protected Area
Management Effectiveness in
Africa's National Parks**

Regional

(Botswana, Mozambique, and The Republic of Congo)

MARCH 2022

PROJECT INFORMATION			
PROJECT TITLE:	The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks.		
PROJECT OBJECTIVE:	To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies		
PROJECT OUTCOMES:	<p>1.1 Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.</p> <p>2.1 Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.</p> <p>3.1 An integrated Monitoring and Evaluation (M&E) framework for the project.</p>		
COUNTRY(IES):	Botswana, Mozambique, and The Republic of Congo.	GEF ID:	10551
GEF AGENCY(IES):	Conservation International	CI CONTRACT ID:	
OTHER EXECUTING PARTNERS:	<p><u>Executing Agency</u> The Allen Institute for Artificial Intelligence (AI2) and Conservation International (Africa Field Division)</p> <p><u>Executing Partners</u></p> <ul style="list-style-type: none"> – The Botswana Department of Wildlife and National Parks: The Ministry of Environment, Natural Resources Conservation and Tourism – The Mozambique National Sustainable Development Fund (FNDS): The Ministry of Land and Environment. – The Republic of Congo, Ministry of Tourism and Environment – African Parks – Noé – Peace Parks Foundation (PPF) – Wildlife Conservation Society (WCS) 	DURATION IN MONTHS:	44
GEF FOCAL AREA(s):	Biodiversity	START DATE (mm/yyyy):	July, 2022
PRODOC SUBMISSION DATE:	2 nd December 2021	END DATE (mm/yyyy):	April, 2026
RE-SUBMISSION DATE(s):	01/30/2022 03/03/2022	ESTIMATED DATE FOR MID-TERM EVALUATION (mm/yyyy):	March, 2024
NAME OF PARENT PROGRAM:	n/a	ESTIMATED DATE FOR TERMINAL EVALUATION (MM/YYY):	March, 2026

Programming Directions	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Confirmed Co-financing
BD 2-7	Address direct drivers to protect habitats and species and improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate	GEFTF	2,407,360	4,801,400
Total project costs			2,407,360	4,801,400

B. PROJECT DESCRIPTION SUMMARY

Project Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver global environmental benefits through the deployment of the EarthRanger protected area management system and related technologies.

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF project financing	Confirmed Co-financing
Component 1: Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness	Technical Assistance	<p>Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas</p> <p><i>Outcome Indicator 1.1:</i> Hectares of protected areas with improved Management Effectiveness Tracking Tool (METT)¹ score</p> <p><i>Target 1.1:</i> At least 4,901,650 hectares of protected areas with improved METT scores</p>	<p>Output 1.1.1: Earth Ranger software incorporated in the existing PA management structure in the target countries</p> <p>Output 1.1.2: A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each PA in the target countries</p> <p>Output 1.1.3: Required built infrastructure and</p>	GEFTF	1,895,499	1,920,560

¹ Management Effectiveness Tracking Tool (METT) for GEF-7 protected area projects in the biodiversity focal area can be accessed by clicking the following link: <https://www.thegef.org/documents/gef-7-biodiversity-protected-area-tracking-tool>

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF project financing	Confirmed Co-financing
		<p><i>Outcome Indicator 1.2:</i> Number of protected areas in the participating countries utilizing EarthRanger technology to manage the PAs</p> <p><i>Target 1.2:</i> All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs</p>	<p>internet network capabilities installed in the selected protected areas in the target countries</p> <p>Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.</p> <p>Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries.</p> <p>Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters)</p>			
<p>Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa</p>	Technical Assistance	<p>Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.</p> <p><i>Outcome Indicator 2.1:</i> Number of additional PAs identified, and number of African countries committed to install the EarthRanger software and other</p>	<p>Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA</p> <p>Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up</p>	GEFTF	283,389	2,163,635

Project Components/ Programs	Component Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF project financing	Confirmed Co-financing
		technologies (<i>GEF8 LoEs, Co-financing pledges</i>) <i>Target 2.1: At least 6 new PAs identified, and 3 African countries committed to install Earth Ranger Technology in GEF8</i>	Output 2.1.3: Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (<i>where the EarthRanger software has informed decisions in the management of protected areas</i>).			
Component 3: Monitoring and Evaluation	Technical Assistance	Outcome 3.1: An integrated monitoring and evaluation framework for the project <u><i>Outcome Indicator 3.1:</i></u> Number of M&E reports submitted to the CIGEF Agency for review and approval, and the Number of Evaluations conducted by CIGEF. <i>Target 3.1: Periodic technical and financial reports submitted to CIGEF for review and approval: At least 3 Annual Workplans and Budget, 12 Quarterly Reports, 3 Annual Progress Implementation Reports (PIRs)</i> <i>Target 3.2: At least 2 Evaluations conducted by CIGEF: 1 Mid-Term Evaluation and 1 Terminal Evaluation</i>	Output 3.1.1: Periodic M&E reports submitted to the CIGEF Agency Output 3.1.2: Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF	GEFTF	114,236	480,140
Subtotal				GEFTF	2,293,124	4,564,335
Project Management Cost (PMC)				GEFTF	114,236	237,065
Total project costs					2,407,360	4,801,400

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Co-financing letters are attached in Appendix IX

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount (\$)
GEF Agency	Conservation International	In-kind	Recurrent expenditure	25,000
Private Sector	The Allen Institute for Artificial Intelligence (AI2) ²	Grant	Investment Mobilized	2,000,000
		In-kind	Recurrent expenditure	746,000
Recipient Country Government (Botswana)	The Botswana Ministry of Environment, Wildlife, and Tourism (Department of Wildlife and National Parks)	In-Kind	Recurrent expenditure	250,000
	The Botswana Ministry of Environment, Wildlife, and Tourism (Department of Wildlife and National Parks)	Grant	Investment Mobilized	100,000
Civil Society Organization (CSO)	Peace Parks Foundation (PPF) in Mozambique	In-kind	Recurrent expenditure	870,000
Civil Society Organization (CSO)	Noé in the Republic of Congo	In-kind	Recurrent expenditure	194,400
Civil Society Organization (CSO)	Wildlife Conservation Society (WCS) in the Republic of Congo	Grant	Investment Mobilized	130,000
Civil Society Organization (CSO)	African Parks in the Republic of Congo	In-kind	Recurrent expenditure	486,000
Total Co-financing				4,801,400

Describe how any “Investment Mobilized” was identified

Investment mobilized was identified as new and available funding with a specific scope of work and a timeframe, which will contribute to the overall goal of this project. The key partners identified in the design of the project have a history of developing conservation technology, building the capacity of state and non-state partners to adopt and utilize conservation technology, investing heavily in the deployment of conservation technologies (including Earth Ranger Technology) in various African countries and utilizing the conservation technologies to manage the protected areas. These key partner attributes are in line with this project’s objectives.

The investment mobilized co-financing are leveraged resources based on engagement with partners and collaborators. This includes co-financing from The Allen Institute for Artificial Intelligence (AI2), The

²Change in Executing Agency (EA) from Vulcan Inc. to The Allen Institute for Artificial Intelligence (AI2). The EarthRanger Technology was developed by Vulcan Inc. in partnership with several conservation and technology partners. AI2 is not within Vulcan, but a separate organisation. AI2 is one of Paul Allen’s stable organisations, but is separate from Vulcan, and is a different entity type. As of September 2021, EarthRanger Unit was moved to AI2 from Vulcan. AI2 has signed the co-financing letter and will uphold the commitments made by Vulcan Inc. to the GEF at PIF stage and CEO Endorsement

Botswana Ministry of Environment, Wildlife and Tourism (Department of Wildlife and National Parks) and The Wildlife Conservation Society (WCS).

The investment mobilized co-financing is in form of grants. All the investments have been confirmed and co-finance letters obtained.

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA, AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
Conservation International	GEFTF	Regional	Biodiversity	Biodiversity Regional Set-Aside	1,344,202	120,978	1,465,180
Conservation International	GEFTF	Botswana	Biodiversity	Biodiversity STAR Allocation	616,442	55,427	671,869
Conservation International	GEFTF	The Republic of Congo (RoC)	Biodiversity	Biodiversity STAR Allocation	446,716	40,204	486,920
Total GEF Resources					2,407,360	216,609	2,623,969

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes No If no, skip item E.1.

E.2. PPG AMOUNT REQUESTED BY THE AGENCY(IES), TRUST FUND, COUNTRY(IES), AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee (b)	Total c = a + b
Conservation International	GEFTF	Regional	Biodiversity	Biodiversity Regional Set-Aside	31,945	2,875	34,820
Conservation International	GEFTF	Botswana	Biodiversity	Biodiversity STAR Allocation	25,760	2,318	28,078
Conservation International	GEFTF	The Republic of Congo (RoC)	Biodiversity	Biodiversity STAR Allocation	12,000	1,080	13,080
Total PPG Amount					69,705	6,273	75,978

DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? Yes No

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ACRONYMS & ABBREVIATIONS

AIZ		Allen Institute for Artificial Intelligence
ANAC	-	Administração Nacional das Areas de Conservação
BAU	-	Business-as-Usual
CBD	-	Convention on Biological Diversity
CEPF	-	Critical Ecosystem Partnership Fund
CI	-	Conservation International
CI AffD	-	Conservation International, Africa Field Division
CIGEF		Conservation International, GEF Agency
CSO	-	Civil Society Organization
DWNP	-	Department of Wildlife and National Parks (Botswana)
ESIA	-	Environmental and Social Impact Assessment
ESMF	-	Environmental and Social Management Framework
FAO	-	Food and Agriculture Organization of the United Nations
FIP	-	Forest Investment Program
GEBS	-	Global Environmental Benefits
GEF	-	Global Environment Facility
KBA	-	Key Biodiversity Area
M&E	-	Monitoring and Evaluation
NBSAP	-	National Biodiversity Strategy and Action Plan
NGO	-	Non-Governmental Organization
PES	-	Payment for Ecosystem Services
PPG	-	Project Preparation Grant
PSC	-	Project Steering Committee
REDD+	-	Reducing Emissions from Deforestation and Forest Degradation
RPSC	-	Regional Project Steering Committee
PAMETT	-	Protected Area Management Effectiveness Tracking Tool
STAR	-	System for Transparent Allocation of Resources
TFCA	-	Trans-frontier Conservation Areas
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
USAID	-	United States Agency for International Development
USD	-	United States Dollars
WB	-	World Bank
WCS	-	Wildlife Conservation Society
WWF	-	World Wildlife Fund /Worldwide Fund for Nature

GLOSSARY OF TERMS

Biodiversity	This is the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part and includes diversity within species, between species, and ecosystems.
Biodiversity hotspot	It is one of the world's most biologically rich and threatened region. A biodiversity hotspot has at least 1,500 vascular plant species confined to them and has lost more than 70% of its original primary vegetation.
Components	Are sub-section of a project that group issues into smaller and manageable parts in terms of size, duration, and responsibility (e.g., systems, sub-systems, tasks, sub-tasks, and work packages), which include all steps to achieve the objective. Project management is not included as a specific project component, project strategy, and expected results. Project management arrangements are described in the project document's section on project execution.
Critical ecosystem	Refers to the remaining natural ecosystems within hotspots.
Eco-region	It refers to a large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The boundaries of an eco-region are not fixed and sharp, but rather encompass an area within which important ecological and evolutionary processes most strongly interact.
Ecosystem approach	Is a strategy for integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way.
Gender mainstreaming	Refers to the process of assessing the implications for men, women, youth, and any specific interest group of any planned action. It is a strategy for making women's and men's or any interest group's concerns and experiences an integral dimension of the design, implementation, monitoring, and evaluation of policies and programmes in all political, economic, and social spheres so that specific groups such as men and women benefit equally, and inequality is not perpetuated. The goal is to achieve gender equality ³ .
Indicators	Measurable entities related to a specific information need, such as status of a target, change in pressure or progress towards achieving an objective, outcome, and/or output. By identifying indicators, the project can develop a rigorous monitoring plan, evaluate the program's responses and progress towards success, and enable adaptive management. Indicators should be measurable, precise, consistent, and sensitive.
Key biodiversity area	Is a site that contributes significantly to the global persistence of biodiversity identified using standard criteria.
Outcomes	Are the intended or achieved short- and medium-term effects of an intervention's outputs, usually requiring collective efforts of partners. Outcomes represent changes in development conditions that occur between the completion of outputs and the achievement of impact. Outcomes respond to the question "What are the short- and medium-term impacts or results of the project?" There can be several outcomes for each component.
Outputs	Products and services which result from completion of activities within a development intervention. Outputs respond to the questions "What does the project do? Who does the project reach/benefit?" There can be several outputs for each outcome. Outputs need to be quantified whenever possible (hectares, tons of CO ₂ , percentage of coverage, number of staff trained, and number of participants among others).

³ Refworld 2020. UN Economic and Social Council Resolution 1997/2: Agreed Conclusions. Accessed from website <https://www.refworld.org/docid/4652c9fc2.html> on 27 October 2020 at 2157 hours.

CI-GEF PROJECT AGENCY

The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks

PROJECT DOCUMENT

CHANGES FROM THE PIF

The key changes from the PIF are summarized below and detailed Tables showing specific sections in the PIF that were modified are provided in Appendix XIV.

1. Change in Executing Agency (EA) from Vulcan Inc. to The Allen Institute for Artificial Intelligence (AI2). The EarthRanger Technology was developed by Vulcan Inc. in partnership with several conservation and technology partners. As of September 2021, EarthRanger became part of AI2. This move combines world-class research, engineering, product resources, and talent to create a greater positive impact, as envisioned by the late Paul G. Allen. AI2 will uphold the commitment made by Vulcan Inc. to the GEF at CEO Endorsement. The change in EA will only affect the holding entity, but all personnel and other resources committed at CEO Endorsement remain intact.
2. The project design has been updated as follows:
 - a. One new component has been added in order to have clear outputs, outcomes, and budget lines for Monitoring Evaluation. The Component is:
 - Component 3: Monitoring and Evaluation
 - b. Changes in outputs and outcomes: Some outputs, outcomes, indicators, and targets have been added, rephrased, edited, or deleted. Refer to the detailed table in Appendix XIV
 - c. A Theory of Change has been added. Refer to section 2 (part H).
3. The Target project sites/protected areas have been identified. This project will be executed in six (6) protected areas, namely:
 - Botswana: Chobe National Park
 - Mozambique: Limpopo National Park and Zinave National Park
 - Republic of Congo: Nouabalé-Ndoki National Park; Odzala-Kokoua National Park; Conkouati-Douli National Park
4. The target total number of Hectares (Ha) of terrestrial protected areas that will be under improved management for conservation and sustainable use has increased from 2.1 Million Ha to 4.9 Million Ha. Refer to the core indicator table.
5. The target number of direct beneficiaries has been established: 162 direct beneficiaries (Men: 85% women: 15%). This number was estimated based on existing rangers at the parks. Generally, there

are few women rangers in the parks however, the project will put measures to involve more women. The measures are described in the Gender Mainstreaming Plan (GMP).

6. Four new in-country project co-executing partners have been identified and they have also committed co-financing. These partners are; The Peace Parks Foundation (Mozambique), the Wildlife Conservation Society (WCS) (Republic of Congo), African Parks (Republic of Congo), and Noé (Republic of Congo).
7. The co-financing amount has increased by 47%. Specifically, the amount has increased from US\$ 2.5 Million to US\$ 4.8 Million. Refer to Table 21.
8. Conservation International (Africa Field Division) is an executing partner

SECTION 1: PROJECT SUMMARY

Project background and justification

1. Biodiversity-rich areas are severely threatened by combinations of proximate and underlying factors. Some of the most fundamental factors include resource use pressure leading to illegal activities such as poaching, illegal wildlife trade, and a persistent drive for economic expansion and growth that adversely impact biodiversity and ecosystem services. As natural habitats are degraded, disappear, or become fragmented, biodiversity is reduced and the resilience of remaining habitats, species, and ecosystems declines.
2. The long-term goal for the management of each protected area is to ensure the sustainability of the ecosystems, biological resources, and ecological services. This requires readily available information for planning, decision making, and the establishment of effective collaboration between government agencies, civil society organizations, and private sector actors. Management tools such as the EarthRanger technology are vital for supporting the conservation of diverse species and ecosystems by mitigating threats that affect their integrity and functioning, as well as preventing the emergence of new threats through timely interventions. To progress towards the achievement of the long-term goal of ecosystems sustainability, partnerships are vital for the implementation of a wide range of actions that require adequate technical, administrative, financial, and negotiation capacity.
3. The project will contribute to the removal of key barriers to the achievement of sustainable management of biodiversity resources and associated target conditions in selected biodiversity hotspots in Botswana, Mozambique, and the Republic of Congo, with the potential to replicate the methodologies and approaches in other countries.

Project Objective, Components, and Outcomes

4. This project will be implemented in six terrestrial protected areas spread across Botswana, Mozambique, and the Republic of Congo which will result in improved management of at least 4.9 Million Hectares. The target sites are The Chobe National Park in Botswana; The Limpopo National

Park and Zinave National Park in Mozambique; The Nouabalé-Ndoki National Park, Odzala-Kokoua National Park, and Conkouati-Douli National Park in the Republic of Congo.

5. Project Objective: The objective of the project is to strengthen the management effectiveness of priority Protected Areas (PAs) in Africa to deliver global environmental benefits through the deployment of the EarthRanger protected area management system and related technologies.
6. Expected outcomes and outputs of the project components are described below:

Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness.

Component 1 will support technical and institutional capacity-building, focusing on site-specific infrastructure installations and training of protected area management staff on the use of the EarthRanger software. In consultation with the respective governments of the project participating countries, regional institutions, and experts, needs assessments were carried out for each PA during the PPG Phase to determine site-specific infrastructure and human resource requirements. However, follow-up detailed site assessments will be undertaken in the project inception period during implementation phase to ascertain if the infrastructure and other requirements identified at PPG phase are up-to-date and also to respond to emerging gaps and needs. The Component has one outcome described below:

7. Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas. This outcome will be delivered through six outputs namely:
 - **Output 1.1.1:** EarthRanger software incorporated in the existing protected area management structure in the project countries.
 - **Output 1.1.2:** A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through deployment of EarthRanger technology in each protected area in the target countries.
 - **Output 1.1.3:** Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.
 - **Output 1.1.4:** Digital radio or other appropriate communications network, (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.
 - **Output 1.1.5:** EarthRanger software installed and functional in the selected PAs in the target countries
 - **Output 1.1.6:** Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).

Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa

8. Component 2 seeks to increase awareness about the benefits of using conservation technologies specifically the Earth Ranger technology in protected area management and promote uptake in other PAs in African countries. It is anticipated that the interest of other African countries will be stimulated through the dissemination of success stories and best practices related to the EarthRanger technology, and demand for installation and application of this and other conservation technologies to manage their protected areas. The main activities under this component include sharing of the project's lessons, success stories, and best practices through visits (EarthRanger User Conference) and dissemination of information through appropriate modes of communication.

Success stories, lessons learnt, and best practices from this project will be disseminated through the Earth Ranger Website (<https://earthranger.com/About-Us.aspx>). The project will also share lessons with ongoing project such as the GEF-World Bank Global Wildlife Program (GWP) and any other available media outlets and social media platforms. This component targets to achieve one outcome stated below.

9. Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install EarthRanger technology. This outcome will be achieved through three outputs namely:
 - **Output 2.1.1:** Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA
 - **Output 2.1.2:** Information sharing events undertaken to enhance learning and promote scaling up
 - **Output 2.1.3:** Success stories, lessons learnt and best practices published and shared on blogs, websites and other digital platforms (*where the Earth Ranger software informed decisions in the management of protected areas*).

Component 3: Monitoring and Evaluation

10. Component 3 will focus on monitoring project activities as well as making suggestions for any improvements that ensure the success of the project. The component will ensure the monitoring and evaluation activities during the implementation of this project is on track. The component has one outcome namely:
11. Outcome 3.1: An integrated monitoring and evaluation framework for the project. This outcome will be achieved through two outputs namely:
 - **Output 3.1.1:** Periodic M&E reports submitted to CIGEF Agency.
 - **Output 3.1.2:** Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

Project Safeguard Policies

12. In compliance with CI-GEF project safeguards policies and recommendations, a limited Environmental and Social Impact Assessment (ESIA) was conducted, and an Environmental and Social Management Plan (ESMP) was developed. Additionally, a Stakeholder Engagement Plan, Gender Mainstreaming Plan, and Accountability and Grievance Mechanism have been developed.

Implementation and Execution Arrangements

13. Conservation International (CIGEF) is the GEF Implementing Agency. The overall role of the CI-GEF Implementing Agency includes the provision of technical and financial oversight and supervision of the project, assuring compliance of the project with GEF policies and procedures as well as monitoring and evaluation of project implementation activities.
14. The Executing Agency is The Allen Institute for Artificial Intelligence (AI2) supported by Conservation International Africa Field Division (CI AfFD) as the co-executing partner who together will be responsible for the overall day-to-day project management. Other key executing partners are The Botswana Ministry of Environment, Wildlife, and Tourism through the Department of Wildlife and National Parks; The Mozambique Ministry of Land and Environment through The Mozambique National Sustainable Development Fund (FNDS); The Republic of Congo, Ministry of Tourism and

Environment; Peace Parks Foundation (Mozambique), Wildlife Conservation Society (WCS) (Republic of Congo), African Parks (Republic of Congo), and Noé (Republic of Congo).

SECTION 2: PROJECT CONTEXT

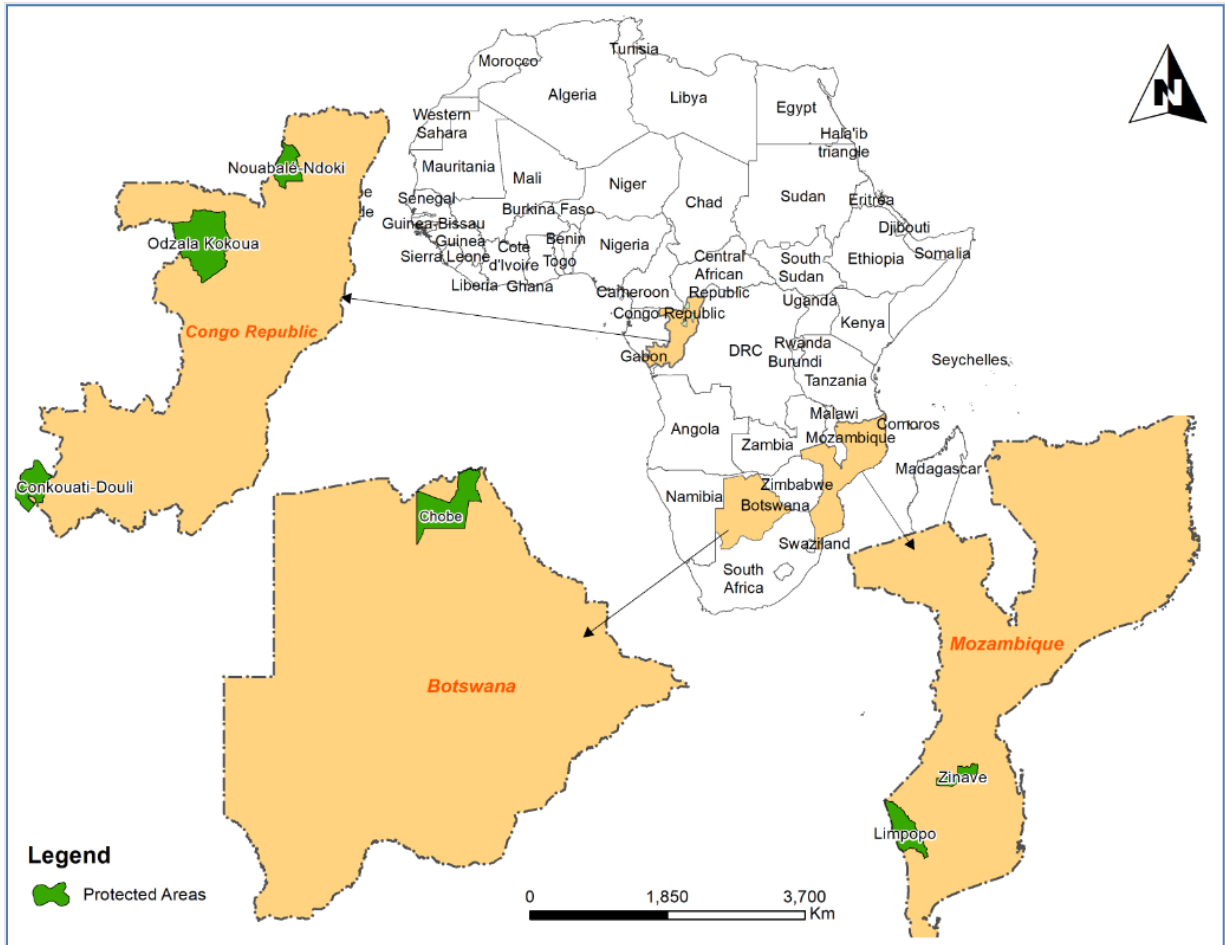
A. Geographic Scope

15. This regional project focuses on six protected areas consisting of Chobe National Park in Botswana; Limpopo and Zinave National Parks in Mozambique; and Nouabalé-Ndoki, Odzala-Kokoua, and Conkouati-Douli National Parks in The Republic of Congo (**Figure 1**). An overview of the project countries and the target protected areas is provided below:
16. **Botswana** (latitudes 17 and 27°S, and longitudes 20 and 29°E) covers an area of 582,000 km². It is bordered by Namibia, South Africa, Zimbabwe, and Zambia. The country is dominated by the Kalahari Desert, which covers up to 70% of its land surface. The Okavango Delta, one of the world's largest inland deltas, is in the northwest. The Makgadikgadi Pan, a large salt pan, lies to the north. The climate is mostly subtropical. Climate extremes are a major impediment to resilience in Botswana where livelihoods and economies are highly sensitive to weather fluctuations. While the country has an incredible diversity of ecosystems, natural resources, economic activities, and cultures, it is also characterized by rapid population growth and encroachment into ecologically marginal areas, and rising poverty.⁴
17. **Mozambique** (latitudes 10° and 27°S, and longitudes 30° and 41°E) is bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Eswatini (Swaziland) and South Africa to the southwest. Mozambique covers 801,537 km². Because of its geographical location, Mozambique is vulnerable to climate change effects and regularly experiences extreme weather events including droughts that occur every three to four years, floods, and tropical cyclones. Many regional river basins converge in Mozambique making flooding coupled with tropical cyclones a perennial threat. The long coastline of about 2700 km, with more than 60% of the population of 22 million living in coastal areas, exposes a large number of people to sea-level rise and climate extremes risks. Warmer temperatures and droughts increase forests' vulnerability to forest fires, which affect 40% of the country every year, with up to 74% of the landscape in the northwest and central region burnt annually and adversely affecting the welfare of local communities.
18. **The Republic of Congo** (latitudes 4°N and 5°S, and longitudes 11° and 19°E) straddles the equator on the western coast of Central Africa, along the Gulf of Guinea. It covers an area of 342,000 km². It is bordered by Gabon to the west, Cameroon to the northwest, the Central African Republic to the northeast, the Democratic Republic of Congo (DRC) to the southeast, Angola to the south, and the Atlantic Ocean to the southwest. The country's tropical climate is characterized by heavy precipitation with an average annual rainfall of more than 1,200 mm, temperatures varying between seasons from 15 °C to > 20° C, and humidity of about 80%.

⁴ Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) and Earth System Governance Project 2017. Climate-Smart Agriculture in Botswana. Policy Brief No 10. Retrieved from website <https://www.istor.org/stable/pdf/resrep16457.pdf>.

19. Figure 1 shows the location of Botswana, Mozambique, and the Republic of Congo and the project's protected areas

Figure 1: Map of Africa showing locations of Botswana, Mozambique, and Republic of Congo and the selected protected areas



20. The selected target protected areas that were agreed upon are further described below and are important for biodiversity conservation and their management will be strengthened by the deployment of EarthRanger technology.

Botswana

21. **Chobe National Park** (18° 40' 00" S, 24° 30' 00" E)⁵ - was gazetted in 1968 (GN No.4 of 1968)⁶ and is located on the banks of a perennial watercourse, the Chobe River, which is also a transboundary resource between Botswana, Namibia, Zambia, and Zimbabwe. From Botswana, the Chobe River converts into the Zambezi River to feed into Victoria Falls. It encompasses floodplains, swamps, and woodland in the Northern part of Botswana within the Chobe District. It is the second-largest National Park (NP) in the country and has more than 75 mammal and 450 bird species. The Department of Wildlife and National Parks (DWNP) in the Ministry of Environment, Natural Resource Conservation and Tourism is responsible for the management of the Park, in collaboration with the local Community-Based Organizations (CBOs)(Community Trust CBOs) formed at villages adjacent to the NP, under community-based natural resource management (CBNRM) arrangement. Each CBOs is governed by a Board of Trustees (BoTs), which are the legal entities to transact business on behalf of the CBOs. The DWNP leases part of the park to the CBOs, who then enter a partnership with safari tour companies (e.g., Wilderness Safari) for tourism development. The main challenges and threats to biodiversity are poaching and human-wildlife conflicts. The Park is widely known for its large elephant population, estimated to be around 50,000, and other wildlife (e.g., hippos, buffalos, zebras, giraffes, tsessebe, puku, lions, leopards, cheetahs, and wild dogs). It is however noted that elephant numbers vary due to seasonal migrations⁷. Local communities living in the five villages in the Chobe enclave and around the park are involved in crop cultivation and livestock rearing. Land-use constraints along with the poor performance of agriculture exacerbated by the human-wildlife conflicts that include livestock predation and crop damage by wildlife such as elephants⁸ have reduced economic activities. Villagers cannot expand communal grazing lands without encroaching on the protected areas.

Mozambique

22. **Zinave National Park** (21°40'43.76"S; 33°32'20.64"E)⁹ was established in 1972 and is an integral part of the Mozambican component of the Great Limpopo Transfrontier Conservation Area that includes Kruger National Park in South Africa. The Park is generally flat and comprises mainly a savannah type of vegetation, with flooded pans in the northeast, a riverine forest, miombo woodlands, and open woodlands. Wildlife includes spotted hyena, wildebeest, sable antelope, hartebeest, reedbuck, cheetah, giraffe, zebra, elephant, buffalo, black rhino, eland, roan antelope, and ostrich. The NP is currently under joint management by ANAC and Peace Parks Foundation (PPF), a Government-Private sector partnership arrangement through a Memorandum of Understanding (MoU). The main challenges and threats to biodiversity include illegal logging/deforestation; poaching and human-

⁵ https://geographic.org/geographic_names/name.php?uni=-2005206&fid=&c=botswana website accessed on 15th November 2021 at 0930 hours.

⁶ Chobe National Park accessed on website <https://www.botswanatourism.co.bw/explore/chobe-national-park> on 19th March 2021 at 0725 hours.

⁷ Chase, M., Schlossberg, S., Sutcliffe, R. & Seonyatseng, E. (2019) Dry Season Aerial Survey of Elephants and Wildlife in Northern Botswana: July–October 2018. Elephants Without Borders & Department of Wildlife & National Parks of Botswana, Kasane, Botswana.

⁸ <https://www.cambridge.org/core/journals/oryx/article/panic-at-the-disco-solarpowered-strobe-light-barriers-reduce-field-incursion-by-african-elephants-loxodonta-africana-in-chobe-district-botswana/2341B3ED382CE91DE519C609F2AC6965>; published online 03July2020.

⁹ <https://www.distanceto.com/coordinates/mz/r425-latitude-longitude/history/1588540.html> website accessed on 15th November 2021 at 1300hrs.

wildlife conflicts. The Park was neglected for a long time until 2010¹⁰ when formal management was strengthened. Most of the large mammals were decimated by illegal hunting. Species that are locally extinct or close to extinct include black rhinoceros, Cape buffalo, cheetah, reedbuck, eland, elephant, giraffe, Lichtenstein's hartebeest, roan antelope, sable antelope, spotted hyena, wildebeest, and Selous' zebra¹¹.

23. **Limpopo National Park** (22° 25' 59.9952" S, 1° 22' 0.0012" E)¹² is one of Africa's most remarkable wilderness areas. It consists of vast mountainous to flat landscapes, with limited hills along the western border along with the Lebombo Mountain range. It is covered by a mixed forest, with dense Mopani bush and Sandveld; and the Shingwedzi River flows from W -SE through the lower third of Park. It was officially declared a national park in 2001 by the Mozambique government after the country's protracted civil war that decimated nearly 90% of the wildlife population. The Park was the battlefield during the civil war with wildlife providing food and finance for the armies. Twenty-seven thousand people lived in the park and its buffer zones resulting in rampant poaching and landscape degradation. When hostilities ceased in the 1990s, the park came under better management when a deal was struck with South African authorities to pull down the fence separating Limpopo National Park from Kruger National Park in South Africa¹³. Animals were translocated from Kruger into Limpopo and other wildlife slowly started moving into the neighboring land. An agreement between the governments of Mozambique, South Africa, and Zimbabwe to form a cross-border wilderness area including Kruger National Park, Limpopo National Park, and three conservation areas in Zimbabwe (covering a total area of 35 000 km²) has ensured the ecological integrity, future protection, and survival of Limpopo National Park¹⁴. The NP is currently under joint management by ANAC and Peace Parks Foundation (PPF), a Government-Private sector partnership arrangement through a Memorandum of Understanding (MoU). The main threats to biodiversity include poaching (mainly on foot using snares and gin traps), and human-wildlife conflict.

The Republic of Congo

24. **Nouabalé-Ndoki National Park** (2°35'8.48"N; 16°37'44.87"E)¹⁵ was established in 1993 and is part of the contiguous lowland rainforest in the northern Republic of Congo. The forest is part of the larger Sangha Tri-National Forest Landscape and a stronghold for populations of large mammals including forest elephants, western lowland gorillas, and chimpanzees. There is a range of different land uses across the larger Ndoki landscape that extends outside the national park. These include biodiversity conservation. The Park also contains forest clearings that offer a window into the lives of shy forest

¹⁰https://www.researchgate.net/publication/47296568_Plant_communities_and_landscapes_of_the_Parque_Nacional_de_Zinave_Mozambique/citation/download

¹¹ Marc Stalmans, M and Peel, M. 2011. [Plant communities and landscapes of the Parque Nacional de Zinave, Mozambique](https://doi.org/10.4102/koedoe.v52i1.703). *Koedoe* 52 (1). doi:10.4102/koedoe.v52i1.703.

¹² <https://www.latlong.net/place/great-limpopo-transfrontier-park-mozambique-30901.html> website accessed on 15th November 2021 at 1200hrs.

¹³ Peace Parks Foundation 2020. Displacement in Limpopo National Park, Mozambique. Environmental Justice Atlas.

¹⁴ AFD 2019. Rehabilitating Limpopo National Park. Accessed on 29.01.2021 from website <https://www.afd.fr/en/actualites/rehabilitating-limpopo-national-park>

¹⁵ <https://www.distanceto.com/coordinates/cg/nouabale-ndoki-national-park-latitude-longitude/history/38272.html> website accessed on 15th November 2021 at 1100hours.

wildlife, creating fantastic opportunities for tourism development and conservation science¹⁶. The management of the NP is the responsibility of the Wildlife and Protected Areas Agency, Ministry of Tourism and Environment, in partnership with Wildlife Conservation Society - Congo, (WCS). The main challenges and threats to biodiversity include poaching of endangered species, industrial logging, and Artisanal and industrial mining. Logging operations often inadvertently facilitate illegal activities such as the commercial exploitation of ivory and bushmeat and constructing a road network that opens up previously inaccessible areas to poachers. The large logging settlements that are constructed to house the logging company employees increase the demand for bushmeat and other wildlife products. In 1999, WCS, the Government of Congo, the timber company CIB (Congolaise Industrielle du Bois), and the local community agreed to collaborate and created the Projet Gestion des Ecosystèmes Périphériques au Parc National Nouabalé-Ndoki (Project for the Management of Ecosystems Adjacent to the Nouabalé-Ndoki National Park), or PROGEPP to protect endangered species such as elephants and great apes, as well as managing the sustainable hunting of other species such as duikers and wild pigs, which are important as food for the local population. Project staff also advise the logging company on reducing the negative impacts of logging on wildlife through the creation of hunting zones, the provision of alternative sources of protein such as beef and chicken, and the development of community conservation education programs. PROGEPP is a successful example of integrating conservation into logging concessions to the mutual benefit of both wildlife and the local community.

25. **Odzala-Kokoua** (Longitude 15° 49' 39.5724" latitude - 0° 13.6813')¹⁷ - is one of Africa's oldest national parks, designated in 1935 and received the Biosphere Reserve status in 1977. It covers an area of 1,354,600 ha. The National Park is one of the most biologically diverse and species-rich areas on the planet. In 2010, African Parks entered into a 25-year-long agreement with the Republic of the Congo's Ministry of Forest Economy, Sustainable Development and Environment to protect this globally significant park. Around 12,000 people live in the periphery of the park and survive off the natural resources the area provides. Because of limited opportunities in the region, bush meat poaching remains a major threat, where 14,500 snares and more than 50 tonnes of bush meat were seized in 2019. This is a major concern for the park's wildlife. The management of this protected area focuses on a multi-pronged strategy to protect the park from poaching, including an enhanced eco-guard team and other law enforcement techniques, such as the application of satellite collars to monitor forest elephants and the engagement of communities around the park. In particular, community projects have been implemented to address human-wildlife conflict, sustainable livelihoods opportunities with farming projects, and community capacity-building activities.
26. **Conkouati-Douli National Park** (03° 54' 17.99" S; 11° 28' 12.00" E)¹⁸ – is one of the largest biodiversity reserves in Congo, with very dense flora, typical of equatorial vegetation. Its lush forests provide a living environment for more than 8,000 chimpanzees and 2,000 western lowland gorillas. The Conkouati-Douli National Park is also home to more than 1,000 forest elephants. These pachyderms coexist with many species of migratory birds that come to squat in the numerous wetlands of the park. The main challenges and threats to the park include logging, mining, oil exploitation, and commercial fishing by Chinese trawlers. The problem of poaching is also common

¹⁶ Eric Arnhem 2020. Wild places: Nouabalé-Ndoki National Park. WCS Congo Programme, Brazzaville, Republic of Congo.

¹⁷ <https://www.findlatitudeandlongitude.com/l/Odzala-Kokoua+National+Park+congo/5718559/> Website accessed on 15th November 2021 at 1600hrs.

¹⁸ <https://geoy.com/37/conkouati-douli-national-park-2637550/> Website accessed on 15th November 2021 at 1140 hours.

in Conkouati-Douli, where roads bordering and crossing the reserve facilitate the movement of poachers. The inhabitants of the villages adjacent to the park regularly complain about crop-raiding by elephants, and hence causing human-wildlife conflicts. The Ministry of Forest Economy responsible for the management of the protected areas has entered a partnership with Noé, an NGO, for the management of the park.

B. Environmental Context and Global Significance

27. Protected areas provide conservation opportunities for some of the most biologically diverse yet threatened ecological systems in the world. Most protected areas are distinguished by harboring rare species of vascular plants and containing original primary vegetation. Protected areas exhibit the remaining natural habitats as samples of biodiversity-rich sites that cover only 2.3% of the planet's surface, although they support some 90% of the Earth's biodiversity, with 50% of the world's plant species and 42% of all terrestrial vertebrates being found nowhere else¹⁹. Each of the project countries has unique biological resources in the protected areas and specific contexts elaborated below.

Botswana

28. **Climate trends and impacts:** the environmental changes in Botswana are linked to climatic trends. For instance, the temperature range is 6°C to 42°C²⁰ with an average of 34°C²¹. The temperature is projected to increase in consonance with the global increase of 1.5°C to 2.0°C. The environmental implications of temperature increase include drying of dams and sporadic flooding. Droughts and rainfall variability are predicted to increase with climate change²² resulting in less domestic water with the runoff in Limpopo catchment declining by 26-36%. Environmental changes will affect agriculture as well as natural resources management negatively, for example, crop yields will decline by 20% while livestock losses will increase by 30%. Rain-fed agricultural practices will be untenable, agricultural production and productivity will decrease resulting in reduced food and nutrition security. Extreme events associated with climate change are likely to lead to increased environmental health risks, for instance, increased incidences of malaria and bilharzia²³, as well as wildlife migrations.

29. **Vegetation and biodiversity:** There are approximately 2800 plant species in Botswana of which 13 are endemic, 10 potentially endemic, 7 near-endemic, and 43 threatened plant species. The country's ecosystems support 157 species of mammals, 570 bird species, 82 fish species, and 131 reptile species many of which are globally threatened. Botswana has one of the largest remaining populations of the African wild dog (*Lycaon pictus*) and the African elephant (*Loxodonta*

¹⁹ Mittermeier, R. A., Robles Gil, P., Hoffmann, M., Pilgrim, J. D., Brooks, T. M., Mittermeier, C. G. and Fonseca, G. A. B. da. 2004. Hotspots Revisited: Earth's biologically Richest and Most Endangered Ecoregions. Mexico City: CEMEX.

²⁰ Nkemelang, T., New, M. and Zaroug, M. 2018. Temperature and precipitation extremes under current, 1.5 °C and 2.0 °C global warming above pre-industrial levels over Botswana, and implications for climate change vulnerability. Published 14 June 2018 • © 2018 The Author(s). Environmental Research Letters, Volume 13, Number 6. IOP Publishing Ltd.

²¹ Ham, A. 2019. Weather and climate –Botswana. <https://www.safaribookings.com/botswana/climate>. Website accessed on 28th October, 2019 at 1712 hours.

²² Botswana, NDC. 2015.

²³ Botswana, NDC. 2015.

africana). There are declining populations of eland, gemsbok, giraffe, hartebeest, lechwe, sable spring, and wildebeest.

30. **Ecosystems and biodiversity of global significance:** About 16,937,000 ha (29.14%) of the country's land area is protected. Cumulatively, Botswana has 22 protected areas classified under national and international designations, the former consisting of National Parks (4,478,800 ha); Forest reserves (414,331 ha); Game reserves (6,096,400 ha); Bird sanctuary (97,510 ha); Game Sanctuary (8,500 ha). Among the National Parks of importance include Gemsbok, Chobe, Nxai Pan, and Makgadikgadi Pans. The forest reserves of importance are Sibuyu, Chobe, Maikaelelo, Kasane, Kasane Extension, and Kazuma; Game reserves are Moremi, Khutse, Central Kalahari, Northern Tuli, Mannyelanong, and Nnywane Dam). The bird sanctuaries are Nata, Mogobane, and Bathoem Dam, while the game sanctuary is Maun.
31. The Okavango Delta is a protected area of international importance, designated as a **Ramsar site**, whose boundaries encompass the Okavango Delta (including Moremi Game Reserve), Tsodilo Hills, the Kwando-Linyanti River system, and Lake Ngami, covering a total area of more than 55,000 square kilometers and making it the 3rd largest in the world. It is a habitat for globally threatened bird species such as the Wattled crane, the Slaty egret (most important breeding site), Lesser kestrel, Corncrake, and the Black-winged pratincole. More than 500 species of birds have been identified in the Okavango Delta and more than 20,000 water birds occur in the Delta at any time²⁴.
32. The Okavango Delta also supports more than 1% of the global population of several bird species including African Skimmer, African Pygmy-Goose, White-backed Duck, Fulvous Duck, African Spoonbill, Marabou, Saddle-billed Stork, Squacco Heron, Black Heron, Little Egret, Great White Pelican. The permanent swamps provide habitats for three species of aquatic or semi-aquatic large mammals, all of which fall under the IUCN Red List: Hippopotamus, Sitatunga, and Red lechwe, the most populous large mammal in the Delta. It is also a stronghold for the Nile crocodile²⁵.
33. Large herbivores that utilize the higher dry landmasses found within the Okavango Delta and the riverfronts of the Linyanti and Kwando include the African Buffalo, Plains Zebra, African Elephant, Blue Wildebeest, Tsessebe, Southern Reedbucks, Bushbuck, Puku Antelope, Impala, and Waterbuck. Elephants, Zebras, and wildebeests migrate on a seasonal basis between temporal wetlands in northern Botswana and the permanent wetland systems of the Delta, making it an important refuge during the migration cycle. One of the largest remaining populations of the African Wild Dog roams the islands in the Delta. Papyrus and reed float above the sandy river bed during floods and the gap between the river bed and roots is inhabited by crocodiles²⁶.

Mozambique

34. **Climate trends and impacts:** the country experiences a tropical to sub-tropical climate that is moderated by the mountainous topography and influenced by the movement of the Inter-tropical

²⁴ Arntzen J. (2018) Makgadikgadi Wetlands (Botswana): Planning for Sustainable Use and Conservation. In: Finlayson C., Milton G., Prentice R., Davidson N. (eds) The Wetland Book. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-4001-3_24

²⁵ Lens Tracks 2016. [Southern Africa's Ramsar Sites](http://www.saramsar.com/): A project to visit all the Ramsar wetland sites in Southern Africa and expose it as eco-tourism destinations. Okavango Delta System (Botswana). <http://www.saramsar.com/>

²⁶ All Africa 2020. Botswana's Okavango Delta On UNESCO's Biosphere Reserve List. <https://allafrica.com/stories/200001170081.html>

Convergence Zone (ITCZ), El Niño, and surface temperatures in the Indian Ocean. The rainy season is a function of the southern migration of the ITCZ and corresponds to the warmest months of the year.

35. Temperatures are expected to increase by 1.4- 3.7°C by 2060, with the southern and coastal areas becoming warmer. The number of hot days and nights are projected to increase throughout the country; hot days will increase by 17- 35% in 2060 while hot nights will increase by 25- 45% in 2060. In contrast, the number of cold nights is projected to decrease.
36. Climate variability is characterized by extreme weather events such as prolonged and frequent droughts, floods, and tropical cyclones. Droughts constrain development since most of the country's poor population reside in rural areas and rely on rain-fed agriculture. The numerous transnational river basins and flooding in its deltas are a perennial threat to farmers and infrastructure exacerbated by cyclonic storm surges. There are efforts to invest in natural hazards mitigation and early warning systems. Climate change adaptation measures have been integrated into the agriculture, fisheries, energy, environment, and water sectors, with particular attention on the coastal zones. The severe droughts which result in famine in southern and central Mozambique are related to El Niño events while flooding is linked to La Niña conditions. Climate variability stressed many sectors in the country²⁷.
37. **Ecosystems and biodiversity of global significance:** Mozambique possesses five phytogeographical regions namely Miombo, Mopane, undifferentiated woodlands, and coastal mosaics. Sites of high biodiversity importance include the Gorongosa Mountains, the Great Inselberg Archipelago of Quirimbas, and the Chimanimani Massif. The biodiversity hotspots are the Coastal Forests of Eastern Africa, the Maputaland-Pondoland-Albany, and the Eastern Afromontane. In addition, the Zambezi Coastal Flooded Savannah is an eco-region unique to Mozambique. Mozambique is home to about 5,500 species of flora and 4,271 species of terrestrial wildlife comprising 72% insects, 17% birds, 5% mammals, and 4% reptiles. Several species are endemic to Mozambique including 2 species of mammal, 7 reptiles, 11 freshwater fish, and 5 vascular plant species. There are a total of 300 species on the IUCN Red List in Mozambique, of which 120 are threatened²⁸.
38. Mozambique has several marine and coastal habitats along its 2,770 km long coastline consisting of coral reefs, mangroves, and seagrass meadows. The coral reefs cover about 1,860 km² and there is about 400,000 ha of mangroves. Along the Indian Ocean Coast, 17 marine fish are endemic to Mozambique including the dugong, 7 species of dolphin, humpback whales, 77 hermatypic species of coral, and 5 species of turtle, all of which contribute significantly to tourism.
39. A total of 22,850,200 ha (28.88 %) of the country's land area is protected, with 62 protected areas classified under national and international designations. Among the National Parks include Quirimbas; Banhine; Zinave; Gorongosa; Bazaruto; Limpopo; Serra da Gorongosa; and Magoe. The authority responsible for the management of conservation areas is Administração Nacional das Areas de Conservação (ANAC), an autonomous public agency established in 2011 under the Ministry of Land, Environment, and Rural Development (MITADER).

²⁷ Mozambique, 2011. Vulnerability, Risk Reduction, and Adaptation to Climate Change. Climate Risk and Adaptation Country Profile.

²⁸ Ministry of Land, Environment and Rural Development 2015. National Strategy and Action Plan of Biological Diversity of Mozambique. Government of Mozambique, Maputo.

40. The Quirimbas Park is a **Biosphere Reserve** situated in Cabo Delgado province in the north. The reserve is made up of 11 islands consisting of marine parks and a freshwater system that integrates Montepuez River and Lake Bilibiza. The Park also has 23 species of reptiles, 447 species of birds, and 46 species of terrestrial mammals, including elephant, lion, buffalo, and leopard, and 8 species of marine mammals, including whales and dolphins²⁹.
41. The **Ramsar sites** are Lake Niassa (Lake Malawi) and its coastal zones (12°30'S 34°51'E) and Zambezi delta (17°59'32"S 36°00'10"E) both covering a total of 4,534,872 hectares. The Ramsar site consists of extensive plains in the south and steep-sided mountains in the north and supports endemic fish species and threatened populations of leopard, sable antelope, and elephants amongst others. Lake Niassa (Lake Malawi) is one of the largest and most bio-diverse, freshwater ecosystems in the world and a transit flyway of migratory birds that use the lake margins as resting areas between Africa and Europe. The Site is threatened by overexploitation of the lake's resources although it sustains the surrounding populations' livelihoods through fishing, agriculture, animal rearing, hunting, trade, and handicrafts³⁰.
42. Zambezi Delta is characterized by a broad flat alluvial plain with vast mosaics of tropical grassland, palm, thicket, woodland, deep water swamp, and extensive mangrove ecosystem on the coast. It is a unique wetland and one of the most diverse and productive river delta systems in the world. The Delta is a global biodiversity conservation hotspot and a habitat of African buffalo, elephants, hippopotamus, lions, and leopards. There is a large concentration of water-bird species including white-backed and pink-backed pelicans, herons, flamingos, egrets, African fish eagles, storks, Caspian terns, wattled cranes, and endangered grey crowned cranes. Bottlenose and humpback dolphins and a variety of marine and freshwater fish and shellfish species are also present. The site provides a wealth of ecosystem services such as hydrological functions, coastal protection, flood control, and carbon sequestration which are vital to food security and socio-economic development in Mozambique. The major threat to the Zambezi Delta is the construction of dams for hydroelectric power generation.
43. **Vegetation and biodiversity:** natural forests and other woody vegetation covers about 620 000 km² (78%) of the country's surface area. The natural vegetation is dominated by moist woodland (63.3%) and semi-arid woodland (28.8%). Evergreen and deciduous forest, also in mosaics with grassland, covers 6.1%, moist grassland 0.7%, and wetland 1.1%³¹.
44. An annotated checklist of the 271 strict-endemic taxa (235 species) and 387 near-endemic taxa (337 species) of vascular plants in Mozambique is provided. Together, these taxa constitute 9.3% of the total is currently known flora of Mozambique and include five strict-endemic genera (*Baptorhachis*, *Emicocarpus*, *Gyrodoma*, *Icuria*, and *Micklethwaitia*) and two near-endemic genera (*Triceratella* and

²⁹ Adrian Frey 2018. Mozambique: 'Rich fauna' of Quirimbas park secures it UNESCO Biosphere status. Retrieved from website <https://clubofmozambique.com/news/mozambique-rich-fauna-of-quirimbas-park-secures-it-unesco-biosphere-status/>

³⁰ Annotated List of Wetlands of International Importance: Mozambique. Accessed from website https://rsis Ramsar.org/sites/default/files/rsiswp_search/exports/Ramsar-Sites-annotated-summary-Mozambique.pdf?1605026125.

³¹ Albano, G. 2002. Tropical Secondary Forest Management in Africa: Reality and perspectives. Mozambique Country Report. FAO, Rome. Accessed from website <http://www.fao.org/3/J0628E57.htm>.

Oligophyton)³². Flora of Mozambique website and an associated database of species records list 6,157 native and naturalised plant species³³.

45. **Biodiversity hotspots:** these consist of Mount Namuli in the north-central region and Mount Ribaué in Nampula province. Mount Namuli (the highest peak is 2,419 m) is a complex mountain ecosystem consisting of granitic inselbergs and the Muretha plateau that covers a total area of 200 km². It is a biodiversity hotspot dominated by a mosaic of East Afromontane ecosystem forest and grassland communities above 1700 m, interspersed by shrublands, shallow soil-plant communities with smooth rock peaks. The ecosystem supports unique high-altitude forests and numerous endemic, range-restricted, and threatened species. Mount Namuli is designated as a Level 1 Priority Key Biodiversity Area, an [Important Bird Area](#), an Important Plant Area, and an Alliance for Zero Extinction Site³⁴. Mount Ribaué is home to 30% of the country's biodiversity and the first Tropical Important Plant Area to be designated in Mozambique³⁵. Despite these distinctions, the area lacks formal conservation management.

The Republic of Congo

46. **Climate trend and impacts:** the country is under an equatorial climate with a bimodal rainfall received in March to May and September to November. The mean monthly temperature ranges from 23-26°C peaking in February to March and dropping in June to August. Mean annual precipitation is 1,612 mm with the Inter-Tropical Convergence Zone (ITCZ) driving the rainy seasons between the equator and the tropics throughout the year. Mean annual temperature has increased by 0.6°C whereas the mean annual precipitation has decreased in the last three decades.
47. Floods are common and affect human settlements, agriculture, public health, and biological diversity. Over the past 25 years, surface water flows have been very low impacting biodiversity, fisheries, agriculture, and navigation.
48. **Vegetation and biodiversity:** about 70% of the country is covered by tropical rainforest. The country is home to approximately 10,000 species of tropical plants and 3,000 of these are endemic. Major forest species of plants include bromeliads, Venus flytraps, ferns, orchids, buttress roots, and Kapok trees. The wildlife consists of 400 mammal species and 1,000 bird species among others.
49. A total of 14,556,700 ha (42.35 %) of the country's land area is protected. The Republic of Congo has 33 protected areas classified under national and international designations with a total area of 18,943,449 ha. The authority responsible for coordination, overseeing and supervision of protected area management is the Ministry of Tourism and Environment (Ministère du Tourisme et de l'Environnement) - MTE. The Department of Wildlife and National Parks is responsible for the day-to-day management of protected areas.

³² Darbyshire, I., Timberlake, J., Osborne, J., Rokni, S., Matimele, H., Langa, C., Datizua, C., de Sousa, C., Alves, T., Massingue, A., Hadj-Hammou, J., Dhanda, S., Shah, T., and Wursten, B. 2019. The endemic plants of Mozambique: diversity and conservation status. *PhytoKeys* 136: 45-96.

³³ Hyde, M.A., Wursten, B.T., Ballings, P. and Coates Palgrave, M. 2019. Flora of Mozambique. Information available from website <https://www.mozambiqueflora.com/>.

³⁴ http://www.cepf.net/where_we_work/regions/africa/eastern_afromontane/Pages/default.aspx

³⁵ CFC 2020. Mozambique: Community Conservation of "Sky Islands" in East Africa. Accessed from website <https://icfcanda.org/our-projects/projects/mozambique-namuli>.

50. **Ecosystems and biodiversity of global significance:** The Biosphere reserves are Dimonika and Odzala-Kokoua National Park. The Conkouati-Douli National Park (5,049.5 km²) is a [UNESCO](#)-recognised coastal [national park](#) and the main activities include [community outreach](#), [biological research](#), and tourism development. It is the most bio-diverse park in the country and includes the only marine-protected area in Congo. It is home to [elephants](#), buffaloes, gorillas, leopards, chimpanzees, red river hogs, sitatunga, mandrill, endangered turtle, and dolphin. It is a priority site for great apes in the IUCN great ape conservation action plan as it is home to around 8,000 central chimpanzees (*Pan troglodytes*) and 2,000 western lowland gorillas (*Gorilla gorilla gorilla*).
51. Nouabalé-Ndoki National Park (3,921.61 km²) is home to western lowland gorillas and the eastern subspecies of chimpanzees. It is a pristine tropical rainforest with a rich biodiversity of 300 bird species, plus 1,000 plant and tree species which include the endangered mahoganies. The most prominent species are colobus monkeys (black-and-white colobus, red colobus), the endangered lowland gorillas, chimpanzees, and mustached guenon monkeys. There are over 300 bird species including [eagles](#), hawks, owls, scavenging vultures, and wading herons. There are also rare African forest elephants, forest buffalo, bongo, leopard, and blue duiker³⁶.
52. Ntokou-Pikounda National Park (4,572 km²) was created primarily to protect an estimated population of 15,000 lowland gorillas. It is home to forest elephants and chimpanzees.
53. Odzala-Kokoua National Park (or Odzala National Park) (13,500 km²) is a biosphere reserve with an [old-growth](#) rainforest, dry forest, and savanna ecosystems. It has approximately 100 mammal species and is one of the continent's most diverse primate populations.
54. The Ogooué-Leketi National Park (3,500 km²) is a unique landscape, dominated by vast rolling savannahs in the east, with green ribbons of gallery forest linking up to a larger rainforest block to the north and west. Within this forest is a constellation of swampy, mineral-rich forest clearings that offer unique opportunities to view forest wildlife. The park is home to forest gorillas, chimpanzees, forest elephants, forest buffalo, red river hog, several species of monkey including the mandrill, and other threatened species such as Grimm's (or bush) duiker, side-striped jackal, three species of [bustard](#), Congo Moorchat (Traquet-fourmilier du Congo), Brazza's Martin (Hirondelle de Brazza), and a probable new species of cisticola.
55. The **Ramsar sites** include Odzala Kokoua, Nouabalé-Ndoki; Conkouati-Douli and Lac Télé/Likouala community reserve, among others.

C. Socio-Economic and Cultural Context

56. An overview of the socio-economic and cultural context of each project country is presented below.

³⁶ Biosphere reserves of the Republic of the Congo. Accessed from website: https://en.wikipedia.org/wiki/Category:Biosphere_reserves_of_the_Republic_of_the_Congo.

57. **Botswana:** has a population of 2,318,774³⁷ and a Gross Domestic Product (GDP) of USD 18.6 billion in 2018³⁸. The country's economy is based on diamonds, beef, and tourism. The steady socio-economic growth experienced since independence is a result of prudent policies and stable governance. In spite of the diamond-led development model, socio-economic growth is slower but expected to remain stable in the medium term. Poverty has dropped to about 16%, prosperity has improved due to increased labour related wages^{39,40}. The share of the population living on less than USD 1.90 a day declined due to increasing agricultural incomes and subsidies.
58. The economy faces an unprecedented challenge due to the COVID-19 (coronavirus) pandemic, weak global demand for diamonds, and severe droughts which slowed down economic growth from 4.5% in 2018 to 3% in 2019. The economy is expected to contract by 9.1% in 2020 due to COVID-19 impact on tourism, key production, and export sectors⁴¹. Whilst a slight recovery is expected in 2021, the economic impact of COVID-19 is likely to be long-lasting. The government's ability to advance on key reforms laid out in the 2020-2023 Economic Recovery and Transformation Plan will play a key role in improving Botswana's economic performance.
59. Inequality, measured by the Gini index, fell from 60.5% to 53.3% in the last 5 to 10 years due to regional convergence and fast growth in rural areas. In spite of improved prosperity, socio-economic challenges include youth unemployment that has risen from 17.6% to 20.7%, and gender-based violence (GBV) in which over 67% of women have experienced abuse. These challenges are being addressed through legal and policy reforms, public education, and the involvement of men and boys in the prevention of GBV.
60. The dependence of the PA neighboring communities on wildlife meat and other products has contributed to the significant loss of wildlife experienced in the country through poaching. In addition, competition for land use and natural resources has resulted in negative consequences for conservation and livelihoods of rural communities. In order to tackle poaching and mitigate human-wildlife conflict, the Government has established a National Anti-Poaching Committee (2012), launched a draft National Anti-poaching Strategy (2013), created a National Anti-Poaching Task Team, and participated in domesticating requirements under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Rhinoceros Enforcement Task Force. Also, Botswana is a signatory to the Elephant Protection Initiative (EPI).
61. **Mozambique:** has a population of 31,535,713 and a density of 40 persons per km². Thirty-eight percent of the population is urban (11,978,439) and more than 29 million live and work in rural

³⁷Based on the Worldometers elaboration of the latest United Nations data. <https://www.worldometers.info/world-population/botswana-population/>. Website accessed on 25th October, 2019 at 1615hrs.

³⁸ Botswana GDP, 2018. <https://countryeconomy.com/gdp/botswana>. Website accessed on 28th October 2019, at 1428 hours.

³⁹ The World Bank 2020. An overview of the Political and Socio-economic context of Botswana. <https://www.worldbank.org/en/country/botswana/overview>. Website accessed on 25th June, 2020 at 1040.

⁴⁰ The World Bank 2015. Botswana Poverty assessment. Report No. 88473-BW. <http://documents.worldbank.org/curated/en/351721468184754228/pdf/88473-REVISED-WP-P154659-PUBLIC-Box394819B.pdf>. Website accessed on 25th June 2020.

⁴¹ World Bank 202. The World Bank in Botswana: An overview. Retrieved from website <https://www.worldbank.org/en/country/botswana/overview> on 30 October 202 at 1844 hours.

areas⁴². With a GDP of 14.93 billion US dollars in 2019⁴³, growth is expected to decline from a pre-COVID-19 forecast of 4.3% to 1.3% in 2020 with significant downside risks⁴⁴. Mozambique is also expected to experience large external and fiscal financing gaps in 2020 and 2021 due to exposure to external shocks and limited fiscal space.

62. Mozambique has plentiful arable land, water, energy, mineral resources, and newly discovered natural gas offshore. Four of the six bordering countries are landlocked and depend on Mozambique as a conduit to global markets. Recent conflicts have killed more than 1,000 people and displaced 100,000 from their homes. Thus, the risk of violence can spread to other areas of the country and should not be underestimated.
63. COVID-19 pandemic reached Mozambique at a weak moment in its economic history. In 2019, Cyclones Idai and Kenneth caused massive damage to infrastructure and livelihoods, further lowering the economic growth and wellbeing of the population. The COVID-19 crisis may have an adverse impact on economic activity as domestic and international travel restrictions affect trade. Reduced demand and prices of commodities have slowed down the pace of investment in gas and coal industries that are pivots of Mozambique's economy.
64. The country's main development challenges include how to maintain macroeconomic stability in light of commodity price fluctuations, re-establishment of confidence through improved economic governance and increased transparency, as well as transparent handling of the hidden debt investigation. In addition, structural reforms are needed to support the struggling private sector. Another major challenge is how to diversify the economy by moving away from the current focus on capital-intensive projects and low-productivity subsistence agriculture, while strengthening the key drivers of inclusion, such as improved quality education and health service delivery.
65. The rural population, which accounts for 70% of the total population, is highly dependent on the direct use of the country's natural resources. This often leads to overexploitation with few sustainable and economically viable alternatives. The uncontrolled use of natural resources has led to a loss of 4.3 million hectares of forest between 1990 and 2010 and a significant increase in wildlife crime. During this period, 48% of elephants were lost, corresponding to nearly 2,000 elephants/year and over 45,000 lost due to poaching since the 1970s. Poaching and illegal wildlife trade cause institutional instability and undermine the livelihoods of communities. In an effort to conserve its valuable wildlife, Mozambique developed a National Rhino and Ivory Action Plan (NRIAP) for 2015-2016. It passed the 2014 Conservation Act that includes criminalization of wildlife offences and established an Anti-poaching Taskforce to support the implementation of the National Program for the protection of natural resources. Mozambique has also created a police unit focused on environmental crimes and has active collaboration with South Africa on joint actions on transboundary environmental protection⁴⁵

⁴² Worldometer 2020. Mozambique population. Retrieved from website <https://www.worldometers.info/world-population/mozambique-population/> on 30 October 2020 at 1800 hours.

⁴³ <https://tradingeconomics.com/mozambique/gdp> Website accessed on 9th October, 2020 at 1506 hours.

⁴⁴ <https://www.worldbank.org/en/country/mozambique/overview> Website accessed on 9th October, 2020 at 1510hours.

⁴⁵ <https://pubdocs.worldbank.org/en/730891579207523649/Mozambique-20180911-v2.pdf>. Accessed 30May 2021

66. **Republic of Congo:** the population is 5.2 million, mainly concentrated in the southwestern region. The Republic of Congo is one of the most urbanized countries in Africa with 70% of the population living in the urban areas of Brazzaville, Pointe-Noire, and the small cities located in between them. It is sparsely populated, with a density of 16 people per km², thus it is one of the least populated countries in Africa.
67. The economy is natural resource-based and the Gross Domestic Product per capita was estimated at USD 2613 in 2019⁴⁶. The country ranks among the top 10 of Africa's oil producers and has substantial mineral resources, the majority of which are yet untapped⁴⁷. After the economic crisis that plagued the country from mid-2014 following the decline in oil prices, the Congolese economy resumed an upward trajectory in 2018 with real GDP growth projected to reach 1.6% after two years of negative growth. Growth was driven by the increase in oil production and by favorable market conditions, with oil prices holding steady in late 2018 and the resumption of demand from partner emerging countries. Nevertheless, the non-oil sector continues to decline, contracting by 5.5% as a result of the weakening of activity in construction and public works, transport, and telecommunications. Economic growth is projected to reach 5.4% in 2019, gaining an average of 1.8% per year for the period 2020-21. During the same period, non-oil growth, driven primarily by industry, construction, and agriculture, is expected to average 3%, hinging on the restoration of the private sector confidence and implementation of structural reforms aligned with the economic and financial program of the Economic and Monetary Community of Central Africa (CEMAC).
68. There have been substantial investments in infrastructure, particularly in electricity and transportation since 2006. During the period 2010-2025, projected infrastructure projects are expected to have a significant impact on the country's GDP growth. Efficient management of public investments will optimize natural resource management and improve the return on investments⁴⁸. In spite of the above, the country faces several development challenges. For instance, extreme poverty appears to have increased from 2016, especially in rural areas, as a result of the decline in oil prices. The poorest 65% of the citizens live in the six regions in the south and less than 4.9% of them are covered by the social protection programs. As a result, the human capital index is 0.42, which is below the average for middle-income countries. Despite a slight improvement in per capita income, there has been limited progress in health and education service delivery. Maternal and infant mortality rates remain high and chronic malnutrition affects 21% of children.
69. The biodiversity in the Republic of Congo (RoC) and the entire Congo basin is threatened by illegal wildlife trade, especially by bushmeat and ivory poaching. Its forests are a target by poachers and its roads and towns constitute a transit route for trafficked wildlife from other countries. Local people accrue little of the benefits, watch their natural resources being depleted, and they face compromised security in their daily lives. Forest elephant populations in Trinational Dja-Odzala-Minkebe (TRIDOM) – a transboundary area between Cameroon, Gabon, and the Republic of Congo decreased by 50% between 2002 and 2011. The threats are compounded by inadequate management capacity where protected area managers often lack the financial and technical resources sufficient to efficiently manage these areas⁴⁹.

⁴⁶ <https://tradingeconomics.com/republic-of-the-congo/gdp-per-capita> Website accessed on 9th October, 2020 at 1454hours.

⁴⁷ World Bank 2020. The World Bank in the Republic of Congo: An overview. Retrieved from website <https://www.worldbank.org/en/country/congo/overview> on 30 October 202 at 1851 hours.

⁴⁸ World Bank 2020. Republic of Congo Economic Update: Investing Efficiently in the Country's Infrastructure. Retrieved from website <https://www.worldbank.org/en/country/congo/publication/congo-republic-first-economic-update> on 3 October 2020 at 1700 hours.

⁴⁹ <https://pubdocs.worldbank.org/en/150821579207586863/Republic-of-Congo-UNDP-20180913-v2.pdf>. Accessed 30 May 2021

D. Global Environmental Problems and Root Causes

70. This section describes the key global environmental problems that this project will address and the underlying causes (indirect threats).
71. There is immense pressure on natural resources, including on the biodiversity in protected areas in the project participating countries resulting from a combination of proximate and underlying factors that manifest in different ways. The most critical pressures are poaching, timber harvesting, agricultural land expansion, and urbanization that affect biodiversity and ecosystem services. Land-use change and unsustainable resource use destroy biological resources as habitats are degraded and ecosystems are converted to other uses. Invasive species, climate change, and mining developments also pose significant threats to the ecosystems, curtail environmental services, and reduce biodiversity.
72. There are major root causes of environmental problems that affect protected area management and lead to ecosystem degradation and biodiversity loss in the project participating countries include inadequate institutional capacity for effective management, human population growth, and the associated anthropogenic activities, escalating poverty, and limited livelihood options^{50 51}. Other causes of environmental degradation are high demands for natural resources due to population movements linked to conflicts and civil war, use of fire for pest management, bush clearing, and vegetation regeneration for livestock grazing^{52 53}.

Drivers and causes of biodiversity loss in the project participating countries are summarized in **Table 1**

Table 1: Status and trends of biodiversity and threats in the target countries

Country	Status and trends of biodiversity and threats
Botswana	<p>In the Okavango Delta, climate change is a major threat to biodiversity, hydrology, and river water quality. As the country's economy is supported by wildlife-based tourism, climate change is likely to affect wildlife habitats in the protected areas through a change in vegetation cover and composition, water availability, species diversity, and richness. The adverse environmental effects will have a knock-on effect on agricultural production and wildlife-based tourism. The Government of Botswana has embarked on efforts to mitigate the risks and hazards of climate change impacts by mainstreaming strategies in the national economic planning and development frameworks.</p> <p>The major environmental problems in Botswana are drought and desertification. Desertification predominantly stems from severe drought exacerbated by climate change. The country experiences long drought periods, a decline in subsistence agriculture, and</p>

⁵⁰ Nhongo, E.J.S., Fontana, D.C., Guasselli, L.A. & Bremm, C. 2019. Probabilistic modelling of wildfire occurrence based on logistic regression, Niassa Reserve, Mozambique, *Geomatics, Natural Hazards and Risk*, 10:1, 1772-1792, DOI: [10.1080/19475705.2019.1615559](https://doi.org/10.1080/19475705.2019.1615559).

⁵² Opha Pauline Dube 2013. Challenges of wildland fire management in Botswana: Towards a community inclusive fire management approach. *Weaher and Climate* 1: 26-41.

⁵³ Nhongo, E.J.S., Fontana, D.C., Guasselli, L.A. & Bremm, C. 2019. Probabilistic modelling of wildfire occurrence based on logistic regression, Niassa Reserve, Mozambique, *Geomatics, Natural Hazards and Risk*, 10:1, 1772-1792, DOI: 10.1080/19475705.2019.1615559.

Country	Status and trends of biodiversity and threats
	<p>increased rural household poverty. The main threats to biodiversity include habitat destruction, conversion, and disturbance, restricted wildlife movement, high populations of elephants that degrades the environment, increase in poaching of flagship species such as Rhino and elephants, frequent natural fires, and unsustainable use of wild plant species⁵⁴.</p> <p>Threat from invasive species is still relatively low although, in the southwest of the country, <i>Prosopis glandulosa</i> is problematic while in the Okavango Delta <i>Salvinia molesta</i> affects the aquatic ecosystems. The Indian Myna (<i>Acridotheres tristis</i>) is common in Gaborone although little is known about its impacts on the environment.</p> <p>Of the seven main eco-regions in Botswana, four are vulnerable. The South African Bushveld is threatened by deforestation, unregulated cattle grazing, range degradation, and uncontrolled veldt fires. Cattle grazing has degraded and changed the Zambebian Baikiaea woodlands while Zambebian Halophytics are threatened by mining, rangeland degradation, bushfires, wind erosion, increased irrigation water extraction, disruption of wildlife migration routes by fencing, overgrazing, lack of protection for the avian breeding sites, and uncontrolled tourism activities. Poaching is a major threat to wildlife conservation in Botswana.</p>
Mozambique	<p>Major threats to biodiversity are human population increase, urban development, past political instability, and civil war which exacerbated habitat loss and fragmentation, the decline in the number, and change in the distribution of large terrestrial mammals in the protected landscapes. The main threats to fauna are hunting, (mainly on foot and by snares in Limpopo and big game poaching in Zinave)⁵⁵, uncontrolled fires, and destruction of habitats, while the main threats to flora are clearing as part of slash-and-burn agriculture practice, increased human settlement and uncontrolled fires. The main threats to mangrove forests are deforestation, aquaculture, and the construction of salt pans. Coral reefs are affected by coral bleaching, increased fishing and tourism activities. Seagrasses are threatened by siltation due to floods, revolving of seagrass to collect invertebrates, trampling of the grass, and use of destructive fishing techniques. Human population pressure has escalated human-animal conflicts due to crop damage and attacks by crocodiles, lions, elephants, and hippos that have killed and injured many people.</p> <p>The lower elevation areas surrounding Mount Namuli and Mount Ribaue are settled and intensively cultivated. Although there are no settlements in the highest reaches of the mountains, farmers have cleared one-third of the mountain forest in the past ten years thus reducing the mountain massifs' biodiversity and ecological integrity. Frequent fires have reduced the number and composition of tree species and altered the structure of secondary forests. In addition, the fires have reduced tree regeneration and opened up space for the proliferation of fire-resistant species such as <i>Pterocarpus angolensis</i>, <i>Pericopsis angolensis</i>, <i>Parinari curatellifolia</i>, and <i>Diplorhynchus condylocarpon</i> in open lowland forests.</p> <p>Commercial harvesting of fuelwood continues to degrade the woodlands and forests especially on the fringes of major urban areas. Records show massive declines in large mammal populations in protected areas (except in Niassa Reserve in the north) largely</p>

⁵⁴ Botswana Nationally Determined contributions (NDC), Government of Botswana, Gaborone.

⁵⁵ ER Site assessment by questionnaire undertaken during the PPG process.

Country	Status and trends of biodiversity and threats
	attributed to long periods of political instability, war, and insecurity. The use of shark nets, gill nets, and trawl nets threaten marine mammals, especially the endangered dugong, which is believed to be extinct, or on the verge of extinction in Maputo Bay.
Republic of Congo	<p>The main threats to biodiversity are anthropogenic activities driven by increasing demands for food and energy, industrial development, illegal wildlife trade and hunting of trophies, disease outbreaks and epidemics as well as socio-political instability and civil unrest experienced by the country in the 1990s. Deforestation and uncontrolled harvesting of non-timber forest products, shifting cultivation, and bushfires destroy the forest ecosystems and biodiversity.</p> <p>Weak monitoring of vegetation worsens the situation as wildlife habitats are destroyed and fragmented thus creating ecological imbalance and loss of plant species. Shifting cultivation, slash and burn agriculture, use of agrochemicals (fertilizers and pesticides) and uncontrolled grazing degrade the ecosystems and cause biodiversity loss. Inland waters are threatened by destructive fishing methods that involve the use of illegal nets, chemicals and explosives, and the proliferation of invasive aquatic weeds. Marine waters are threatened by dredging, pollution from oil exploitation, overfishing in disregard of quotas, and destruction of spawning grounds by coastal erosion.</p>

73. **Climate change and variability** is a global environmental challenge that continues to cause negative impacts on several sectors in the project participating countries. The impacts are exacerbated by human population growth, increasing pressure on natural resources due to unsustainable resource use practices, poverty, and inadequate awareness about the consequences of resource degradation and depletion. Climate projections developed for the three participating countries using the models of the IPCC Fifth Assessment Report (IPCC AR5) indicate an increase in near-surface temperatures. The values in **Table 2** are the projected temperature changes relative to the 1986–2005 mean temperatures (°C)⁵⁶ in the project participating countries.

Table 2: Climate projections for the three countries using the IPCC AR5 models

Country	Under RCP ⁵⁷		RCP 8.5	
	2046–2065 Temp. change	2081–2100 Temp. change	2046–2065 Temp. change	2081–2100 Temp. change
Botswana	1.5°C	1.5°C	3°C	5.5°C
Mozambique	1°C	1°C	2°C	3.5°C
The Republic of Congo	1.5°C	1.5°C	3°C	5°C

There is clear evidence of temperature changes in the project participating countries at RCP 8.5 making it imperative to consider the effect of climate change on protected areas and justifying the need for effective PA ecological monitoring in the countries during and after the project implementation.

⁵⁶ IPCC 2014, *Climate Change 2014 Impacts, Adaptation, and Vulnerability Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Figure RC-2 Pg,139*, [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L.White (eds.)], New York, NY, USA, <https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-PartA_FINAL.pdf> Accessed on 29th November 2019.

⁵⁷ Representative concentration Pathway

74. Most people in the project countries are subsistence farmers practicing rain-fed agriculture with minimum agricultural inputs. Rain-fed agriculture accounts for 30 percent of the GDP in Africa and employs 70 percent of the population. As temperatures rise, precipitation will be erratic and uncertain blended with increased frequency and intensity of droughts, floods, heatwaves, and landslides. Many African countries, including the project countries, already experience this climate stress and have low adaptive capacity. Ecological monitoring in the PAs can be utilized as an inference of impact on the surrounding communities. There is a need to develop appropriate adaptation and mitigation strategies in tandem with robust policies to lower the negative economic impact on the agricultural sector that would help to relieve pressure on protected areas as the main source of livelihoods⁵⁸.
75. **Overexploitation of natural resources:** The project participating countries continue to experience overexploitation of natural resources (such as forests, wetlands, soil, biodiversity, aquatic and marine resources, and rangelands) which have led to biodiversity loss, soil erosion, and increased GHG emissions thereby aggravating the impact of climate change. Unsustainable and overexploitation of natural resources is a result of increasing human population and greater demands for resources, weak enforcement of environmental policies, and institutional capacity gaps among others. Inadequate policy implementation and institutional capacity gaps are the main causes of resource exploitation, degradation, and depletion in the project participating countries. For example, a recent UNDP report highlighted these weaknesses in Botswana's natural resource management sector and suggested the need to strengthen institutional capacity as one of the remedies⁵⁹.
76. **Land degradation** is prevalent in the project participating countries arising mainly from ecosystem fragmentation caused by human population pressures exerted on the natural resources. Land degradation, in turn, threatens local communities' livelihoods. In Botswana, for instance, climate change and human activities such as overgrazing in the Kalahari Desert, deforestation, and over-cultivation are responsible for land degradation. Local communities' dependence on firewood as a source of household energy has also degraded and depleted woodlands⁶⁰.
77. Land degradation in the drylands leads to desertification. Desertification, drought, or desiccation are not synonymous. Drought refers to short-term (1- to 2-year) deficits in rainfall which can generally be accommodated by existing ecological, technical, and social strategies. Desiccation refers to longer-term (decadal order) deficits in rainfall that seriously disrupt ecological and social patterns and require a national and global response. Drought and desiccation do not automatically give rise to desertification. Much depends upon resource management practices: when human

⁵⁸ Simbanegavi W and Arndt C (2014) Climate Change and Economic Development in Africa: An Overview. *Journal of African Economies*, 23(AERC Supplement 2): ii4–ii16. Available from: https://academic-oup-com.proxy.library.adelaide.edu.au/jae/article/23/suppl_2/ii4/684146 (Accessed 29 November 2019)

⁵⁹ UNDP 2013, *Policy Brief Natural resources and poverty in Botswana: development linkages and economic valuation*, <https://www.unpei.org/sites/default/files/e_library_documents/Botswana_Policy_Brief_NR_Poverty_In_Botswana_development_linkages_and_economic_valuation.pdf> (Accessed 30th November 2019).

⁶⁰ Sebege, R, Athlopheng, J, Chanda, R, Mulale, K & Mphinyane, W 2017, 'Land use intensification and implications on land degradation in the Boteti area: Botswana', *African Geographical Review*, vol. 38, no. 1, pp. 32–47 <https://www.tandfonline.com/doi/abs/10.1080/19376812.2017.1284599?journalCode=rafg20> (accessed on 30th November 2019).

mismanagement of land weakens the natural system, drought and desiccation often lead to desertification⁶¹.

78. Against this background, desertification refers to land degradation in drylands. One-third of the drylands in Africa are moderately or highly affected by desertification and 73 percent of the total agriculturally used drylands are degraded. While physical factors such as drought, desiccation, and climate change do play a part, mankind, however, is the primary agent of desertification. Mankind's role in causing desertification is revealed in the failure of resource management practices. Fight against desertification can only succeed if the welfare of mankind in the affected dryland areas are put at the centre of the development agenda and the adaptive strategies of their livelihood and production systems that confer drought resistance and/or lessen their susceptibility to drought and famine are bolstered⁶².
79. Climatic variations and human activities are the main causes of desertification that affect biodiversity, including in protected areas. Overexploitation of fuelwood and unsustainable agricultural activities in the vulnerable ecosystems of the arid and semi-arid areas strains the productive capacity. These activities are sparked off by human population growth, the impact of the market economy, and poverty. Human population levels of the vulnerable drylands have a close relationship with development pressure on land by human activities which are one of the principal causes of desertification⁶³. There is a vicious circle by which a high number of people living in dryland areas exert pressure on vulnerable land through inappropriate natural resources management, poor agricultural practices, and daily subsistence activities, and worsening land degradation⁶⁴.

E. Barriers to Addressing the Environmental Problems and Root Causes

80. The long-term goal for addressing environmental and management problems in protected areas is to ensure that government agencies, civil society organizations, and private sector actors can conserve biodiversity and ecosystems by addressing current threats affecting their integrity and functioning, and by preventing the emergence of new threats. To progress towards this long-term goal, governments need to engage in a wide range of actions that require technical, administrative, financial, and networking capacity.
81. The key barriers to environmental conservation and sustainability which impede addressing the environmental problems and root causes discussed in section D are described below. These barriers will persist in the protected areas in the absence of this GEF intervention.

⁶¹ Darkoh, M.B.K 1996. The human dimension of desertification in the drylands of Africa. *Journal of Social Development in Africa* (1996),11,2,89-106.

⁶² Darkoh, M.B.K 1996. The human dimension of desertification in the drylands of Africa. *Journal of Social Development in Africa* (1996),11,2,89-106.

⁶³ What are the major causes of desertification? Accessed from website <https://www.env.go.jp/en/nature/desert/download/p2.pdf> on 22 November 2020.

⁶⁴ IRD 2017. The immense challenge of desertification in sub-Saharan Africa. Accessed from website <https://theconversation.com/the-immense-challenge-of-desertification-in-sub-saharan-africa-84439>.

Barrier#1: In-adequate capacity (technical, financial, and human resources) for effective management of protected areas: State protected area management authorities in Africa, project participating countries inclusive, frequently face inadequate resource allocation that constrains their ability to achieve high levels of management effectiveness. Inadequate funding impedes investment in equipment, technology, staffing, and capacity-building activities⁶⁵ which would improve management of protected areas. Notably, the majority of protected areas in Africa are found in remote landscapes and politically unstable regions and yet they harbour diverse plant and animal species that are threatened by human activities such as poaching, human-wildlife conflicts, insecurity, and encroachment⁶⁶. Shortage of skilled human resources and adequate equipment coupled with low funding renders monitoring of the vast remote PAs ineffective which exacerbates the environmental problems. The EarthRanger technology will be deployed to assist the resource-constrained protected area management authorities to monitor and conserve biodiversity and ecosystems.

Barrier#2: Inadequate response mechanisms to wildlife crime: Wildlife crime is the fifth-largest international criminal activity worldwide and has become increasingly well organized and ruthless. In many countries, protected areas are vulnerable to perpetual abuse due to weak judicial processes that fail to prosecute wildlife traders even if they are caught. Thus, there is a need for long-term changes in the management of protected areas with an emphasis on patrolling and enforcement along with efforts to address corruption, strengthen the judiciary, and improve enforcement along the illegal wildlife trade chain. The EarthRanger technology will improve monitoring and patrolling of PAs and inform astute deployment of available law enforcement and wildlife management resources.

Barrier#3: Insufficient knowledge, awareness, and access to information and technologies required to effectively monitor, manage and conserve protected areas coupled with weak coordination between responsible authorities: This combination of barriers has led to low uptake of conservation technologies by PA management authorities and inadequate sharing of up-to-date information amongst PA management authorities (at regional, national and local levels) which would have significantly improved resource monitoring, management, and conservation. The EarthRanger technology has been deployed in over one hundred and fifty (150) sites in Africa, Asia, Europe, and America and this project offers an opportunity to strengthen coordination, learning, and sharing of information and best practices at regional, national and local levels.

Barrier#4: Weak monitoring system to track performance: Monitoring of protected areas management is inadequate in most countries in Africa and the same applies to the monitoring of project activities. Effective project monitoring is essential to ensure the success of the interventions.

Barrier#5: Poverty, Human-Wildlife Conflict and PA encroachment: This amalgamation of barriers leads to degradation of protected areas particularly if there is limited capacity to monitor and ensure community involvement in protected area management. Climate Change vulnerability exacerbates the situation. This combination of barriers are a root cause of degradation of terrestrial protected areas and lead to loss of biodiversity through habitat destruction and unsustainable exploitation of protected area resources. The increasing need for economic development coupled

⁶⁵ AWF, 2020: Strategic Vision 2020-2030; accessed at website <https://www.awf.org/strategic-vision-2020-2030> on 21st May 2021 at 1815 hours.

⁶⁶ AWF, 2020: Strategic Vision 2020-2030; accessed at website <https://www.awf.org/strategic-vision-2020-2030> on 21st May 2021 at 1840 hours.

with population movements linked to conflicts and civil war drive communities towards encroachment to support their livelihoods and basic survival. There is thus a need to ensure greater monitoring and consequently engage in collaboration and support to communities.

Case studies on how Earth Ranger is addressing selected global environmental problems in Africa

- 82. Since 2014, Vulcan (and later AI2) has been working on a real-time situational awareness software program, now called EarthRanger, to enable and capacitate improved protected area management effectiveness through the deployment of technology. EarthRanger is a data visualization and analysis software for protected area management. The technology collects, integrates, and displays all historical and real-time data available from a protected area including wildlife, the rangers protecting them, spatial information, and threats among others. EarthRanger empowers protected area managers and rangers to take immediate and proactive actions to prevent and mitigate threat incidents.
- 83. EarthRanger has been successfully deployed across several public and privately managed protected areas. Based on the proven track record of success, the GEF and AI2 wish to deploy this software together with other enabling technologies across protected areas in Africa to help achieve higher levels of management effectiveness.
- 84. **Table 3** outlines case studies where the Earth Ranger Software was instrumental in addressing global environmental problems, root causes, and barriers in selected Africa countries by date of deployment.

Table 3: Case studies – how Earth Ranger is addressing selected global environmental problems in Africa

Global environmental problems, root causes, and barriers		Earth Ranger (ER)	Impact
Malawi <i>Liwonde National Park, 2017</i>	Human-Wildlife Conflict: Elephants eat for 16 or more hours a day and this makes calorie-rich crops attractive to roving pachyderms. This challenge is familiar to farmers near Liwonde National Park in Malawi where elephants raid crops, farmers lose revenue and create human-wildlife conflict. With the risk of nighttime crop damage, farmers stay up throughout the night to scare the elephants away and in some instances use violence to protect the crops.	Using Location Monitoring to Reduce Human-Wildlife Conflict Managed in partnership with African Parks, Liwonde’s security team uses EarthRanger (ER) to monitor the time elephants pass geographic boundaries in order to intervene before they reach farmers’ crops. With the geofences in place, Liwonde rangers are able to constantly monitor the park boundary for potential human-wildlife crossing. They are also more quickly able to respond to geo-fence breaks and intervene before tensions escalate with the adjacent local community.	Reduced crop raids farmers have resulted in better crop yields and higher incomes from crop sales, which enable farmers to meet family basic needs. More people around Liwonde have acquired knowledge and skills for gainful employment which helps to improve the local communities' livelihoods. Human deaths from wildlife attacks have decreased as mitigation measures are applied, conflicts have dropped and community trust has grown.

Global environmental problems, root causes, and barriers		Earth Ranger (ER)	Impact
<p>Tanzania</p> <p>Grumeti Game Reserve, 2017</p>	<p>Security:</p> <p>EarthRanger has helped the team better monitor park boundaries and ranger activity resulting in reduced poaching.</p>	<p>Park Boundary Monitoring Results in Decreased Poaching</p> <p>Grumeti managers used ER's heatmaps to analyze movement patterns of rangers to aid deployment and re-deployment. The ranger's connivance with poachers was detected, the ranger dismissed and prosecuted for the offence.</p>	<p>EarthRanger has enabled managers of Grumeti Game Reserve to maintain timely reporting and the management plan is based on the most complete and reliable real-time data.</p> <p>EarthRanger has improved monitoring of park boundaries and poaching has declined.</p>
<p>Kenya</p> <p>Amboseli National Park</p> <p>Kenya Wildlife Service</p>	<ul style="list-style-type: none"> • Ecological Management • Human-Wildlife conflict <p>Human population growth and expanded development in the Amboseli ecosystem have reduced habitats for elephants and other wildlife. Development separates wild animal populations, disrupts traditional migratory behavior and, increases the risk of human-wildlife conflict as animals stray onto farmers' fields and damage crops and other property.</p> <p>Kenya Wildlife Service (KWS) deployed EarthRanger at its Headquarters at Nairobi National Park. KWS's human-wildlife conflict reporting system has improved across the country.</p>	<p>Big Life: Using Data to Ensure Safe Wildlife Corridor Migration</p> <p>Big Life - a wildlife conservation advocacy group based in Kenya's Amboseli ecosystem - has invested in the development of wildlife corridors to allow wildlife movement between protected areas.</p> <p>To maintain the corridors and monitor the frequency of wildlife movement, managers of Amboseli National Park utilize information from ranger reports, camera traps, and other technologies. Data from these technologies are consolidated in EarthRanger and activity visualized on an intuitive map.</p>	<p>The managers of Amboseli National Park have monitored movements in the wildlife corridors to ensure uninterrupted animal activities.</p> <p>In May 2019, Managers of Amboseli National Park tracked the successful passage of a 31-year-old male elephant (named Jenga), through the Amboseli-Tsavo wildlife corridor. With the wildlife corridor secured, the Managers of Amboseli National Park is capacitated to ensure human-wildlife conflict-free passage of animals between key reserves—a key component of a thriving wildlife population.</p>
<p>Sub-Saharan Africa Giraffe Conservation Foundation</p>	<p>Giraffes are among Africa's most iconic wildlife, yet their conservation status is surprisingly less well known. In the 1980s, the total population of all giraffe species in Africa was estimated to be more than 155,000. Today, the Giraffe Conservation Foundation (GCF) estimates the population has</p>	<p>Over the past five years, the Twiga Tracker initiative⁶⁷, led by GCF and supported by the Smithsonian Conservation Biology Institute (SCBI) has deployed over two hundred GPS units to track giraffe throughout Africa. With the help of manufacturers and veterinarians, the initiative</p>	<p>Twiga Tracker has deployed over 225 tracking units on all four species of giraffe, spanning ecosystems across sub-Saharan Africa and collecting over 1.5 million data points to date. The initiative has published over ten peer-reviewed scientific publications so</p>

⁶⁷ <https://giraffeconservation.org/programmes/twiga-tracker/> Website accessed on 15.07.2021 at 1100 Hrs

Global environmental problems, root causes, and barriers		Earth Ranger (ER)	Impact
	declined nearly 30% to the current numbers of 111,000 giraffes in Africa. That is approximately one giraffe to every three to four elephants currently roaming African ecosystems. To save these incredible animals and conserve their habitats, it is vital to gain a better understanding of their space use needs and required resources.	<p>developed a solar charged tracking device that's roughly the size of a deck of cards. The device records the GPS location of individual giraffe each hour and transmits these spatial data directly to researchers through a network of satellites and displayed by EarthRanger.</p> <p>“The advances in GPS tracking technology are opening incredible and exciting avenues for understanding animal movements with a scale and accuracy unlike anything we’ve seen before”, said Michael B. Brown, conservation science fellow at the GCF and SCBI. “The vast quantities of data generated by these tracking devices require new data management tools to efficiently process, analyze, and visualize the data. That’s where rapid data management and visualization platforms are filling crucial needs for animal conservation.”</p>	<p>far, sharing the first evidence of spatial migration in certain giraffe populations in Uganda, new descriptions of nocturnal behavior of desert-dwelling in Namibia, and expanding the knowledge of the space use needs of giraffe in sub-Saharan Africa.</p> <p>The EarthRanger platform also shares giraffe locations and space use with conservation partners in real-time. Rapid access to giraffe locations and automated geofencing alerts have allowed for ranger teams in the field to better target conservation patrols and to rapidly mobilize when giraffes leave the relative safety of protected area boundaries.</p>

Source: Vulcan (now Ai2), 2020⁶⁸

85. The proposed project will address the capacity gaps of the participating countries, by supporting government-identified needs for protected area management and building sustainable country-based peer learning experiences and capacity building. The project participating countries have confirmed the desire for technical and infrastructural capacity building to support their protected areas monitoring and management.

⁶⁸ Vulcan (2020). Retrieved from Earth Ranger: <https://earthranger.com/Success-Stories/Big-Life.aspx>.

F. Current Baseline (Business-As-Usual Scenario)/Future Scenarios without the Project

86. The project participating countries have progressively been adopting the use of cost-effective protected area monitoring tools for effective response to management and mitigation of ecological challenges. These are adopted as they become available, however data collection methods are still inadequate, and most protected areas are not clearly linked to a central management unit to enable a coordinated response.
87. In the absence of information and real-time data, protected area (PA) managers are compelled to deploy the limited resources and assets at their disposal randomly with the hope of achieving satisfactory area coverage, monitoring, and enforcement. This is an inefficient and ineffective approach with limited impact. PAs that have adopted new and emerging technologies to improve real-time data gathering to enable situational awareness will attest to the impact of EarthRanger technology on PA management effectiveness. To date, new and emerging technologies have mostly been adopted by privately managed PAs where managers took the risk of adopting untested innovations. However, numerous examples of successful deployment of such technologies across Africa have helped to refine and improve the technologies and enhanced the users' confidence in them.
88. The EarthRanger technology has visualization capability that allows managers to gain a real-time, in-depth understanding of illegal activities such as poaching and other habitat threats. This technology enables PA managers to monitor vast areas remotely, keep track of wildlife and rangers' movements in the field, and ensure that patrols are carried out properly, rangers' safety is assured and response teams can be dispatched immediately when the need arises. Without this technology in place:
- PA teams will maintain paper-based reports and store them as records. Such reports can easily get lost or get destroyed by natural conditions in the field, leading to gaps in data and an incomplete account of activities in the protected area.
 - Safety of the PA management teams and wildlife is at risk and response to a situation (e.g. infiltration by poachers) will be slow and ineffective.
 - Management of vast protected areas will be impossible given the few personnel. As a result, management challenges such as poaching, encroachment, human-wildlife conflicts, and other forms of wildlife crime will escalate as most of the problems will not be addressed in time.
89. The EarthRanger Technology also enables real-time and historical data analyses and gives insights into critical trends such as animal behavior, habitat alterations, ecological changes, and others. This enables PA managers to monitor the wildlife, habitats, and other landscapes through sensors, reliable reporting, and up-to-date field data to effectively manage the PAs. Without this technology in place:
- Human-wildlife conflicts will increase because changes in animal behavior (e.g. change in migration routes, grazing areas, breeding territory, water points, encroachment by communities) will not be detected and addressed in good time to avoid conflicts.
 - Protected area managers will not be able to make informed decisions to address current and future threats to the conservation areas.

90. The Earth Ranger Technology is capable of quantifying key information and showing tangible results to the protected area managers. Without the technology, protected area managers will not be able to report positive results to donors thus leading to a reduction in funding. This will exacerbate the already dire situation in Africa where protected area management effectiveness is curtailed by inadequate funding.
91. The baseline scenario, typical of most PAs in Africa, is the impaired management effectiveness due to weak human and institutional capacity, and limited funding. Despite these challenges, PA managers are expected to deploy the limited resources and assets at their disposal and to utilize scant information for planning, decision making, and response to challenges and threats to wildlife and habitats. This limitation compounds the inefficient and ineffective use of the resources. Knowledge of when and where to deploy resources in a resource-constrained environment is a crucial and timely deterrent of illegal activities in PAs and helps to optimize management efforts in the field.

Implications for Business as Usual (BAU) Scenario

92. The BAU scenario has great implications for the countries' ability to ensure effective PA management and will consequently affect sustainable biodiversity conservation. Without the EarthRanger project, monitoring of biodiversity resources and management effectiveness in the selected PAs within the three countries would remain inadequate and lead to unsustainable exploitation of natural capital due to inadequate capacity to respond to threats. In the end, the biological resources in the PAs will be degraded and depleted.
 - a) ***Institutional coordination:*** Absence of a functional central response unit is a major setback to the three countries' timely response to PA management threats.
 - b) ***Compliance with effective protected area management standards:*** The three project participating countries are signatory to the Convention on Biological Diversity and will lag in compliance if they do not adhere to the NBSAPs targets.
 - c) ***Policy accountability:*** The three project participating countries do not have a robust system for effectively assessing the ecological status and management effectiveness of the PAs. As such the three countries and others with similar bottlenecks will not be able to track the status of biological resources in terms of quality, quantity, and timing for the set targets. Under this scenario, it will remain difficult to discern the achievement of the expected and actual policy goals, and how they compare and contribute to the aggregate global outcomes.
 - d) ***Comparability of ecological reporting:*** The three countries' current capacity to report on the status of biological resources both nationally and internationally is not based on real-time data generated, processed, and relayed in a timely manner by appropriate technology.

G. Cost-Effectiveness Analysis of the chosen alternative

Alternatives to the Business-as-Usual Scenario

93. Multiple alternative scenarios can be considered as "business-as-usual" (BAU) and premised on functional PA management institutions with structures that can undertake robust monitoring of PAs and provide timely responses to threats in the three project participating countries. The

alternatives to the BAU scenario involves: (i) strengthening the institutional and technical capacity of PA managers in the participating project countries (ii) strengthening the capacity of protected area managers to deploy the limited assets and resources at their disposal in an informed, effective and efficient manner, thereby improving the impact and overall management effectiveness and, (iii) increasing EarthRanger technology uptake by other African countries and enhancing awareness about the benefits of applying it in wildlife conservation and PA management.

94. The Convention on Biological Diversity (CBD) obligates countries to ensure sustainable management of biological resources through among others, promoting cost-effective management of biodiversity-rich protected areas. Countries have been supported to develop National Biodiversity Strategy and Action Plans (NBSAPs) which outline activities to be undertaken at the national level and through global collaborations to ensure sustainable management of biodiversity. Given that biological resources may not necessarily be protected singly, there is a need to strengthen the capacity to effectively manage protected areas. This EarthRanger project proposes a regional approach to promote effective coordination of cross-learning and sharing best practices among the project participating countries.

Scenario: EarthRanger intervention implemented at specific PAs and coordinated under a regional framework (Project scenario)

95. **Positive elements of this Scenario:** This scenario represents the proposed EarthRanger project and focuses on protected area and national levels capacity building followed by a regional level experience sharing. The scenario provides for and highlights the need to strengthen protected area level capacity, country-level supervisory capacity as well as scale up the use of EarthRanger technology by other African countries. The national-level learning feeds into the regional experience sharing. When the PA level capacity is strengthened and functional, the national and regional cross-learning activities will easily be actualized and operationalized. This scenario offers a great opportunity for improved coordination, strengthening of regional collaboration, and cross-learning. The structure of this approach is hinged on the fact that protected areas are given priority for strengthening management capacity as it lays a solid foundation for demonstrating the feasibility of deploying EarthRanger technology for generating reliable and accurate data to aid decision making at the protected area level as well as at national and regional levels. Therefore, this regional, national, and field level approach yields the best results as opposed to Scenario 1 and 2 because capacity is built at all levels, and the immense potential for cross-learning and experience sharing can be sustained when the project ceases.

Cost-Effectiveness Analysis of Chosen Alternative

96. The chosen alternative is structured under 3 components. It is anchored on the existing national state and non-state-protected area management structures and information generated by this project will be shared through the existing national and regional linkages. This regional project's interventions will strengthen existing PA management structures at the national level, build on previous and ongoing national and regional conservation initiatives run by the selected in-country executing partners who are currently managing the PAs together with the respective governments and ensure learning and lesson sharing across the three project countries and the regional Earth Ranger community that is spread across African PAs.

97. This project will work with key stakeholders at the country and regional level who already have ongoing activities in the target PAs and technical experience undertaking similar work. Through this approach, this project will ensure ownership of results by stakeholders and sustainability of the project outcomes. This scenario of strengthening protected area level capacity ensures the sustainability of management approaches at the ecosystem level as well as country-level supervision.
98. Scaling up the use of EarthRanger technology by other African countries will increase the protection of biodiversity. Furthermore, the scenario provides an opportunity for improved protected area management through effective monitoring of threats, improved coordination, ecological monitoring, cross-learning, and efficient utilization of human resources.
99. The non-state executing partners (AI2, Peace Parks Foundation, African Parks, Noé, and the Wildlife Conservation Society (WCS) have committed co-financing totaling US\$ 4.4 million which accounts for 67% of the total project's financing. This co-financing complements activities funded by the GEF which account for 33% of the total project's financing.

H. The Project's Theory of Change

100. The Protected areas in Africa in general, and Botswana, Mozambique, and The Republic of Congo, in particular, are increasingly experiencing degradation and loss of biodiversity through habitat destruction and unsustainable exploitation of resources for domestic and commercial purposes. Various causal factors may be tendered, including among others, the increasing needs for economic development, population movements linked to conflicts and civil war as well as inadequate application of modern management systems and technologies. However, the main underlying problem being addressed by the EarthRanger project is the limited capacity among the project participating countries to effectively monitor and manage the vast tracts of terrestrial protected areas to address threats to wildlife and biodiversity. The Project, therefore, aims at strengthening the management effectiveness of priority protected areas through the deployment of the EarthRanger technology and associated infrastructure. It is anticipated that the Project will address the barriers to protected area management effectiveness, to improve the management of selected protected areas in Africa. The Theory of Change (ToC) for this project is a tool that explains how and why the EarthRanger Project intervention is expected to achieve the intended changes, (i.e., the goal, short-term and long-term outcomes), based on a set of key causal pathways arising from the project's activities and outputs, and the assumptions underlying these causal connections (STAP, 2020)⁶⁹, (Harries et al, 2014)⁷⁰, and (Charities Evaluation Services, 2013)⁷¹. The ToC identifies the key problem being addressed, elaborates the root causes and barriers, and provides logical pathways consisting of the interconnectedness between the project interventions to address the barriers, the outcome pathways, and anticipated impacts.

⁶⁹ STAP, 2020. Theory of Change Primer. A STAP advisory document. November 2020.

⁷⁰ Harries, E., Hodgson, L. and Noble, J. 2014. Creating Your Theory of Change: NPC's Practical Guide. Retrieved from website <https://www.google.com/search?client=firefox-b-d&q=CREATING+YOUR+THEORY+OF+CHANGE+NPC%E2%80%99s+practical+guide>

⁷¹ Charities Evaluation Services 2013. Describe the difference your work makes -Build your framework for evaluation. CES, 4 Coldbath Square, London, EC1R 5HL, UK.

101. The main root causes and barriers to effective management of the protected areas and biodiversity conservation include, among others (i) Inadequate capacity (technical, financial, and human resources) for effective management of protected areas; (ii) Inadequate response mechanisms to wildlife crime; (iii) Poverty, Human-Wildlife Conflict and PA encroachment; (iv) Insufficient knowledge, awareness and access to information and technologies required to effectively monitor, manage and conserve protected areas; and (v) Weak monitoring and evaluation system to track performance and profile areas for improvement. By addressing these root causes and barriers, the deployment of the EarthRanger and related technologies aims at improving the management effectiveness of the protected areas. The logical pathway encompasses increased awareness and hands-on technical experience of the protected area managers, who had hitherto not applied the technology in their day-to-day protected area management practices to apply the EarthRanger technology.

102. The anticipated positive changes (or Project Outcomes) include:

- (i) Strengthened institutional and technical capacity of participating countries to effectively manage the protected areas. This positive change will lead to the improved ecological integrity of the target protected areas. Improved ranger patrol efficiency will contribute to better security for rangers, stable biodiversity in the protected areas, and positive relationships between the adjacent local communities and protected area managers.
- (ii) Additional countries in Africa are interested and committed to adopting Earth Ranger technology; and
- (iii) An integrated ecological monitoring framework at the protected area level.

103. The impact pathway includes the attainment of the long-term goal of global benefits namely; terrestrial protected areas are sustainably managed for conservation of biological diversity, continuous flow of ecosystem services, and climate change mitigation. The indicators of this desired change are reduced threats to biodiversity in protected areas, secured wildlife habitats, the population of threatened species increased and tourism and community-related benefits enhanced. The main pre-conditions (or mid-term outcomes) are (i) protected areas management system strengthened with the deployment of the EarthRanger and related technologies (MTO 1); (ii) 4,901,650 ha of terrestrial protected areas sustainably managed (MTO 2); (iii) protected area personnel skilled and knowledgeable in the application of the EarthRanger and related technologies (MTO 3); and (iv) Additional African countries committed to adopting EarthRanger or other PA management technologies (MTO 4).

104. The ToC also identifies the key enablers and assumptions, which are important factors that will contribute to the success of the Project intervention and attainment of the anticipated outcomes - improved management of the protected areas. These enablers and assumptions are indicated in Figure 2 as E and A, respectively. The main enablers include:

- Favorable governance that permits implementation of relevant policies and regulations, including the existence of functional institutional structures for the management of protected areas (e.g., supportive Ministries and Departments responsible for wildlife conservation in the project countries, availability of adequate staff, and the existence of reliable infrastructure including power supply, road networks and ranger posts in the protected areas – E1.
- Willingness to embrace new technology like EarthRanger to strengthen protected area management and biodiversity conservation - E2.

- Commitment to regional and international obligations as well as the willingness of project participating countries to share information – E3.
- Available capacity to translate and share information in official languages in the project participating countries (English, French, and Portuguese). Hence language differences will not be a barrier in facilitating knowledge and information sharing – E4; and
- Participatory management of protected areas – E5.

In the logical pathway, the underlying assumptions include:

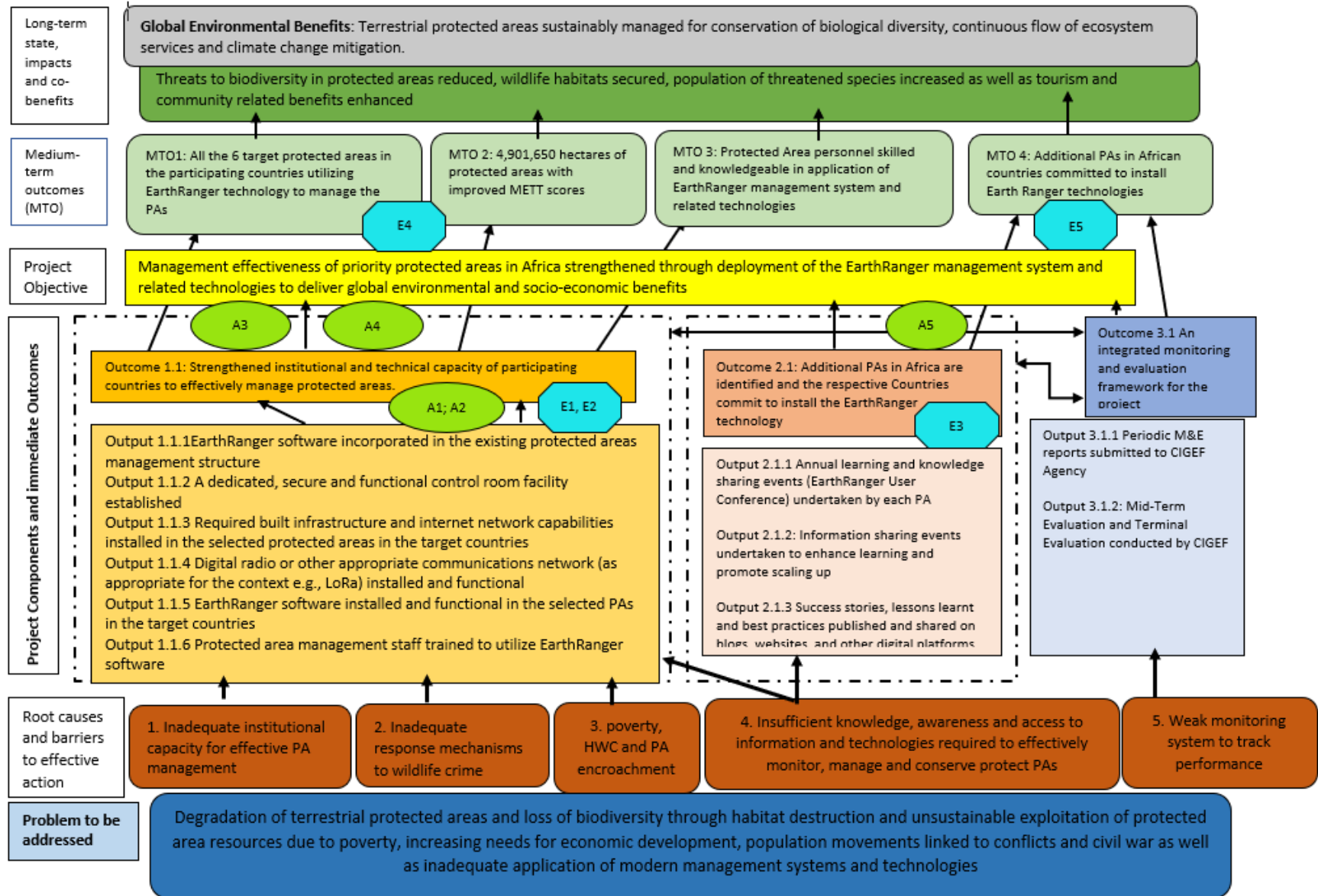
- Political will and stability in the project participating countries – A1.
- EarthRanger technology will be accepted by the governments of the project countries and protected area managers will apply it to sustainably manage and conserve biodiversity – A2
- Supportive stakeholders, including local communities, that foster collaboration, and partnerships – A3
- Adequate security in and around the protected areas – A4; and
- Astounding achievement with the application of EarthRanger technology will motivate other countries to adopt it and replicate its use in biodiversity conservation – A5.

105. **Figure 2** represents the ToC for this project, based on the universal development approach and practice⁷² and also elaborated by Pirroska Bullen (2020)⁷³. The inter-connectedness between the project interventions tailored to address the barriers, the outcome pathways, and anticipated impacts is shown in the diagram by arrows.

⁷² New Approach in 2020 & Beyond. Theory of Change. Retrived from website <https://www.sopact.com/theory-of-change>.

⁷³ Pirooska Bisits Bullen 2020. Theory of Change vs Logical Framework – what’s the difference? Retrieved from website <http://www.tools4dev.org/resources/theory-of-change-vs-logical-framework-whats-the-difference-in-practice/>.

Figure 2: Theory of Change for the CI-GEF EarthRanger project



SECTION 3: PROJECT STRATEGY

A. Objective, Components, Expected Outcomes, Targets, and Outputs

106. **Project Objective:** To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies.

107. **Project Duration:** 44 months

108. The project components are described in detail below including the expected outcomes, outputs, and activities.

Component 1: Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness

109. Deployment of the EarthRanger protected area management system and associated technologies will improve real-time situational awareness and enable protected area managers to utilize the limited assets and resources at their disposal in a more informed, effective, and efficient manner, thereby improving the impact and overall protected area management effectiveness. This component will support capacity-building with a focus on the installation of the software and associated hardware infrastructure and training of protected area management staff on the use of the software. In consultation with the governments of the project participating countries, regional institutions, and experts, the needs assessment for the selection of protected areas to establish the site-specific infrastructure requirements was carried out remotely due to COVID-19 travel restrictions. More detailed assessments will be undertaken during the project's inception period.

110. Component 1 has one outcome that delivers six (6) outputs presented in the Project Results Framework (Appendix I). The details of Outcome 1.1 are provided below:

Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.

111. This project will improve the management effectiveness of the target protected areas in each country. Real-time situational awareness will assist efforts to protect high-value species of global significance such as rhino and/or elephant and or other rare, endangered, and threatened species vulnerable to commercial-scale poaching. A detailed needs analysis will be conducted for each target protected area to identify fit-for-purpose technology requirements. Activities that will be undertaken to strengthen the institutional and technical capacity of participating countries to effectively manage protected areas include equipment support, installation of appropriate software and associated training for protected area staff. Demonstrative training on the use of the equipment and the associated software will be undertaken during the project period as well as equipment maintenance for three years before full handover to PA management.

112. **Targets for Outcome 1.1:**

- a. At least 4,901,650 hectares of protected areas with improved METT scores
- b. All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs

Outcome 1.1 will be delivered by the following outputs:

- **Output 1.1.1:** EarthRanger software incorporated in the existing protected areas management structure in the target countries.
- **Output 1.1.2:** A dedicated, secure and functional control room facility established to be used by management to improve real-time situational awareness through deployment of EarthRanger technology in each protected area in the target countries.
- **Output 1.1.3:** Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.
- **Output 1.1.4:** Digital radio or other appropriate communications network, (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.
- **Output 1.1.5:** EarthRanger software installed and functional in the selected protected PAs in the target countries.
- **Output 1.1.6:** Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars and other data transmitters).

113. ***Output 1.1.1: EarthRanger software incorporated in the existing protected area management structure in the target countries.*** EarthRanger technology will be integrated in the existing management structures of the selected PAs to enable cost-effective monitoring of protected area management activities, assets, and ecological resources. This output will be delivered by the following activities:

- (i) **Appointment of project management counterpart focal persons at PA level:** The agencies responsible for protected area management in the project participating countries will be engaged through consultations to designate persons from among their staff with the requisite expertise to serve as focal points. The agencies will be encouraged to pay attention to gender inclusiveness when possible.
- (ii) **Detailed sites level assessments for the requirements at each PA:** Each target PA will be assessed to confirm the specific infrastructure requirements, staffing levels, and training needs, to enable effective deployment of the EarthRanger technology. This will be undertaken at the start of the project and preferably in the first and second quarter.
- (iii) **Discuss and confirm Terms of Reference for the National Project Steering Committee:** The details of the terms of reference for the National steering committee will be discussed during the inception meeting and also administratively with key stakeholders at the national level with input from AI2 and CI AFD.
- (iv) **Establish the National Project Steering Committee in each of the participating countries:** The process of setting up the Committee will be handled through administrative nomination, and the nominees confirmed during the stakeholder inception workshop. The Committee will be formally established by communication from the line ministry or agency responsible for protected area management in the participating country. Partners will be encouraged to take care of gender inclusiveness during the process of nomination of members of the National Project Steering Committee.
- (v) **Support functioning of the National Project Steering Committee in each target country:** The steering committee is an integral part in linking the project with the existing PA management structures and will meet virtually once a year or as may be required to support project management particularly in harmonizing project implementation in relation to the integration of

EarthRanger technology into the existing institutional arrangements. This will be in addition to the project monitoring role of the steering committee outlined in the M&E section. The committee will provide a platform for sharing of lessons learnt from project implementation.

(vi) Establish and support the functioning of an EarthRanger Working Group

An EarthRanger Working Group will be established to harmonize approaches to project implementation across the 6 selected protected areas. The members of this group will include Conservation International (CI), AI2, government partners, and non-state executing partners. The project partners will be encouraged to promote gender inclusiveness during the nomination of members that participate in the EarthRanger Working Group. The working group will meet virtually and more regularly than the Steering Committee to ensure proper coordination of project implementation.

(vii) Develop Guidelines/Standard Operating Procedures (SOPs) for integrating Earth Ranger software and associated technologies:

This activity will be undertaken collaboratively between AI2, CI AffD, executing partners and the PA management teams in each of the project participating countries. AI2 will offer guidance on the best approaches to utilize the EarthRanger technology in PA management and the participating countries will provide PA realities particularly how linkages with other key stakeholders such as Telecommunication agencies, the Army, Police, PA management agency, and other law enforcement agencies will be operationalized to avoid technical hitches. The SOPs will be used as a training guide and will outline the training methods to be used as well as the tools and materials required. The development of the SOPs will be informed by the findings of site assessments, which will establish the staffing levels and training needs.

114. ***Output 1.1.2: A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of Earth Ranger technology in each PA in the target countries.*** A functional coordination room will be necessary to host the EarthRanger monitoring unit including the hardware and software. The project aims to strengthen the monitoring capacity of the PA systems through infrastructure establishment and human resource capacity building. This output will be delivered by the following activities:

(i) Construction (where required) or refurbishment of control room infrastructure which is sufficient for effective 24-hour, 7-day-a-week operations:

This will entail selection of the site for the establishment of the Control Room, working out the required bills of quantities, clearing site, construction (or renovation of an existing structure), the connection of electricity, plumbing, and water supply, and maintenance (quality assurance) and regular supervision. The Ministry in charge of protected area management, in consultation with the PA management teams, executing partners, AI2 and CI AffD will be responsible for the hiring of the contractors through the appropriate procurement process.

(ii) Procurement and Installation of the necessary computer hardware in each control room:

Two (2) Personal Computer (PC) towers with associated hardware and software will be procured and installed in each room in the selected Protected Areas, one for the EarthRanger, and the other for the digital radio management system. Procurement of the right specifications is very important and will be taken into account. AI2 will provide technical assistance in specifying the hardware requirements. This activity may be undertaken by a contractor with the requisite expertise and experience and the process overseen by AI2.

- (iii) **Installation of comfort accessories as required in each control room (e.g., toilet facilities, air conditioner, ventilation):** The control room will be fully furnished with the necessary facilities.
- (iv) **Maintenance of the control room and installations:** After the demonstrative capacity building has been completed, the equipment will be handed over to the PA staff. Necessary routine maintenance must be undertaken to ensure the proper functioning of the technology and the sustainability of the operations. Therefore, after the first three years of Project implementation, the PA staff will take on the responsibility of routine maintenance of the control room and the installations through the established institutional framework and budgetary support. The PA management agencies will be encouraged to ensure gender inclusiveness among the control room staff to take advantage of the variation in skills of both men and women in equipment maintenance activities.
- (v) **Safeguard compliance:** A safeguards expert will be engaged to provide services before and after the construction at each selected sites. The expert will be responsible for ensuring the project complies with the safeguard's requirements. This will entail setting up the safeguard plans; implementation of the safeguards; monitoring and reporting on safeguard indicators. The safeguards compliance officer will be supported by each protected area (PA) focal point at the PA level. S/he will undertake site assessments and facilitate any mitigation requirements at each site.

115. ***Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.*** In order to strengthen monitoring of protected areas management and ecological activities, clear coverage of the ecosystem is necessary. This output will be delivered by the following activities:

- (i) **Review and confirm the infrastructure requirements, internet network needs, and associated software for each selected PA:** This activity, which begins during the PPG phase and continues during project implementation, is undertaken as part of the detailed site assessments to enable a clear understanding of the PA's needs. The activity includes determining the sites for the establishment of outposts/repeater stations and putting in place the operational modalities at each repeater station.
- (ii) **Establishment of repeater stations:** following the site assessments to determine the appropriate numbers and locations of repeater stations, masts will be constructed at the selected locations in each of the selected protected areas on which radio, LoRA, or internet repeaters will be installed.
- (iii) **Installation of the required hardware to enable suitable network capabilities for reliable access to the internet.** This activity will include procurement of the required hardware and software and their installation and signing contracts with internet service providers for up to 3 years to provide technical support. User-friendly technical guidelines will be developed to promote proper use of the installed equipment, PC hardware, and associated software for repeater stations.
- (iv) **Connect outposts to the control room:** this activity will include contracting of reliable internet service providers, and connection of both the physical infrastructure as appropriate, as well as the software to link the control room to outposts/repeater stations.
- (v) **Implementation of Safeguards:** A safeguards compliance officer, supported by each protected area (PA) focal point at the PA level, will undertake site assessments and facilitate any mitigation requirements for each of the activities as may be appropriate. This may include setting up detailed safeguard plans as may be required; implementation of the safeguards; monitoring and reporting on safeguard indicators.

116. Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.

Digital radios are an important component for ensuring the functionality of the EarthRanger technology. The following activities will deliver output 1.1.4:

- (i) **Review and confirm the need for the two-way digital radio networks or other appropriate communication networks for each selected PA:** Connectivity is key to the effective functioning of the EarthRanger technology and for efficient monitoring of the protected areas. The assessment will explore the coverage of digital radio and any other appropriate communication such as LoRa network. The process will be led by the project participating country and supported by AI2.
- (ii) **Installation of digital radio communication or other communication systems suitable for the environment of the selected protected area:** Two-way digital radio communication equipment (or other suitable communication systems) will be procured and installed in each selected PA to enable reliable voice communication on hand-held, vehicle-based, and base-station radios to support live tracking of personnel, assets and real-time SOS function. A LoRa WAN system will be installed in cases where it is required to support the flow of data in real-time from the field and to ensure proper coverage of each selected protected area.
- (iii) **Procurement and installation of sensor and tracking technologies that are fit-for-purpose for a particular protected area to detect illegal activities and/or monitor key wildlife species or other assets.** Appropriate equipment such as camera traps and radio accessories will be procured to enable data collection, transmission and ensure connectivity for effective functioning of the EarthRanger technology and subsequent monitoring of the protected areas.
- (iv) **Test and commission the communication network for each selected PA in the Project participating countries:** All the installations will be tested to ensure effective performance and commissioned for operations.
- (v) **Maintain/service the communication network equipment for each selected PA:** The network equipment will be regularly maintained and serviced for a period of up to 3 years and handed over to the PA management authorities with technical manuals and guidelines (Standard Operating procedures-SOPs) to ensure efficient functioning and sustainable use of the network in protected area management.

117. Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries. EarthRanger software will be installed on designated computers in each Control Room of the target protected area sites. This output will be delivered by the following activities:

- (i) **Review and confirm the requirements for EarthRanger software installation for each selected PA:** Assessments will be undertaken in each PA for the necessary requirements.
- (ii) **Installation of the EarthRanger software on the control room computer equipment as an aggregator of real-time data feeds:** This will entail procurement of the EarthRanger software and installing them on the computer in the Control room.
- (iii) **Testing and commissioning the EarthRanger equipment and software:** This will also entail aggregation of open-source data feeds on EarthRanger to improve management decision-making, (e.g., NASA FIRMS to track the occurrence and spread of fires).

- (iv) **Maintain/service the EarthRanger software and associated equipment for each selected PA:** Maintenance and service to ensure that EarthRanger software and associated accessories function effectively will be undertaken by the respective countries. This will ensure sustainability. Initial service support will be provided by AI2 as part of capacity building.

118. **Output 1.1.6: Protected area management staff trained to utilize Earth Ranger software (sensors, radios, satellite collars, and other data transmitters).** Training is intended to build capacity and enhance knowledge at national and protected area levels for effective EarthRanger use in decision making and taking immediate response actions. The training guide and the associated methods and tools/material will be developed under output 1.1.1 - activity (vii). Trainings will be undertaken by service providers of sensors, radios, collars, other data transmitters, the Internet, computer hardware, or LoRa networks. Where available, local support agencies will provide the training managed by the PA authorities. AI2 with support from CI-AffD as executing support partner will train and support the usage of EarthRanger and its integration with other technologies. At least two (2) trainings will be conducted for each PA; one for managers/senior-level officers targeting relevant Ministries, Departments, and Agencies; and another for field staff targeting field patrol teams and community-based conservation wardens. This output will be delivered by the following activities:

- (i) **Identify the key staff for training:** Appropriate staff will be identified and a total of at least six (6) national capacity building trainings will be undertaken during the project period. The persons will be trained and equipped with additional knowledge and skills for utilizing the EarthRanger technology and ensuring its effective performance in monitoring wildlife, assets and activities in the protected area. The capacity gaps assessment will be undertaken to inform capacity building of PA management persons through a combination of methods including short-term training and practical demonstrations of the EarthRanger technology. At least four staff at managerial level (at least two (2) per country from the relevant Ministry, Department or agency responsible for wildlife management; two (2) management staff from the selected PA) and three (3) field staff. The PA management agencies will be encouraged to ensure gender inclusiveness during the nomination of staff for the training to take advantage of the variation in skills of both men and women in the subsequent implementation of activities.
- (ii) **Conduct a baseline gender assessment of PA rangers in project sites.** This will need a small budget attached to allow for 3 focus groups + 10 key informant interviews. The output is a report to guide targets and engagement. I've highlighted this in yellow in the GMP.
- (iii) **Training of management and control room staff on all technologies that are deployed in a particular protected area:** Capacity building trainings on EarthRanger will be undertaken demonstratively to impart practical hands-on skills to the management staff and control room staff to enable them to manage the EarthRanger and related technologies for improved protected area management. Competent and knowledgeable staff will be able to collect, process, interpret and disseminate real-time information to address the key challenges of the protected areas, as well as supervise and guide the field staff. The Training sessions will also serve as a Training of Trainers (ToT) to create a pool of knowledgeable staff that will build the capacity of other staff. The PA management agencies will be encouraged to ensure gender inclusiveness during the trainings to take advantage of the variation in skills of both men and women in the subsequent implementation of activities. The trainings will be separately conducted at all the selected PAs in each participating country, with each training event drawing together the management staff (at least two per country from the

- relevant Ministry, Department or Agency responsible for wildlife management; two management staff from the selected protected area (including the project focal person at PA level) and three (3) staff assigned to manage the Control Room. **A target of 42 trainees (36 Male; 6 Female) is envisaged by the end of the project.**
- (iv) **Conduct demonstrative training of PA field staff:** the field staff play important roles in patrols, field surveillance and monitoring of criminal activities and wildlife, data collection, response to illegal activities, and interfacing with local communities. The application of the EarthRanger and related technologies will enhance the capacity of staff to detect and respond in real-time to any suspicious activities observed in the field. The training will prepare them to effectively use the various digital radio or other appropriate communications networks, including sensors, radios, satellite collars, and other data transmitters for surveillance and monitoring. The PA management agencies will be encouraged to ensure gender inclusiveness during the nomination of staff for the training to take advantage of the variation in skills of both men and women in the subsequent implementation of activities. The beneficiaries for this training will include at least 20 field staff per selected PA, consisting of field patrol team and community-based conservation personnel: **a target of at least 120 trainees (102 Male; 18 Female) is envisaged by the end of the project.**
- (v) **Support the trained staff on hands-on implementation:** Whereas the demonstrative training will have been undertaken, staff will be supported further by providing them with the hands-on practical implementation of the technology as they undertake field operations. This will ensure that field operations are carried out more smoothly with the new technology and thereafter contribute to sustainability as well.

119. Component one will be implemented largely through grantees or service providers and coordinated by CI AFD with support from the Allen Institute for Artificial Intelligence (AI2).

Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa

120. This component seeks to increase uptake and enhance awareness about the benefits of utilizing conservation technologies – in this case, Earth Ranger technology – in protected areas management. It is anticipated that through the dissemination of Earth Ranger’s success stories, other African countries will develop interest to install and use EarthRanger and related conservation technologies to manage their protected areas. The component consists of one Outcome described below.

121. Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology

The main activities under this outcome focus on sharing of project’s lessons and success stories through visits (EarthRanger User Conferences) and dissemination of information about the EarthRanger technology through various modes of communication. Success stories and lessons learnt from this project will be disseminated through the AI2 EarthRanger website, <https://earthranger.com/Success-Stories.aspx>. The project will also explore the potential of various national-level platforms and regional platforms, such as Southern African Development Community (SADC) Newsletter, <https://www.sadc.int/news-events/newsletters/> and the global platforms such as the Knowledge Sharing Platform of the GEF-World Bank Global Wildlife Program (GWP), to share best practices and lessons learned. SADC Secretariat produces a monthly newsletter, “*Inside SADAC*”, which could be utilized to share experiences and good practices to benefit the countries

within and beyond the region. GWP has been instrumental in tackling the wildlife issues of poaching and illegal wildlife trade in countries of Asia and Africa (Botswana, Mozambique, and Republic of Congo inclusive) and coordinating outreach with partners, collaborators, and donors. The Project will also take advantage of any other social media platforms and other media outlets as they unveil during implementation.

122. **The target for Outcome 2.1:**

- a. At least 6 new PAs identified, and 3 African countries committed to install Earth Ranger Technology in GEF8

Outcome 2.1 will be achieved through the following outputs:

- **Output 2.1.1:** Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA
- **Output 2.1.2:** Information sharing events undertaken to enhance learning and promote scaling up.
- **Output 2.1.3:** Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (*where the EarthRanger software informed decisions in management effectiveness of protected areas*).

123. ***Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA***

The use of the EarthRanger technology in promoting management effectiveness of protected areas is progressively taking root on the African continent, for instance, it is already being implemented in countries such as Kenya, Rwanda, Tanzania, and Malawi among others. Efforts will be directed towards fostering partnerships among expertise and facilitating exchange visits to further increase the uptake of the technology. This output will be delivered through the following activities:

- (i) **Promote use of virtual knowledge exchange platforms:** Encourage the project countries to participate in exposure opportunities e.g., EarthRanger User Conference. EarthRanger awareness opportunities are proposed under this component to share knowledge and skills required for enhancing use of the EarthRanger technology. The scope of the opportunities may be broadened to include other sectors as requested by the participating countries. Opportunities include promoting the use of virtual knowledge sharing platforms that will enable protected area managers from other countries to access information on the application of the EarthRanger technology. The exposure opportunities will illuminate interests, kindle commitments to adopt new approaches for protected area management and lay a foundation for future networking⁷⁴. The objective is to increase EarthRanger technology adoption for improved protected area management in the project countries as well as other countries by learning from experiences shared on the platforms. It is anticipated that this will make the peers

⁷⁴ Frédérique Matras, Fatouma Sidi, Sophie Treinen 2013. Exchange visits: Advice for improving the impact. Knowledge management and Gender: Good practice fact sheet. FAO, Rome.

realize their capacities and management skills gaps and stimulate interest to adopt the EarthRanger technology for improved protected area management⁷⁵.

- (ii) **Consolidate commitment of African countries to utilize EarthRanger Technology:** This will include holding virtual dialogues within the project participating countries as well as other African countries on the use of the EarthRanger and related technologies in PA management. Where interest has been generated to utilize the technology, further engagements will include soliciting endorsement letters (and possibly co-financing promises) to accelerate the introduction of the EarthRanger technology to other protected areas. This includes possibility of scaling up in the project participating countries when they express a need to deploy ER in new PAs. The potential for the existing participating countries; Botswana, Republic of Congo or Mozambique choosing to deploy ER in another PA in GEF 8 will be explored as well as interest expressed by other African countries.

124. Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up.

Regular information sharing will help to enhance awareness on the use of the EarthRanger technology for improved PA management as well as build capacity and appreciation of the importance of the EarthRanger. Deliberate efforts will be directed to promoting information-sharing events within and between the participating countries and possibly with other African countries. Where COVID-19 pandemic Standard Operating Procedures (SOPs) permit, learning visits will be arranged to protected areas where the technology is functional and being effectively used. In addition, sharing of lessons and best practices from those who have used and/or are using the technology will be promoted through effective documentation and virtual workshops. Technology soft and hardware/equipment and accessories required by focal persons will be provided to bolster their capacity. This output will be delivered through the following activities:

- (i) **Attending Annual Regional EarthRanger User Conference:** AI2 holds regular conferences to share experiences on the use of EarthRanger technologies in protected area management. PA management staff from the participating countries will be facilitated to attend the conferences for information and knowledge exchange to enhance capacity in the use of the technology. The PA management agencies will be encouraged to ensure gender inclusiveness during the nomination of staff that participate in the annual EarthRanger user conference to take advantage of the variation in skills of both men and women in the subsequent implementation of activities. Two persons from each protected area will be supported per year. The EarthRanger Working group under this project will have the opportunity to meet physically during this conference.
- (ii) **Hold virtual annual national and regional events on Earth Ranger experience:** Each of the target countries will hold an annual event for information sharing in the country to discuss progress and lessons learnt in the implementation of the EarthRanger technology. A regional event will then be held and attended by participants from the project participating countries to promote regionalism in improved PA management as well as invite any other African countries to enhance learning and popularize the EarthRanger technology for uptake. The PA management agencies will be encouraged to ensure gender inclusiveness during the nomination

⁷⁵ Bryan Bruns 2002. Exchange Visits as a Learning and Networking Tool. Environment and Development Affinity Group of the Ford Foundation. Accessed from website https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/4479/Bruns-Exchange_Visits.pdf?sequence=1&isAllowed=y

of staff for the annual national and regional events on sharing experiences on the use of EarthRanger technology. Holding experience sharing and capacity building events will contribute to enhance effective and timely documentation and reporting.

(iii) Regional Women's ranger learning/knowledge exchange summit. The project will organize a separate, regional 'women's rangers' summit', focused on bringing together the women rangers from all project sites. This will be an opportunity to 1) create a safe space for women rangers to learn from each other, share experiences, and challenges that they face as women rangers, ultimately creating a network that can support each other, and 2) demonstrate that the GEF/CI/AI2/the partners truly want to support women in this field of work.

125. *Output 2.1.3: Success stories, lessons learnt and best practices published and shared on blogs, websites and other digital platforms (where the Earth Ranger software informed decisions in management effectiveness of PAs).*

A success story in the context of this project is an account of the achievement of success by the EarthRanger project. It will be an important marketing tool for the EarthRanger project directed towards other protected areas to consider using the technology for improved protected area management. The success stories will provide practical examples and real-time experiences in the use of the EarthRanger technology in protected area management. This output will be delivered through the following activities:

- (i) Develop the capacity of PA staff for effective documentation and digital information sharing:** This activity will involve capacity building events to enhance effective and timely publications of e.g., Newsletters, reports, fact sheets, and at least one short film capturing the impact of the project. The development of a project success story will benefit from this capacity enhancement approach. The PA management agencies will be encouraged to ensure gender inclusiveness during the nomination of staff to participate in the capacity-building sessions for enhancement of documentation and digital information sharing to take advantage of the variation in skills of both men and women in the subsequent implementation of activities. Local expertise will be procured to facilitate the write shops and accordingly enhance documentation.
- (ii) Prepare and disseminate an article that highlights 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field).**
- (iii) Document progress of Earth Ranger application experience** (Newsletters, fact sheets, brochures, short film, etc.): Newsletters, fact sheets, and a short film will be useful in information sharing during peer exchange visits and study visits. Quarterly newsletters and periodic fact sheets will be developed by project management to ease sharing of experiences.
- (iv) Protected area Management Authorities to upload Earth Ranger experiences on their websites as appropriate:** The developed publications will be uploaded on blogs and websites as appropriate.
- (v) PA partners to upload Earth Ranger application experiences onto their websites as appropriate:** Other partners will also be supported to participate in information sharing through the uploading of the lessons learned from the project, reports, newsletters, presentations, social media, and factsheets onto their websites and blogs.

126. This component will build from a baseline of existing country capacities identified through an assessment.

Component 3: Monitoring and Evaluation

127. Setting up a project Monitoring and Evaluation framework will enhance transparency and accountability; ensure effective resource allocation, provide quantifiable results that will promote adaptive management through learning from project successes and challenges; Improve project performance by tracking indicators, and identifying effective tools to measure and analyze the progress of the interventions, as well as the progress made towards achieving the target outputs and outcomes. As part of M&E, the project will submit periodic technical and financial reports to the CIGEF Agency. Additionally, the CIGEF Agency will undertake a Mid Term Evaluation and Terminal Evaluation of the project.

128. *Outcome 3.1: An integrated monitoring and evaluation framework for the project*

Progress reports will be developed and shared with stakeholders. Both mid-term and end-term evaluations will be undertaken by external evaluators to ensure objectivity and accountability to stakeholders.

129. Targets for Outcome 3.1:

- a. Periodic technical and financial reports submitted to CIGEF (*3 Annual Workplans and Budget, 12 Quarterly Reports, 3 Annual Progress Implementation Reports (PIRs)*).
- b. At least two (2) Evaluations conducted by CIGEF: Mid-Term Evaluation and Terminal Evaluation

Outcome 3.1 will be achieved through the following outputs:

- **Output 3.1.1:** Periodic M&E reports submitted to CIGEF Agency
- **Output 3.1.2:** Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF.

130. *Output 3.1.1: Periodic M&E reports submitted to CIGEF Agency.*

A systematic monitoring and evaluation of project activities is important for the success of the project. Efforts will be directed towards ensuring timely internal monitoring by project stakeholders and external evaluation by expertise. This output will be delivered through the following activities:

- (i) **Inception Workshop and Reporting:** A workshop will be held at the project start-up to obtain a common understanding of the implementation approaches, activities to be undertaken, and expected deliverables. An inception report will be prepared and shared with key project implementation partners.
- (ii) **Internal project progress monitoring:** The project's progress will be monitored internally by the project management and periodic progress reports prepared and shared with key stakeholders. The activity will also entail preparation of work plans and quarterly progress reporting.
- (iii) **Discussion and refinement of the M&E Plan:** The project management team will initially review the project M&E plan to allocate clear roles for each implementation partner. This will then be integrated in the annual work plans and budgets and reviewed for effective implementation. The objective of this activity is to improve project implementation and ensure improved protected area management in the project countries.
- (iv) Information collection and synthesis on M&E Indicators (M&E plan)
- (v) Annual progress and implementation reporting (APR/PIR)

- (vi) Project Steering Committee Meetings (bi-annually)
- (vii) CI-GEF Project Agency Field Supervision Missions
- (viii) Project completion report
- (ix) Financial Statements Audit

131. Output 3.1.2: Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

The CIGEF Agency will source external expertise to undertake the mid-term review and end term project evaluation. A mid-term review report will be prepared and will assist in identifying areas for improvement while the end term evaluation report will provide lessons for future project implementation and out scaling. This output will be achieved through implementation of the following activities

- i) **Conduct a mid-term review of the project.** The mid-term review will be commissioned by CI-GEF to assess project progress and the criteria used to judge the interventions leading to the required deliverables e.g., efficiency of activity implementation based on work plan and budget. The CIGEF Agency will source external expertise to undertake both the mid-term review and end term project evaluation. A mid-term review will be conducted after two years of project implementation. The review will be carried out in a participatory manner, involving key stakeholders from government agencies, civil society organizations, the private sector and community-based organizations. The recommendations from the mid-term review will guide any adjustments to be made to ensure effective project implementation.
- ii) **Conduct a terminal evaluation of the project.** A terminal evaluation will be conducted within three months after the end of the project to document best practices and lessons learnt. The evaluation report will inform future project design and implementation, including the envisaged scaling up of similar initiatives in other African countries.

132. This component will build on the project monitoring and evaluation framework presented in Appendix III of this Project Document.

B. Associated Baseline Projects

133. On-going initiatives that seek to improve management of Protected Areas are summarized below:

Global and Regional Initiatives

AI2 Programs on Countering Poaching and Human-Wildlife Conflict (<https://vulcan.com/Our-Work/Conservation.aspx>): The use of the EarthRanger technology in promoting management effectiveness of protected areas is progressively taking root on the African continent, for instance, it is already being implemented in countries such as Kenya, Rwanda, Tanzania, and Malawi among others. EarthRanger deployment is an on-going initiative to support PA management. Efforts will be directed towards fostering partnerships among expertise and facilitating exchange visits to further increase the uptake of the technology.

Title of Project: Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development Program

Project Location: Afghanistan, Botswana, The Republic of Congo, Cameroon, Ethiopia, Gabon, Indonesia, India, Kenya, Mali, Malawi, Mozambique, Philippines, Thailand, Tanzania, Viet Nam, South Africa, Zambia and Zimbabwe.

Duration: 2015 – 2022

Description: This is a USD 131 million project funded by the Global Environment Facility (GEF) and the World Bank. The project participating countries in Africa are Botswana, Congo, and Mozambique. The GEF-6 Global Wildlife Program (GWP) is implemented at the global, regional, and national levels. The project established a learning and coordination platform to mitigate Illegal Wildlife Trade (IWT) and increases technical capabilities to curb it. The project is aimed at strengthening national strategies to improve wildlife and protected area management, enhance local community livelihoods, strengthen law enforcement, and reduce illegal activities through behavior change. Funds are channeled to governments through development partners such as World Bank, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), and the Asian Development Bank (ADB). The GWP also collaborates with the International Consortium on Combating Wildlife Crime (ICWC), other donors and conservation partners to implement integrated biodiversity conservation approach, wildlife crime prevention and sustainable development. The conservation partners include Global Environment Facility (GEF), International Union for Conservation of Nature (IUCN), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, TRAFFIC, WildAid, Wildlife Conservation Society (WCS) and World Wildlife Fund (WWF).

In Mozambique, the USD15.8 million fund is supporting Gorongosa National Park (Gorongosa-Marromeu Complex) and the Niassa National Reserve focusing on promoting the value of wildlife and combatting illegal wildlife trafficking, strengthening enforcement capacity in key protected areas, establishing conservancies to expand the Gorongosa Protected Area complex, restoring degraded habitats and supporting rural livelihoods.

Title of Project: Biodiversity and Protected Areas Management Programme (BIOPAMA)

Project Location: African, Caribbean and Pacific (ACP) countries - Botswana, Mozambique, Republic of Congo are amongst the 79 countries benefitting from the BIOPAMA project.

Duration: 2017 – 2023

Description: BIOPAMA is a sixty million Euro (€60 million) investment program aimed at improving long-term conservation and sustainable use of biodiversity and natural resources in protected areas and the surrounding communities in African, Caribbean and Pacific (ACP) countries. It is an initiative of the ACP Group of States financed under the European Union's 11th European Development Fund (EDF) and jointly implemented by the International Union for Conservation of Nature (IUCN) and the Joint Research Centre of the European Commission (JRC). The Regional Observatories for Protected Areas and Biodiversity play pivotal roles in BIOPAMA by supporting data collection, analysis, monitoring and reporting, building capacity of staff and organizations to manage information and provide policy guidance for better decision making on biodiversity conservation.

Title of Project: Support to Eligible Parties to Produce the Sixth National Report to the CBD (Africa-1)

Project location: Burundi, Botswana, Central African Republic, The Republic of Congo, Djibouti, Eritrea, Ethiopia, Gabon, Kenya, Comoros, Rwanda, Sudan, South Sudan, Chad, Tanzania, Uganda, Democratic Republic of Congo (DRC).

Description: The project is funded by GEF via UNDP to the tune of USD 1,963,500. The project is an initiative to provide financial and technical support to GEF-eligible Parties to the Convention on Biological Diversity (CBD) to develop (i) high quality, data-driven sixth national reports (6NR) that will improve national decision-making processes for implementation of NBSAPs, (ii) a report on progress towards achieving the Aichi Biodiversity Targets (ABTs) so as to inform both the Fifth Global Biodiversity Outlook (GBO5) and the Global Biodiversity Strategy of 2021 – 2030.

Title of Project: Sustainable Forest Management Impact Program on Dry land Sustainable Landscapes.

Project location: Angola, Burkina Faso, Botswana, Kenya, Kazakhstan, Mongolia, Malawi, Mozambique, Namibia, Tanzania, Zimbabwe

Description: The project is funded by GEF via FAO to the tune of USD 95,844,674. The objectives are a) Integrated landscape management focusing on sustainable forest management and restoration, rangelands, and livestock production; b) Promotion of diversified agro-ecological food production systems in dry lands taking into consideration their biodiversity; c) Creation of an enabling environment to support objectives (a) and (b).

Title of Project: Integrated Trans boundary River Basin Management for the Sustainable Development of the Limpopo River Basin.

Project location: Botswana, Mozambique, South Africa, Zimbabwe

Description: The project concept was approved. It is to be funded by GEF via the World Bank to the tune of USD 6,000,000. It is aimed at promoting sustainable development in the Limpopo River basin through Integrated Water Resources Management (IWRM) at the trans boundary, national, and local scales to balance environmental, social and economic benefits.

The Limpopo River Basin hosts protected areas and a number of biodiversity hotspots. The Great Limpopo Transfrontier Park, comprising the Kruger National Park in South Africa, the Limpopo National Park in Mozambique, and the Gonarezhou National Park in Zimbabwe are located in the basin and cover an area of approximately 3,577,144 ha. The transfrontier conservation area encompasses a wider area around this transfrontier park, including rural and urban areas in which communities live (GEF, 2019). The total funding mobilized for Mozambique is USD 480,000.

Title of Project: The Congo Basin Sustainable Landscapes Impact Program (CBSL IP)

Project location: Central African Republic, Republic of Congo, Cameroon, Gabon, Equatorial Guinea, Democratic Republic of Congo (DRC)

Duration: 2019-2022

Description: The project concept was approved. It is expected to be funded by GEF via UNEP to the tune of USD 57,201,127. The objective of the project that is implemented in the Republic of Congo is to promote a model for integrated community-based conservation and protected area management in the country's peat land area and forest ecosystems.

National Initiatives

134. National level initiatives in the project participating countries that will benefit the EarthRanger project are presented in **Table 4**. The linkages between these projects and the EarthRanger project are outlined in **Table 12**.

Table 4: Baseline initiatives at national level in the project participating countries

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
Botswana			
Managing the human-wildlife interface to sustain the flow of agro-ecosystem services and prevent illegal wildlife trafficking in the Kgalagadi and Ghanzi	The objective is to promote an integrated landscape approach to managing Kgalagadi and Ghanzi dry lands for ecosystem resilience, improved livelihoods and reduced conflicts between wildlife conservation	Project sites are Kalahari savanna/central Kalahari Game Reserve (CKGR) and Kalahari Transfrontier Park (KTP); Kgalagadi/Ghanzi drylands in western and southwestern Botswana; Orange-Senqu	GEF/WB USD 6 million

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
drylands (Global Wildlife Program) ⁷⁶ .	<p>and livestock production</p> <p>The thematic focus is recognition and management of conservation areas for protecting wildlife migratory corridors; community rangeland management and pastoral production practices; strengthening of institutional and community capacity for implementing landscape planning and integrated sustainable management; development and implementation of national strategy for combating wildlife crime (capacity building, inter-agency collaboration and local level participation)</p>	<p>transboundary river basin; Ngamiland</p> <p>The species in focus are lions, cheetahs and wild dogs.</p>	
National Biodiversity Planning to Support the implementation of the CBD 2011-2020 Strategic Plan in Botswana	To integrate Botswana's obligations under the CBD into its national development and sectoral planning frameworks through a renewed and participatory 'biodiversity planning' and strategic process	Botswana (Global) Start date: January 2018 Estimated end date: December 2022	USD 18,022,275 United Nations Development Programme, Government of Norway, Flanders International Cooperation Agency, Flemish Government and Federal Office for The Environment-(FOEn)
Support to the Ministry of Finance and Economic Development to lead in the coordination of SDGs	To support the Government of Botswana in the implementation of the SDGs, the SDGs roadmap	Botswana - National Start date: January 2018 Estimated end date: December 2021	USD 550,544 United Nations Development Programme, Government of

⁷⁶ Global Wildlife Program (GWP) Project: Managing the Human-Wildlife Interface to Sustain the Flow of Agro-Ecosystem Services and Prevent Illegal Wildlife Trafficking and in the Kgalagadi and Ghanzi Drylands. <https://pubdocs.worldbank.org/en/973241579204940474/Botswana-Publisher-20180911-Dec11.pdf> Website accessed on 1st April 2021 at 1830hours.

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
implementation in Botswana	and other emerging strategic issues such as South-South and Triangular Cooperation (SS&TrC) and human resource development.		Botswana
Support to the Botswana Environment program	The objectives of the project were (i) to strengthen the systems for conservation and sustainable use of natural resources; and (ii) to establish a national environmental information management system	Botswana (National) (Completed)	USD 4,630,833 UNDP and Government of Botswana
Botswana Pandamatenga Agriculture Infrastructure Development Project	The sectoral goal of the project is to contribute to the attainment of increased crop diversification, agricultural output and productivity as stated in the National Master Plan for Agriculture and Dairy Development.	Botswana (Pandamatenga) Status: Ongoing	UA 42.94 million African Development Bank (UA 37.27 million loan) and Government of Botswana (UA 5.56 million)
Emergency Water Security and Efficiency	The aim is to improve availability of water supply in the drought prone areas, increase the efficiency of Water Utilities Corporation (WUC) and strengthen wastewater management in selected systems.	Botswana (National) Status: On-going	USD 160 million World Bank and Government of Botswana
Mozambique			
Strengthening the conservation of globally threatened species in Mozambique through improving biodiversity enforcement and expanding community	The expected outcomes include: (a) Conservation of globally threatened species in Mozambique strengthened through implementation of the Conservation Areas Act; (b) Improved biodiversity conservation	The project sites are Gorongosa National Park (Gorongosa-Marromeu Complex) and the Niassa National Reserve with focus on elephants, rhinos, and leopards. The executing partners are: National Agency for	GEF (via UNDP) Project amount: USD 15,750,000

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
conservancies around protected areas ⁷⁷ .	enforcement; (c) Expanded protected areas through establishment of community conservancies while supporting rural development activities.	Conservation Areas (ANAC), Gorongosa Restoration Project & Wildlife Conservation Society in Niassa. Duration: 2017 -2024	
Mozambique Conservation Areas for Biodiversity and Development (MOZBIO)	The objective is to increase effective management of conservation areas and enhance living conditions of the adjacent local communities. The project's activities are linked to Component 1 of the GEF 6 strategy. By improving protected area management, the project aims to reduce poaching, wildlife and forest related crimes, and illegal wildlife trade. The EarthRanger project will leverage interventions on human resource management and improvement in MOZBIO, establish synergies and collaboration, and will benefit from lessons learnt.	MOZBIO supports ANAC to improve management of protected areas other than Niassa and Gorongosa. The project period was 2014-2019 but it is still on-going.	GEF (via World Bank) Project amount: USD 46.32 million (WB- USD 40 million and GEF USD 6.32 million)
Kheta Project, implemented by the governments of Mozambique and South Africa by the Department of Environmental Affairs (DEA), South African National Parks	The project addresses the continued decline of Africa's elephant and rhino populations due to wildlife trafficking.	Limpopo Transfrontier Park	Partners include WWF-South Africa, WWF-Mozambique, TRAFFIC, the Endangered Wildlife Trust (EWT) and the International Union for Conservation of Nature (IUCN),

⁷⁷ Global Wildlife Program (GWP) Project: Strengthening the Conservation of Globally Threatened Species in Mozambique Through Improving Biodiversity Enforcement and Expanding Community
<https://pubdocs.worldbank.org/en/730891579207523649/Mozambique-20180911-v2.pdf> website accessed on 1st April, 2021 at 1720hours.

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
(SANParks), the National Administration of Conservation Areas (ANAC) and the Attorney General's Office in Mozambique (PGR).			USD 16.5 million
BIOFUND	BIOFUND raises two separate types of funds: Funds for investment (Endowment), and funds for direct application (Sinking funds)	This is a national initiative implemented in the whole country.	It is forecast that, by 2020, BIOFUND will have granted about USD 5 million to the ACs from the two sources.
Niassa Carnivore Project (2012 – 2027)	<p>The project has three goals:</p> <p>Goal 1: to secure ecologically stable leopard, spotted hyena, wild dog and lion populations in Niassa Reserve, with at least 1000 – 2000 lions not attacking livestock and people.</p> <p>Goal 2: to develop a model for sustainable partnerships between local communities and conservation organisations resulting in effective conservation management with increasing wildlife populations, decreased illegal activities and increasing income and benefits to local communities to support conservation friendly development,</p> <p>Goal 3: to develop a locally relevant, sustainable environmental education, and skills</p>	Across Niassa Reserve the lion population appears to be stable (between 800-1000 lions) but there are concerns about the declining populations of leopard, hyena, wild dog. There are also concerns about poisoning of lions to support illegal lions' bone trade. The first poacher was caught with lion bones in 2016 by L7, Niassa Wilderness. In the past 3 years, 64 leopards, 23 lions, 37 hyenas and 24 wild dogs have been killed illegally across Niassa Reserve ⁷⁸ .	Rufford Small Grants: USD 1551 032

⁷⁸ Niassa Carnivore Project Report, 2016.

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
	training in Niassa based at Mariri environmental and skills training centre to promote conservation and coexistence with large carnivores and provide alternative livelihoods		
The Republic of Congo			
North Congo Forest Landscape Project (PPFNC)	The aim of the project is to ensure the maintenance of ecological continuums and preservation of biological diversity in the territories of the North of Congo by supporting a socio-economic development and a rational planning of the territory.	North Congo in Likouala, Sangha and Cuvette West with an area of 9.5 million ha. Status: Territorial integration project	Global funding of 8.954 million: 7.26 million (AFD) 1, 684 million (FEM)
Congo Conservation Company	Development of village lands and improvement of the conditions of local communities and indigenous peoples (CLPA) through community-based ecotourism enterprises	North Congo in the departments of Cuvette Ouest, Likouala in the peripheries of Odzala-Kokoua and Nouabalé-Ndoki national parks. Status: Conservation company	Global funding of Euro 4.360 million (European Union and South Africa)
Inventory and field tests for deployment of IT Legality Verification System (SIVL) with stakeholders	The aim is to monitor and mitigate deforestation in forest management units (FMUs) granted to logging concessionaires	National territorial (département): Pointe-Noire, Kouilou, Niari, Bouenza, Lékoumou, Plateaux, Cuvette, Cuvette Ouest, Sangha and Likouala. Status: Program on traceability and control logging - Currently planned to end in June 2021, but with the possibility of seeking further funding.	FAO-EU FLEGT: Euro 677,000
National Afforestation and Reforestation Program (ProNAR)	The objective is to establish forest and agroforestry plantations	National coverage over 1 million ha	Global financing: USD 3 million comprising USD 2 million by the Government of Congo

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
	so as to increase carbon stocks at the national level and ensure the country's supply of timber (timber, fuel wood, service timber) and non-timber products (essential oils, resins, honey, fruits, vegetables and others).	Status: State program planned to be completed at the end of November 2021	USD 1 million by private partners
Ecosystem management project from the periphery of Park (PROGEPP)	The aim is integration of wildlife conservation and management in forest concessions, through a collaboration between WCS, the Congolese government, forest concessions and the local population	North Congo in the Sangha Department at the level of the forest concessions of Kabo (CIB-OLAM) and NGombé (IFO). Status: Community development project	Financing CARP amounting to USD 0.9 million by companies IPC-OLAM and Forest Industry Ouessou (IFO)
Creation of Conkouati Dimonika Protected Area Complex and Development of Community Private Sector Participation Model to Enhance PA Management Effectiveness ⁷⁹	The objective was to ensure biodiversity conservation and management effectiveness through creation of protected area complex and implementation of communities and private sector participation model. A new protected area called Ntombo and a corridor for maintaining natural ecological connectivity were created with the participation of local communities and the private sector operating within the boundaries of the complex.	South Congo in the department of Kouilou on an area of 423,000 ha (145,000 ha PA to be created and 278,000 ha for corridors) Status: Integrated community forest reserve / Biosphere reserve. The Project was submitted in 2013 and approved in June 2016 for implementation and has been operational since 2018. The duration is 48 months.	Global funding totaling 18.2 million: 2.9 million (FEM) 15.3 million co-financing
Creation of Loango Bay Marine Protected Area to support Turtles Conservation in the Republic of Congo	The project is aimed at conservation and sustainable management of marine biodiversity through concerted and	South Congo in the Kouilou Department. The PA being created will cover an area of 65,000 ha; made up of a	Global Financing Total funding is USD 3.35 million:

⁷⁹ <https://www.thegef.org/project/creation-conkouati-dimonika-pa-complex-and-development-community-private-sector>

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
	participatory protection of marine turtle habitats	marine area (60,000 ha) and a land area 5,000 ha) Status: Integrated community reserve Project duration: 48 months (2018 -2022)	GEF USD 0.7 million Co-financing USD 2.635 million
Integrated and Trans frontier Conservation of Biodiversity in the North Congo Basins ⁸⁰	The objective is to strengthen the efficiency of PAs through the operation of peripheral buffer zones and biological corridors for the interconnection of protection nuclei	North Congo in the Departments of Cuvette, Cuvette Ouest and Sangha. The project covers a total area of 1,533,600 ha including the Odzala-Kokoua National Park (1,354,600 ha), the Lossi Gorilla Sanctuary (35,000 ha) and the creation of Messok -Dja PA on 144,000 ha. Status: Tridom Landscape of the Congo Basin	Total Global funding: 25.052 million: - 3,570 million (FEM) - 1 million (UNDP) - 20,482 million of Co-financing
Community-based integrated conservation of peat land ecosystems and promotion of ecotourism in the landscapes of Lake Tele in the Republic of Congo	The aim is to develop an integrated model for the use and sustainable management of peat land ecosystems through participatory conservation	North Congo in the departments of Likouala and Cuvette Status: Lake Tele Landscape of the Congo Basin Project is awaiting evaluation by the GEF Secretariat	Funding: FEM: USD 6 million Co-financing USD 41 million
Strengthening the Management of Wildlife and Improving Livelihoods in Northern Republic of Congo ⁸¹ (The project seeks to Increase the capacity of	The objectives are (1) to provide support for the national anti-poaching strategy and the resulting activities; (2) improve the management effectiveness of Ntokou	Ntokou Pikounda National Park, Nouabalé-Ndoki National Park (2017–2021)	GEF – USD 6,5 million Co-financing (fonds IDA/BM): USD 74 millions

⁸⁰ Global Wildlife Program (GWP) Project: Integrated and Transboundary Conservation of Biodiversity in the Basins of the Republic of Congo. <https://pubdocs.worldbank.org/en/150821579207586863/Republic-of-Congo-UNDP-20180913-v2.pdf>. Website accessed on 1 April at 1830hours.

⁸¹ <https://www.thegef.org/project/strengthening-management-wildlife-and-improving-livelihoods-northern-republic-congo>

National initiatives in Project countries			
Project/Initiative	Objectives and thematic focus for addressing environmental issues	Geographical scope and status	Source of funds and budget amount (USD)
the forest administration, local communities and indigenous peoples to co-manage forests). It is a national GEF project whose three components are in a primary project of the World Bank called `` Forest and Economic Diversification Project (PFDE) ''	Pikounda National Park to enhance habitat and biodiversity conservation, (3) to support eco-tourism activities in the southern ring road of Nouabalé Ndoki National Park); (4) mitigate land degradation and promote sustainable forest management		
Support for conservation and sustainable management of biodiversity in the TRIDOM Interzone Congo area (ETIC)	The objectives are to: (i) Promote conservation and sustainable management of natural resources for poverty reduction: (ii) Support anti-poaching surveillance and control. (iii) Promote cross-border collaboration (iv) Monitor animal populations (inventory) for the creation of the Messock-Dja Forest Reserve (v) Support - comminatory development	North of Congo in the districts of Sembé, Souanké and Ngbala (Department of Sangha) and covering an area of 2,100,000 ha Status: Conservation project (Ministry Forest Economy and WWF (2019-2022)	Source of funding : WWF, EU, segré, arcus, cawfi

C. Incremental Cost Reasoning

135. New and emerging technologies that combine to improve real-time situational awareness have been piloted in several protected areas across Africa and beyond. Key technologies that have emerged include AI2's EarthRanger software platform that aggregates information from the field in real-time. Aligned with EarthRanger is the deployment of (a) digital radio systems to improve voice communications and enable real-time tracking of personnel and other assets such as vehicles, (b) LoRa WAN systems to provide connectivity over remote protected areas, and (c) numerous other sensor technologies that are applied and deployed on a fit-for-purpose basis. Examples of protected areas where such technologies have been deployed include:

- Lewa Downs Reserve, Kenya
- Niassa National Park, Mozambique
- Ennedi, Chad
- Gorongosa National Park, Mozambique
- Akagera National Park, Rwanda
- Liwonde National Park, Malawi
- Grumeti Reserve, Tanzania
- Gonarezhou National Park, Zimbabwe
- North Luangwa National Park, Zambia
- Sabi Sands Reserve, South Africa
- Nairobi National Park, Kenya
- Lower Zambezi National Park, Zambia

136. All of the above protected areas attest to the positive impact of that EarthRanger deployment has had on achieving management effectiveness through improved real-time data collection, surveillance and situational awareness.

137. The technology currently used for data gathering and surveillance in the management of protected areas in Africa which the EarthRanger will complement are described below.

- **Satellite and LoRa tracking-enabled Animal Collars:** Several makes of animal collars enable the real-time monitoring of animals via satellite or LoRa links into EarthRanger. By monitoring the movement of these animals, they can be protected from human threats, and villages can be warned of impending crop raids. Furthermore, animal behaviour can be undertaken.
- **Digital Radios with satellite tracking capabilities:** Several makes of digital radios enable the real-time monitoring of patrols via satellite or LoRa links into EarthRanger. Besides the 2-way communications between patrols and headquarters, knowing where patrols are in real-time enables PA Management to manage and protect them.
- **EarthRanger Track, Android app for personnel tracking:** AI2 has developed an Android tracking app that links into EarthRanger. Knowing where patrols are in real-time enables PA Management to manage and protect them.
- **Vehicle Trackers (terrestrial and airborne):** Several makes of vehicle trackers enable the real-time monitoring of those vehicles in EarthRanger. Knowing where the personnel on vehicles are in real-time enables PA Management to manage and protect them.
- **Personnel Trackers:** Several makes of personnel enable the real-time monitoring of field staff via satellite links into EarthRanger. Besides the 2-way communications between patrols and headquarters, knowing where patrols are in real-time enables PA Management to manage and protect them.
- **CyberTracker:** CyberTracker enables PA field staff to capture any type of field observation, which then populate EarthRanger in real-time. Observation categories include Security, Ecological Monitoring, HWC and Logistics.
- **Open Data Kit (Mongabay, 2020⁸²)** enables protected areas managers to work off grid and users can transfer field data from a mobile device to a server which is uploaded to Excel, Google Maps, or more sophisticated statistical analysis software. The Kit uses a set of free and open-

⁸² Mongabay. (2020). Bringing field surveys into the modern, mobile world. Retrieved from Mongabay: <https://wildtech.mongabay.com/2016/03/bringing-field-surveys-into-the-modern-mobile-world/>

source survey tools, can integrate GPS locations, photos, videos and audio files into customized forms, while working off-the-grid.

- **Camera traps:** These are remote cameras that take photos when a sensor is triggered by the movement of an animal or person and send the image in real-time to the operator. They have helped researchers to document the presence of elusive wildlife. The cameras have also helped to study species behavior in the dark. More sophisticated camera traps can distinguish between different species, including humans, so that relevant images can be sent to EarthRanger in real-time for further action by PA Managers.
 - **LoRa Communications Network:** This is a low-bandwidth technology emerging from the Internet of Things innovations. This technology improves monitoring of variables that help to reduce conflicts between people and wildlife. The LoRa WAN network technology is connected to several sensors placed in the field, creates a network of communication tools to alert people when elephants are approaching or when electric fences are not working. Thus, the technology helps to save lives of both people and wildlife.⁸³
 - **Remote satellite sensing systems:** Satellite sensors that feed-back information such as fires and deforestation events can be linked to EarthRanger in real-time.
 - **Fence breakage alerts:** Sensors on PA fences are able to sense when an electric fence is tampered with, alerting PA Managers via EarthRanger, so that they can be dealt with appropriately.

138. Protected area management activities in the participating countries are funded by national budgets, development partners and some regional initiatives. Funds from bilateral and multilateral sources include the Global Environment Facility (GEF), World Bank and the African Development Bank among others. The interventions supported by such funds build on the past work aimed at addressing the gaps such as incomprehensive national mechanisms for ensuring sustainable management of protected areas.

139. In spite of the baseline interventions, management of the protected areas is still inadequate to ensure sustainability of wildlife and protected areas conservation. This shortfall is partly attributed to the inadequate institutional and human resource capacity in the project participating countries to effectively manage protected areas. There are projects funded under the GEF in the participating countries that focus on strengthening capacity for improved protected areas management. For instance, GEF funding has supported biodiversity conservation, climate change mitigation, sustainable land management and reduction of persistent organic pollutants (chemicals) in the environment. Under the GEF alternative, the EarthRanger project will build on the achievements of projects and initiatives documented in the baseline survey by implementing activities that will help to build human and institutional capacities for effective management of protected areas in the project participating countries.

140. Furthermore, previous programmes invested in building the foundation for improved protected areas management. The EarthRanger project will build on the achievements of the initiatives to enhance data collection, analyses and sharing for better protected area management. The

⁸³ The Verge 2017. This African park has a high-tech plan to combat poachers
<https://www.theverge.com/2017/7/20/16002752/smart-park-rwanda-akagera-poaching-lorawan>

EarthRanger project interventions will ensure that the protected areas managers in Botswana, Mozambique and Republic of Congo are better equipped and able to cost-effectively manage wildlife and their habitats.

141. The proposed activities in this EarthRanger deployment project will complement existing protected areas management approaches and strengthen partnerships for efficient ecological monitoring and response to threats. The activities include, but not limited to:

- (i) Multiple, dynamic and rapid responses to wildlife crime.
- (ii) Effective collaboration among protected area managers nationally and internationally.
- (iii) Supporting countries to build robust technological systems and institutional frameworks to share information for effective protected area management.
- (iv) Informing policy and strategic planning processes particularly where ecological monitoring may necessitate adjustments in PA management approaches.
- (v) Undertaking capacity building activities that are flexible and country-driven aimed at ensuring that interventions and activities directly add value while strengthening protected area management.

142. This project will leverage additional benefits for protected area management at the national and regional levels including:

- (i) Putting in place a professional group of competent protected area managers to support ecological monitoring and sustainable conservation of protected areas.
- (ii) Establishment of functional inter-country cooperation and coordination for enhanced protected area management.
- (iii) Transparent communication of responses to wildlife crime and threats to flagship species of conservation priority.
- (iv) Identification of multiple impacts of threats on conservation areas that can jeopardize biodiversity conservation.
- (v) Enhancing national institutional capacity for biodiversity conservation and protected area management.
- (vi) Enhancing the multitude of social, cultural, economic, and environmental benefits⁸⁴.

143. National reporting of protected area management will have clear and immediate applications, such as species-specific conservation interventions. In addition, the successful implementation of the EarthRanger project will attract international support for proposed actions or plans for protected area management. The increased availability of information from the retrievable databases as a result of access to real-time ecological and management information will be beneficial to the regional and global community. The information package consisting of lessons learned and best practices will be shared to aid planning, implementation, and funding of protected area management activities.

144. In all project interventions, the protected area managers in the participating countries will be able to access and share knowledge generated, lessons learnt, and best practices through established networks and platforms that will also facilitate mentorship, peer-to-peer exchange, and professional development.

⁸⁴ IUCN 2015. Protected areas are vital for human health and well-being. Published by IUCN/WCPA. Available on website www.iucn.org/wcpa.

145. In terms of scalability, this project will demonstrate the considerable value-added by the EarthRanger technology for improved protected area management effectiveness. This is expected to promote and advance the uptake of such technologies by the public sector agencies. Deployment of the EarthRanger technology will indeed entail capital costs that are unavoidable for each protected area. However, the costs will vary with the state of existing technologies and infrastructure. With regard to the best way of spending a limited budget, it is anticipated that this project will convince decision-makers to invest in tested, robust and fit-for-purpose technology that will deliver beyond the expected outcomes.

D. Global Environmental Benefits⁸⁵

146. Protected areas remain the cornerstone for conservation and the primary strategy implemented to halt the decline in biodiversity. Protected areas contribute to biodiversity conservation by removing extraction pressures from an area and by supporting the management of threats within and around protected areas⁸⁶. They are places where conscious efforts are made to preserve wild species and the ecosystems in which the species live. It is widely agreed that in parts of the world, Africa inclusive, most of the landscape has already been transformed by agriculture or industry and protected areas are the only natural or near-natural ecosystems remaining⁸⁷. Conservation of biodiversity—of species, genetic diversity within species, and of habitats and ecosystems—underpins ecosystem function and has many practical, utilitarian benefits. Research provides strong evidence that management of protected areas is one of the most effective means for slowing down the rate of biodiversity loss and many species continue to survive because of effective management interventions⁸⁸.

147. Improved management effectiveness of the target protected areas will make them resilient to the growing threats to biodiversity and ecosystems. The strengthened resilience will conserve biodiversity and sustain ecosystem functioning and provisioning. In addition, the EarthRanger project will contribute to SDG 15 - Life on land (protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss).

148. Through EarthRanger technology, management of at least 4,901,650 hectares of protected areas in the project participating countries will have improved METT scores as illegal harvesting and trafficking of threatened species, poaching, and destruction of habitats through human encroachment are mitigated thus resulting in biodiversity conservation. In addition, loss and

⁸⁵The Global Environmental benefits per GEF Focal Area: <https://www.thegef.org/documents/global-environmental-benefits>

⁸⁶ Adams, V.M., Setterfield, S.A., Douglas, M.M., Kennard, M.J., Ferdinands, K. 2015. Measuring benefits of protected area management: trends across realms and research gaps for freshwater systems. *Philosophical Transactions of the Royal Society B* 370: 20140274. <http://dx.doi.org/10.1098/rstb.2014.0274>.

⁸⁷ Secretariat of the Convention on Biological Diversity (2008). Protected Areas in Today's World: Their Values and Benefits for the Welfare of the Planet. Montreal, Technical Series no. 36, i-vii + 96 pages.

⁸⁸ Stolton, S., Dudley, N., Avcıoğlu Çokçalışkan, B., Hunter, D., Ivanić, K.-Z., Kanga, E., Kettunen, M., Kumagai, Y., Maxted, N., Senior, J., Wong, M., Keenleyside, K., Mulrooney, D., Waithaka, J. 2015. Values and benefits of protected areas, In G. L. Worboys, M. Lockwood, A. Kothari, S. Feary and I. Pulsford (eds), *Protected Area Governance and management*, pp. 145–168, ANU Press, Canberra, Australia.

degradation of forest ecosystems and water bodies within the target protected areas will be prevented resulting in increased carbon sequestration and hence climate change mitigation. In many respects, the project will help to conserve globally significant biodiversity as well as aquatic and terrestrial ecosystems that lie within the target protected areas thereby securing ecosystem goods and services that contribute to the achievement of sustainable development and green growth.

149. In the past three years, the deployment of modern technology to improve protected area management effectiveness in Africa has been tested in ecosystems that are nationally or privately managed. Availability of resources and funding opportunities exposed the protected area managers to risks of expenditures on new and untested technologies. On a classic bell curve of new technology uptake, the ecosystems have represented the risk-taking “innovators”. The trajectory along this curve has now reached the point of “early adoption” (which is the stage when the risk of failure is low but the vision to see the potential remains high although the technology is not yet embraced by the majority of users). This scenario is especially true for new technology adoption by public sector entities and local community end users.

150. In terms of sustainability, there are technical and financial dimensions. In the former, the EarthRanger software is a bespoke solution that has been engineered specifically for the conservation sector. Therefore, it is robust, user-friendly, and able to absorb multiple data inputs as new sensor and tracking technologies emerge. In this regard, the relevance of the software and its application is expected to endure for many years. In terms of the latter, this project will fund the capital expenditure required to equip the selected protected areas with the hardware required to achieve the desired outcomes. Other than the possibility of recurrent network/software costs (which are normal for any remote field operation) and the salaries of control room operators, the technology deployed through this project will entail no other recurrent costs apart from routine maintenance and upkeep. EarthRanger is free for all conservation organizations, including the development, maintenance, and support of the software. The hardware is provided by commercial organizations that will expect compensation for any servicing and support.

The link between protected areas and the Aichi Targets

151. Analyses of the broad impact of the project on biodiversity conservation indicate that protected areas have been successful in reducing habitat loss (Aichi Biodiversity Target 5), have had a positive impact on a number of species, have lowered the risk of species extinction as a result of protecting the critical sites and habitats (Aichi Target 12) (UNEP-WCMC and IUCN, 2016). Furthermore, the full range and value of services and benefits arising from protected areas (Aichi Biodiversity Target 14) will strengthen support to biodiversity financing mechanisms and strategies for protected areas networks (Aichi Biodiversity Target 20), including payments for ecosystem services, allocation of additional resources by the government of participating countries and leveraging of financing opportunities through major developments (UNEP-WCMC and IUCN, 2016).

152. **Table 5** elaborates the link between the EarthRanger project and the global environmental benefits (GEBs) outlining how the project will contribute to the GEBs against the current baseline conditions.

Table 5: Link between the EarthRanger project and Global Environmental Benefits (GEBs)

GEBs per GEF focal area	Baseline Scenario	How the Earth Ranger project will contribute to the GEBs/ Project alternative (with the GEF funds)
<p>Biodiversity Global environmental benefits include:</p> <ul style="list-style-type: none"> • Conservation of globally significant biodiversity. • Sustainable use of the components of globally significant biodiversity; and • Fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources. 	<p>There is on-going loss of biodiversity through habitat destruction and unsustainable exploitation of PA resources.</p>	<ul style="list-style-type: none"> • 4,901,650 Ha of PAs safeguarded through effective management resulting in protection and conservation of biodiversity against poaching, destruction of habitats through human encroachment, illegal harvesting, and trafficking of threatened species (the exact number of Ha will be provided during PPG – we have not identified the PAs) • Protection and conservation of globally significant biodiversity and threatened species within the PAs (mainly Elephants, Rhinos, Leopards, as well as endangered flora spp.) • Protection and conservation of forests and water bodies within the PAs hence increase carbon sinks which mitigate GHG emissions • Enhance community participation for effective management
<p>Land Degradation Global environmental benefits resulting from GEF’s focus on this focal area include:</p> <ul style="list-style-type: none"> • Improved provision of agro-ecosystem and forest ecosystem goods and services. • Mitigated/avoided greenhouse gas emissions and increased carbon sequestration in production landscapes, and • Conservation and sustainable use of biodiversity in productive landscapes. 	<p>PA management capacity is still low to ensure sustainable management of biological resources</p>	<p>Strengthened protected areas management capacity will progressively enable the participating countries to sustainably manage biological resources. This effort will lead to better-informed strategies, policies, and plans at national and regional levels for sustainable land management.</p> <p>The EarthRanger project will contribute to the GEBs of reduced GHG emissions and increased carbon sequestration through improved capacity of land managers to effectively manage the landscapes.</p>
<p>Sustainable Forest Management/REDD+ Global environmental benefits resulting from GEF’s focus on this area include:</p> <ul style="list-style-type: none"> • Reduction in degradation and deforestation. • Maintenance of the range of environmental services and products derived from forests; and • Enhanced sustainable livelihoods for local communities and forest-dependent peoples. 	<p>Inadequate capacity for effective protection of the PAs – low capacity to monitor ecological and PA management activities.</p>	<p>Forest within the 6 target PAs will be protected and conserved. This project will strengthen national capacity to monitor ecological and protected area management activities</p> <p>The EarthRanger project provides a profound basis for comprehensive data collection, processing and reporting as a prerequisite for making informed decisions on sustainable natural resources management.</p>

GEBs per GEF focal area	Baseline Scenario	How the Earth Ranger project will contribute to the GEBs/ Project alternative (with the GEF funds)
<ul style="list-style-type: none"> Enhanced capacity for ecological and management monitoring and quick response to wildlife crime and related misdemeanors. 	<p>Inadequate technical, financial, and human resources for effective management of protected areas</p>	<p>The project will enhance the capacity of institutions in the project participating countries to gather, analyze, store and disseminate information for timely decision making and quick response to wildlife crime and related misdemeanors.</p>
<ul style="list-style-type: none"> Enhanced control of wildlife crime and related transgressions. 	<p>Inadequate response mechanisms to wildlife crime and related transgressions.</p>	<p>The project will enhance information collection, processing, and use for sound planning and timely decision-making in protected area management.</p>
<ul style="list-style-type: none"> Increased awareness and more efficient sharing of high-quality data (collected, processed, and packaged) through peer learning. 	<p>Insufficient knowledge, awareness, and access to conservation technologies that support effective management of protected areas</p>	<p>Capacity building undertaken to enhance protected area management effectiveness.</p>
<ul style="list-style-type: none"> Preparation, review, and effective implementation of wildlife and protected area policy in the participating countries. 	<p>Inadequate information and weak policy implementation that safeguards wildlife and conserves the protected ecosystems</p>	<p>The project will facilitate the generation of information and enhance access to the information to strengthen decision-making and protected area management policy implementation in each project participating country.</p>
<ul style="list-style-type: none"> The agencies responsible for wildlife and protected area management in the project participating countries will learn and benefit from each other's knowledge, skills, experiences, and best practices. 	<p>Weak coordination between authorities in charge of protected area management.</p>	<p>Institutional coordination is enhanced and strengthened at national and protected area management levels.</p>

153. In terms of GEF Core Indicators, this project will contribute to core indicators 1 (*number of hectares under improved management for conservation and sustainable use*) and 11 (*number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment*). The total size of protected areas with improved management will be 4,901,650 ha and the total number of direct beneficiaries will be 162 consisting of 138 men and 24 women (Table 6).

Table 6: Status of Project Core Indicators

Project Core Indicators		PIF Submission	CEO Endorsement Submission
1	<i>Terrestrial protected areas created or under improved management for conservation and sustainable use (Million Hectares)</i>	2,115,200	4,901,650
2	<i>Marine protected areas created or under improved management for conservation and sustainable use (Million Hectares)</i>		
3	<i>Area of land restored (Million Hectares)</i>		
4	<i>Area of landscapes under improved practices (excluding protected areas) (Million Hectares)</i>		
5	<i>Area of marine habitat under improved practices (excluding protected areas) (Million Hectares)</i>		
	<i>Total area under improved management (Million Hectares)</i>	2,115,200	4,901,650
6	<i>Greenhouse Gas Emissions Mitigated (million metric tons of CO2e)</i>		
7	<i>Number of shared water ecosystems (fresh or marine) under new or improved cooperative management</i>		
8	<i>Globally over-exploited marine fisheries moved to more sustainable levels (thousand metric tons) (Percent of fisheries, by volume)</i>		
9	<i>Reduction, disposal/destruction, phase out, elimination, and avoidance of chemicals of global concern and their waste in the environment and processes, materials, and products (thousand metric tons of toxic chemicals reduced)</i>		
10	<i>Reduction, avoidance of emissions of POPs to air from point and non-point sources (grams of toxic equivalent gTEQ)</i>		
11	<i>Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment</i>	Total beneficiaries: Nil⁸⁹	Total beneficiaries:162⁹⁰ (Men: 138; women:24)

The target Protected areas and the selection criteria

154. The number of Hectares of terrestrial protected areas that will be under improved management for conservation and sustainable use has increased from 2.1 Ha to 4.9 Ha. This is because the target protected areas have been confirmed.

155. The target protected areas for the deployment of EarthRanger technologies through this Project were selected through stakeholder consultative processes at the national level, involving the key decision-makers like the relevant Government ministries, departments, and agencies in Botswana, Mozambique, and The Republic of Congo. In addition, AI2 (a private sector institution) and CSOs working with the respective governments to manage protected areas at the country level were also consulted. These CSOs are Peace Parks Foundation for Zinave and Limpopo in Mozambique as well as African Parks, Noé and Wildlife Conservation Society in the Republic Congo.

156. The target protected areas were agreed upon with each of the participating countries and are listed in **Table 7**

⁸⁹ The target number of direct beneficiaries was not provided at PIF stage

⁹⁰ The GEF Core Indicator Work sheet is provided in Annex V.

Table 7: Protected areas selected for deployment of the EarthRanger technology in each target country

Country	Name of Target Protected Area	Category	Area (ha)	WDPA ID	IUCN CATEGORY
Botswana	1. Chobe	NP	1,100,000	600	IB: Wilderness Area
Mozambique	1. Zinave	National Park	412,100	9035	II: National Park
	2. Limpopo	National Park	1,115,000	20295	II: National Park
The Republic of Congo	1. Nouabalé-Ndoki	NP	415,000	72332	II: National Park
	2. Odzala-Kokoua	NP	1,354,600	643	II: National Park
	3. Conkouati-Douli	Ramsar site	504,950	109018	Not reported
		Total	4,901,650		

157. The criterion for selecting the PAS is provided below:

- a. **Challenges and threats to biodiversity** – including the type of threat (e.g., poaching, human-wildlife conflict, etc.), the species affected, the severity, frequency, and time of the year the threat takes place. It also considered the weapon (e.g., guns or snares) and the vehicles (e.g., on foot, 4-wheel cars, lorries) used by the perpetrators.
- b. **The willingness of stakeholders to embrace the technology at the site** – discussions were held with key stakeholders for each of the sites to obtain consensus.
- c. **Availability of supportive infrastructure** – infrastructure such as control rooms and road networks are important for the installation of protected area management technologies. The cost of building and maintaining such infrastructure is minimized where these exist already.
- d. **Access to electricity** – the functioning of the installations requires electricity.
- e. **Staff capacity** – including personnel and logistics for patrols, ecological monitoring, wildlife survey, safety and health, general security, and human-wildlife conflict monitoring, among others. These activities can be overwhelming where staff capacities are limited.
- f. **Co-financing opportunities** - the existence of partners from whom additional resources can be mobilized to leverage project implementation.
- g. **Sustainability** - where there is high likelihood of successful uptake over the long term. In the selected PAs, the executing partners already have long-term partnership MoUs with the respective governments and investments such as salaries of control operators that will continue to be paid after GEF project funding ends. Additionally, the non-state executing partners will continue utilizing and servicing the technology after this project ends since this project’s interventions are embedded in the government’s PA systems and their long-term institutional activities that that they are undertaking in the target PAs.

Biodiversity (BD) Tracking Tool for Protected Area Projects (METT)

158. METT scores were calculated through virtual discussions with stakeholders for all the selected sites during the PPG phase to provide baseline estimates. Covid-19 travel restrictions impeded in-depth consultations at Protected Areas level. Therefore, further assessments will be undertaken during the project implementation phase as part of the project setup activities.

The target number of beneficiaries and the selection criteria

159. The number of direct beneficiaries was estimated based on the number of existing government personnel (including rangers) at the target sites. This comprises 30 trainees at a managerial level from the relevant ministries, agencies, and departments that are responsible for protected area management at the national level and 120 that are at the field staff level.

160. Based on the estimated number of direct beneficiaries, 15% are women and 85% are men. This is because of the existing gender proportions among the rangers at the parks. Generally, there are few women rangers in the parks however, the project will put measures to involve more women. The measures are provided in the Gender Mainstreaming Plan.

161. The breakdown of the direct beneficiaries per outcome is provided in **Table 8**.

Table 8: The breakdown of direct beneficiaries

OUTCOME	END OF PROJECT TARGET	MEN	WOMEN ⁹¹	TOTAL (DIRECT BENEFICIARIES)
Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.	Target 1.1.6.1: At least 42 Protected Area management staff trained to utilize EarthRanger software (Men = 36; Female = 6) (4 management staff and 3 control room staff per PA) - 24 management staff for the 3 countries); and - 18 control room staff for the 6 selected PAs a total of (Total is 42).	36	6	42
	Target 1.1.6.2: At least 120 field staff with reliable voice communications and real-time SOS capability (At-least 20 in each PA per country) and they are thus 120 for the six selected PAs. (Total is 120).	102	18	120
TOTAL		138	24	162

E. Socio-Economic Benefits

162. At the 1992 Earth Summit, the governments of the world agreed on a new agenda for sustainable development which included the Convention on Biological Diversity (CBD) which, among others, called on governments to establish systems of protected areas and to manage these in support of conservation, sustainable use and equitable socio-economic benefit sharing⁹². The governments recognized protected areas as socio-economic institutions which have a key role to play in the alleviation of poverty and maintenance of the global community's critical life-support systems. This

⁹¹ Stakeholder consultations revealed that the women are much fewer at field level in the sector (Section 3P on lessons learned and Appendix VI – Stakeholder Engagement Plan).

⁹² IUCN 1998. Economic Values of Protected Areas: Guidelines for Protected Area Managers. IUCN, Gland, Switzerland and Cambridge, UK.

vision for protected areas requires an awareness and understanding of the socio-economic values of protected areas.

163. Delivery of socio-economic benefits to local communities and at the national level is an integral aspect of both AI2 and GEF-funded projects. Demonstrating the socio-economic importance of protected areas in this project will significantly increase political and stakeholder support, help to resolve conflicts between different interest groups, lead to positive changes in policies and decision-making and unravel alternative and sustainable sources of financing the management of the protected area⁹³. Insights provided by this project will help to identify a combination of actions and land-use practices that best support sustainable and equitable access to, and utilization of socio-economic benefits derived from protected areas while retaining the conservation goals.
164. Protected areas (PAs) are the cornerstone of biodiversity conservation⁹⁴. This project recognizes the role of protected areas in the protection of species and ecosystems and will contribute to the achievement of Convention on Biodiversity's Aichi strategic Goals A, B, C, D, and E and Targets 1, 11, and 12⁹⁵ that will, in turn, enhance the socio-economic benefits of protected areas' species and ecosystems in the project participating countries.
165. Given the dependence of the national economies on natural resources, including wildlife-based tourism in protected areas, in the project participating countries, improved management of the resources will enhance benefits to the economy and the local population. In protected areas where local communities receive direct socio-economic benefits through established benefit-sharing arrangements in the form of support to alternative livelihoods and improved agricultural methods, improved management will enhance the socio-economic benefits through the sustainable generation of revenue.
166. The project will improve protected area management approaches, enhance adaptive capacity, reduce the vulnerability of wildlife and the target protected areas in the project countries and enhance their resilience. In this regard, resilience refers to the ability of a protected area system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event or trend or disturbance in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions while maintaining the capacity for adaptation, learning, and transformation⁹⁶. Three dimensions of resilience that will be considered in this project are buffer capacity (resources that will buffer shocks and stresses); self-regulation (the degree to which protected area managers will

⁹³ Institute of European Environmental Policy 2013. Social and economic benefits of protected areas. Accessed from website <https://ieep.eu/news/social-and-economic-benefits-of-protected-areas--1223> on 11 December 2020.

⁹⁴ Visconti, P., Bakkenes, M., Smith, R. J., Joppa, L., & Sykes, R. E. (2015). Socio-economic and ecological impacts of global protected area expansion plans. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370(1681), 20140284.

⁹⁵ CBD 2010. Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets. Accessed from website <https://www.cbd.int/sp/> on 11 December 2020.

⁹⁶ IPCC, 2012: Glossary of terms. In Field, C.B. et al., Edited, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of IPCC. Cambridge University Press, Cambridge, UK.

direct their actions and outcomes), and learning (experimenting, innovating, and integrating experiences into action)⁹⁷.

167. In order to deliver the socio-economic benefits of the project, the following will be taken into account during project implementation:

- **Climate Resilience:** In the context of this project, climate resilience is the ability of protected area managers to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Improving climate resilience of protected areas involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks⁹⁸. Climate change is a fundamental phenomenon in protected area management because it results in ecologically significant changes in species abundance, composition, diversity, physiology, community composition, biotic interactions, and behavior including feeding and breeding success which the EarthRanger technology will help to monitor⁹⁹. Wild animals, therefore, face new challenges for survival because of differential responses by species to climate change which alter the ecosystems and habitats¹⁰⁰.
- **Ecological resilience:** is the capacity of a system to undergo disturbance and reorganize so as to still maintain essentially the same functions, structures, and controls¹⁰¹. Effective management of protected areas requires an understanding of the ecosystem's response to the stressors and disturbances in order to guide technology-assisted management actions¹⁰². The application of EarthRanger technology provides the additional ability for managing protected areas to enhance their resilience to cope with stressors and disturbances¹⁰³. The EarthRanger technology will facilitate real-time data collection and processing, which will deepen understanding of the factors influencing the ecological resilience of the target protected areas, interactions of biological resources, their variability, and the capacity to support habitats and species. Furthermore, the EarthRanger technology will enable the integration of geospatial information with data on resources, habitats, species, and ecosystem disturbance all of which constitute the foundation for resilience-based management of the target protected areas¹⁰⁴. Effective management (particularly enhanced response to wildlife crime) and monitoring and analysis of the status of resources will contribute to a sustained flow of ecological goods and services and the attendant benefits to the project participating countries.

⁹⁷ Balvanera, P., Daw, T. M., Gardner, T. A., Martín-López, B., Norström, A. V., Speranza, C. I., ... & Kittinger, J. N. (2017). Key features for more successful place-based sustainability research on social-ecological systems: a Programme on Ecosystem Change and Society (PECS) perspective. *Ecology and Society*, 22(1).

⁹⁸ Centre for climate and energy solutions 2020. Climate Resilience Portal. Accessed from website <https://www.c2es.org/content/climate-resilience-overview/> on 12 December 2020 at 1014 hours.

⁹⁹ Intergovernmental Panel on Climate Change (IPCC) 2001a. *Climate Change 2001: The Scientific Basis*. J. T. Houghton, Y. Ding, D. J. Griggs, M. Noguer, P. J. van der Linden, and D. Xiaosu (Eds.), Contribution of Working Group I to the Third Assessment Report of the IPCC. Cambridge: Cambridge University Press.

¹⁰⁰ Root, T. L., & Schneider, S. H. 2002. Climate change: overview and implications for wildlife. *Wildlife responses to climate change: North American case studies*, 10(2002), 765-766. Island Press, Washington D.C.

¹⁰¹ Zaccarelli, N., Petrosillo, I., & Zurlini, G. (2008). Retrospective analysis. *Current Opinion in Plant Biology*, 7, 254-261.

¹⁰² Pecl, G. T., Araújo, M. B., Bell, J. D., Blanchard, J., Bonebrake, T. C., Chen I. C., et al. (2017). Biodiversity redistribution under climate change: impacts on ecosystems and human well-being. *Science* 355, 1389–1400.

¹⁰³ Curtin, C. G., & Parker, J. P. (2014). Foundations of resilience thinking. *Conservation Biology*, 28(4), 912-923.

¹⁰⁴ Chambers, J. C., Allen, C. R., & Cushman, S. A. (2019). Operationalizing ecological resilience concepts for managing species and ecosystems at risk.

- **Social-ecological resilience:** this connotes the capacity to continue functioning despite stresses or shocks. To ensure ecological resilience to environmental change, protected area managers in the project participating countries will require a proactive response to new conditions that will maintain ecosystem functionality, connectivity, and adaptive capacity¹⁰⁵.
- **Improved management frameworks:** The project will enhance decision-making and planning for improved protected area management, resource use, and sustainability of socio-economic activities such as tourism and ecotourism. Natural resources data collected and analyzed in this project using the EarthRanger will be shared with different government entities to guide and inform policy, strategic planning, and decision making. Building human capacity through training and technical support to collect, assess and report quality data and to identify, respond and manage the current and future threats to protected areas will increase science-based decision-making thus enhancing the coping strategies of the adjacent local communities in the project participating countries.
- **Food security:** Food and nutrition security is a critical socio-economic parameter of livelihoods and food insecurity can drive local people to engage in wildlife crimes such as bushmeat hunting. The EarthRanger project will increase the capacity of project countries to plan, monitor, analyze and link protected area data to agricultural production and productivity in the surrounding areas which largely account for sustainable food and nutrition security. Furthermore, forestry and related natural resources are critical to the project countries' socio-economic development as they provide environmental support to food production, biodiversity conservation, protection of water catchments, and soil and water conservation among others. Health is interrelated with the environment, climate, water, and food and nutrition security. A combination of these factors increases local communities' resilience to the effects of climate change impacts and related shocks that may affect the protected areas in their proximity.

F. Risk Assessment and Mitigation

168. A risk assessment was undertaken during the project preparation process and risks to project implementation were identified and are summarized in [Error! Reference source not found.](#) They include the Coronavirus pandemic (COVID-19), security of the EarthRanger System at the PA level, Staff turnover of trained staff, and lack of supportive infrastructure such as electricity at PA level among others. A brief description is provided with respect to the Coronavirus pandemic and [Error! Reference source not found.](#) provides an overview of the risks and mitigation strategies.

169. **Safeguards screening (including climate risk screening)** was undertaken by CIGEF during the PPG Phase. There is a potential risk of some of the project's activities to the environment in the Protected Areas as the construction activities might have adverse effects on the environment. The main risks anticipated from the construction activities of the project were identified during the PPG phase to include loss of vegetation cover and destruction of habitats, which would promote loss of biodiversity resources, soil erosion, heat stress due to increase in extreme temperatures and fluctuations, increased frequency and intensity of winds and lightning, and emergence of weather-related diseases. To mitigate these negative impacts, the project will ensure avoidance of areas with heavy vegetation when selecting the construction sites, minimize cutting of the vegetation and

¹⁰⁵ Herbert, R. J., Ross, K., Whetter, T., & Bone, J. (2020). Maintaining ecological resilience on a regional scale: Coastal saline lagoons in a northern European marine protected area. In *Marine Protected Areas* (pp. 631-647). Elsevier.

undertake restoration interventions for the lost vegetation cover. The detailed findings are described in a Preliminary Environment and Social Impact Assessment (ESIA) and an Environment and Social Management Plan (ESMP). The project will also engage a Safeguards Expert (part-time) to review the environmental and social safeguards and ensure compliance especially during and after the construction and other project activities during project implementation, through monitoring the safeguards indicators.

The Corona virus (COVID-19) pandemic:







170. The project recognizes that the Corona Virus Pandemic (COVID19) may cause delays and/or slow down the implementation of project activities such as project start-up; delays in project staff recruitment; long periods may elapse before the arrival of procured EarthRanger software and hardware in the project participating countries and low stakeholder participation. Considering that the project will be implemented in protected areas, there is a possible risk that project staff may transmit coronavirus to wild animals (especially primates) during project implementation.
171. In-order to mitigate the risks outlined above, the project proposes the following mitigation measures: (a) COVID-19 management strategy of this project will be aligned to the Ministry of Health standard operating procedures (SOPs) in each project participating country (b) COVID-19 situational analysis will be carried out in each project country to inform the preparation and implementation of safeguard plans which indicate activities to address the risks associated with COVID-19 pandemic. (b)The safeguards include the ESMP, Gender Mainstreaming Plan, Accountability and Grievance Mechanism, and a Stakeholder Engagement Plan; (c) the project team will prepare and submit quarterly technical and financial reports to CIGEF. The reports will indicate project implementation progress, any delays, and adaptive measures put in place by project teams. This effort will enable the Agency to guide on the best ways to adapt to the situation on the ground from technical and financial perspectives (d) the project team will develop and implement the project's COVID-19 pandemic Adaptive Management Plan indicating activities to be implemented by project managers (leads) to ensure those project activities are delivered while working remotely; (e) during implementation, the project budget will cover recurrent costs for purchasing hand sanitizers and hand-washing facilities fitted with soap dispensers and personal protective equipment such as face masks, hand gloves and others for project staff use and (f) the project will create a COVID-19 repository and prepare a communication strategy for disseminating information related to the pandemic with project teams and stakeholders. This strategy will entail communicating to stakeholders the impact of COVID-19 on the project and the adaptive measures put in place by the project.
172. A risk assessment was undertaken during the project preparation process and risks to project implementation were identified and are summarized in [Error! Reference source not found.](#) They include the Coronavirus pandemic (COVID-19), security of the EarthRanger System at the PA level, Staff turnover of trained staff, and lack of supportive infrastructure such as electricity at PA level among others. A brief description is provided with respect to the Coronavirus pandemic and [Error! Reference source not found.](#) provides an overview of the risks and mitigation strategies.
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H  S  M  L 

Risks	Rating (High (H), Substantial (S), Modest (M) Low (L))	Risk mitigation Measures
1. EarthRanger control room and software affected by climate change and variability (heavy rains and/or high atmospheric temperature, high relative humidity) and rodents	High (H) 	<ul style="list-style-type: none"> • Procurement and installation of climate-proof equipment and technology • Necessary measures will be put in place to prevent rodents e.g., by application of pesticides, disinfection, and regular cleaning of the control rooms among others. • A room will be designated for relocation and storage of hardware in case the control room is damaged
2. Wildlife crime in the protected areas	High (H) 	<ul style="list-style-type: none"> • Installation of the EarthRanger technology and building capacity of protected area management staff to utilize the technology for monitoring park boundaries, movement patterns of rangers and wildlife, enable rangers to communicate with each other over radio transmitters, enable the staff to submit timely and quality reports thereby ensuring that protected area management planning is based on complete, reliable and real-time data. • EarthRanger technology is applied to improve the safety of rangers by making sure that their activities are coordinated, and injury caused to each other by crossfire is avoided.
3. Safeguard compliance especially during and after the construction activities. The construction activities might have adverse effects on the environment	High (H) 	<ul style="list-style-type: none"> • A Safeguards specialist will be part of the project to ensure compliance with the safeguard requirements throughout the project life.
4. Lack of security of the EarthRanger hardware in the control rooms	High (H) 	<ul style="list-style-type: none"> • Only designated personnel will have access to the control rooms • Only designated personnel will have keys to the control room
5. High turn-over of trained staff as an expertise retention risk	High (H) 	<ul style="list-style-type: none"> • Identification of a technology champion in each selected protected area • The project will undertake a Training of Trainers (ToTs). Facilitators of ToTs to be identified in each PA.
6. Data Management risks	Low (L) 	<ul style="list-style-type: none"> • EarthRanger data are securely stored in the cloud and the project will build on existing systems and enhance them to ensure that data are sent to the central repository.

Risks	Rating (High (H), Substantial (S), Modest (M) Low (L))	Risk mitigation Measures
7. Lack of electricity to power the control room	Modest (M) 	<ul style="list-style-type: none"> • One of the criteria used to identify target protected areas is access to electricity. Backup power supply, such as a generator and solar equipment, will be included in the procurement if it does not exist at a site.
8. Social and Environmental impacts of installing radio and LoRa towers	High (H) 	<ul style="list-style-type: none"> • Safeguards screening will be undertaken to identify the safeguards triggered by this project • For all the safeguards triggered by this project, a subsequent Environmental Safeguard Plan will be developed and implemented to avoid, minimize and mitigate potential adverse environmental and social impacts
9. Inability to maintain proper functioning of the EarthRanger technology	High (H) 	<ul style="list-style-type: none"> • Training of Trainers will be undertaken in each protected area • Development and implementation of project exit strategy and action plan • Inclusion of at least a three-year maintenance plan or service level agreement (SLA) for the hardware installed in each protected area
<p>10. Coronavirus disease (COVID-19) pandemic which will cause delays and/or slow implementation of project activities including:</p> <ul style="list-style-type: none"> - Delays in the project start-up - Delays to recruit project staff - Long periods elapsing before procurement and delivery of EarthRanger hardware to the project participating countries. - Low stakeholder turn-out and participation in the project. 	High (H) 	<ul style="list-style-type: none"> • The project will prepare the following safeguard plans clearly indicating activities put in place to mitigate risks brought about by COVID-19 pandemic: <ul style="list-style-type: none"> ○ Labor and Working Conditions ○ Accountability and Grievance Mechanism ○ Stakeholder Engagement Plan • Quarterly technical and financial reports submitted to CI-GEF Agency clearly indicating project implementation progress, any delays and adaptive measures put in place by project teams. This measure will enable the Agency to guide on the best ways to adapt to the situation on the ground from technical and financial perspectives. • The project team will develop and implement the project's Adaptive Management Plan to the COVID-19 situation. The plan will specify activities to be implemented by project managers (leads) to ensure delivery of selected project activities while working remotely. • During implementation, the project budget will cover procurement and recurrent costs of PPE and utilities such as automatic dispenser of hand washing soap and water, hand sanitizers, face masks, hand gloves among others, for project staff. • Creation of a COVID-19 repository and preparing a communication strategy for disseminating

Risks	Rating (High (H), Substantial (S), Modest (M) Low (L))	Risk mitigation Measures
		information on the pandemic among project teams and stakeholders. This strategy will also entail communicating to stakeholders the impact of COVID-19 on the project and the adaptive and mitigation measures required.
11. Pre-liminary Due diligence of the Executing partner institutions was conducted by CI during PPG Phase.	High (H) [REDACTED]	<p>CI- Afd had granted so some partners/grantees before and had conducted previous due diligence. However, full Financial Risk Assessments (FRA) will be completed before granting to any selected partners. Granting will only be done when partners, including the Government, have met the requirements based on the financial risk assessment. The outputs of this assessment will be:</p> <ol style="list-style-type: none"> a. Partners identified and their respective detailed ToRs defining their roles developed and approved by the GoA. b. Budgets allocated to the Partners in correspondence with their ToRs. c. Financial Risk Assessments (FRA) of partner institutions conducted and applicable mitigation measures put in place. d. Contracts/Agreements signed.

G. Sustainability

176. The sustainability of a project is an integrated process involving social, economic, cultural, legal, political, health, environmental and financial measures among others that facilitate continuity¹⁰⁶. In this EarthRanger project, sustainability refers to the ability of the protected areas in the project participating countries to continue to use the EarthRanger technology after the project has ceased and how the project impact will outlive the direct involvement of AI2 in the project.

The dimensions of sustainability considered in this EarthRanger project are:

- a) Institutional stability – the ability of the PA management agencies of Government and the associated executing partners in the project participating countries to oversee and manage the protected areas. Institutional sustainability will be ensured because:
 - -The Earth Ranger software will be incorporated in the existing government PA management structure and systems in the target countries.
 - -The executing partners who will deploy the technology in the protected areas already have ongoing relationships with commitment through MoUs with the respective governments to manage the protected areas. The partners will play an integral role in

¹⁰⁶ Redmond, W. H. (2005). A framework for the analysis of stability and change in formal institutions. *Journal of Economic Issues*, 39(3), 665-681.

ensuring that the EarthRanger (ER) technology is utilized after the project ends since the ER technology is also embedded in their systems and activities that they are executing in these protected areas.

- b) Continued operation and maintenance of project facilities – this is aimed at long-term use of the EarthRanger and related technologies. Maintenance and service to ensure that EarthRanger software and associated accessories function effectively will be undertaken by the respective countries. This will ensure sustainability. Initial service support will be provided by AI2 as part of capacity building.
- c) The continuous flow of net benefits – the protected areas will continue to benefit from the timely real-time data capture, processing, and application in planning and decision making.
- d) Equitable sharing and distribution of project benefits – the benefits of enhanced protected areas management such as reduced wildlife crime, stable wildlife populations, sustainable wildlife-based tourism, and associated revenues will have a ripple effect on the national and local area economies.
- e) Continued community participation – the local communities living adjacent to the target protected areas are key stakeholders in ensuring the success of the EarthRanger technology for improved protected area management.

177. The Project Sustainability Management (PSM) approach¹⁰⁷ has been considered in this EarthRanger project. It refers to a mix of systems, structures, plans, resources, laws, regulations, technologies, and other mechanisms that should be put in place for effective and efficient management of the PAs. The project sustainability management process customizes sustainable development goals and is aligned to national development frameworks, local conditions, and development priorities of the project participating countries. It is anticipated that the project implementing partners will establish an ethical framework as the basis for enforcing codes of conduct and maintaining dialogue among themselves and with stakeholders while accounting for the results achieved by the EarthRanger project in the project participating countries. Maintenance and service to ensure that EarthRanger software and associated accessories function effectively will be undertaken by the respective countries under each of the country's budget frameworks. This will ensure sustainability. Initial service support will be provided by AI2 as part of capacity building.

178. After the initial set-up costs that this project will undertake, the ongoing running cost of the software is minimal. The primary ongoing costs are staffing and personnel costs. We have intentionally designed the project so that all personnel costs are covered by field partners. In this way, we prepare partners to budget for the ongoing annual personnel costs even after the project ends. Notably, 5 out of the 6 selected Protected Areas have well-established public-private partnerships in place with the Government which we view favorably in terms of long-term sustainability. In addition, these project activities are embedded on existing structures jointly run and managed by the Government and selected partners hence it is anticipated that operationalization and management of the technology will be continued by government authorities with support from the partners and AI2 advisory support.

¹⁰⁷ Berggren, N., Bergh, A., & Bjørnskov, C. (2012). The growth effects of institutional instability. *Journal of institutional economics*, 8(2), 187-224.

H. Innovativeness

179. EarthRanger is an innovative tool that will be deployed in the target national parks. Over the past three years, the deployment of technology to improve protected area management effectiveness in Africa has been tested in various wildlife reserves that are privately managed. Access to greater and flexible funding has made it possible for the managers of the wildlife reserves to innovate and incur the risks of expenditures on new and untested technical solutions. On a classic bell curve of uptake of new technologies, these wildlife reserves represent the risk-taking “Innovators”. Trajectory along this curve is now at the point of “Early Adoption” (which is the point when the risk of failure is low, the potential of the technology remains extremely high but not yet embraced by the majority of users) which mirrors the adoption of the EarthRanger technology in the early years of the project as it is deployed for improved protected areas management effectiveness.
180. In conjunction with the introduced Earth Ranger technology and supporting tools, emphasis will be placed on creating and demonstrating the value of conservation technology in protected area management and biodiversity conservation and how the data from the conservation technology (in this case Earth Ranger) can inform decision-making and policy formulation.
181. The AI2 ER regional platform and the AI2’s Annual ER conferences are an input for sustainability and innovation. The use of the EarthRanger technology in promoting management effectiveness of protected areas is progressively taking root on the African continent and is already being implemented in countries such as Kenya, Rwanda, Tanzania, and Malawi among others. AI2 holds regular conferences to share experiences on the use of EarthRanger technologies in protected area management. PA management staff have opportunity to attend the conferences for information and knowledge exchange to enhance capacity in the use of the technology. AI2 will also be available to provide technical support to the protected area managers as needed.

I. Replicability and Potential for Scaling Up

182. The robustness of the EarthRanger technology is acknowledged in this project and its successful application and generation of consistent data will be the hallmark of replicability of the information to aid decision-making for effective protected area management. In the science and technology realm that includes the EarthRanger technology, replicability refers to obtaining consistent results that answer the same scientific question, each of which has obtained its own data¹⁰⁸.
183. This project will demonstrate the considerable value-addition of the EarthRanger technology in sound decision-making for improved PA management. The successful implementation will promote and advance the uptake of the EarthRanger and related technologies. The deployment of EarthRanger technology will entail capital costs in each protected area and the level of investments will depend on the state of existing technologies and infrastructure. However, this project will demonstrate that the EarthRanger technology is a tested and robust fit-for-purpose innovation that can deliver a satisfactory return.
184. There is potential for scaling up deployment of EarthRanger and associated conservation technologies for PA management effectiveness. This project, through Component 2, seeks to

¹⁰⁸ Replicability in Science. Article accessed on website <https://www.nap.edu/read/25303/chapter/8> on 30th May 2021 at 1336 hours and at <https://www.nap.edu/resource/25303/Ten%20Things%20to%20Know%20about%20Reproducibility%20and%20Replicability.pdf>. Accessed on 31st may 2021 at 1330 hours.

increase uptake and enhance awareness about the benefits of utilizing the Earth Ranger technology in protected areas management. It is also anticipated that through the dissemination of Earth Ranger's success stories, other African countries will develop interest to install and use EarthRanger and related conservation technologies to manage their protected areas.

185. Strategy for replicability¹⁰⁹ of the EarthRanger project includes:

- a. **Strengthening of institutional framework:** successful implementation of the EarthRanger project will require effective and efficient organizational structure in the project and supportive administrative structures in the project participating countries.
- b. **Capacity building:** this will be required on two fronts (1) strengthening coordination and implementation capacity of partner institutions in the project and (2) development of human resources competence at different levels through training to enhance knowledge and skills. Capacity building of existing institutions in the selected protected areas will enhance the delivery of project outputs and outcomes.
- c. **Management Information System:** a functional database is a cornerstone of the EarthRanger project. A good management information system will augment the capabilities of the project implementing partners. This project will support the development of a system of data management that is simple and accessible.
- d. **Preparation of Needs-Based Action Plan:** to develop action plans, it is important to assess the existing technological capacity in the target protected areas. Knowledge of the existing technologies and their shortfalls will help to prepare robust action plans. The assessments will also help to identify appropriate technologies and approaches for effective protected area management.
- e. **Preparation of investment plan:** studies will be commissioned to examine various alternatives with protected area managers to address technological needs and services for enhanced protected area management. Resource mobilization from internal and external sources will be explored. This process will lead to a clear understanding of the costs and benefits of investments in technologies for effective protected area management. The bottom-up approach will provide a basis for making realistic investment choices at the PA and national levels.
- f. **Adoption of best practices:** best practices from the project selected protected areas will be documented and shared via appropriate channels and platforms with other protected area managers in the project participating countries and beyond. Innovative policy development, legal and regulatory framework, project implementation, institutional development and financing mechanisms will be examined for replication in other African countries.
- g. **Scaling up and promoting ER deployment to other PAs:** The project seeks to deploy the ER technology to other PAs – either within the 3 project countries or new countries. This project targets to enhance awareness about the benefits of utilizing the Earth Ranger technology in protected areas management. Through the dissemination of Earth Ranger's success stories, other African countries may develop interest to install and use EarthRanger and related conservation technologies.

¹⁰⁹ Government of India and UN HABITAT 1999. Community Approach to Integrated Basic Services Promoting Health and Livelihood for the Urban Poor. UNCHS Pilot Project.

J. Consistency with National Priorities, Plans, Policies, and Legal Frameworks

186. In **Table 9** each national priority identified from the national plans and policies of participating countries, presented in the first column, is matched with the corresponding EarthRanger project consistency elaborated in the second column.

Table 9: Consistency with National Priorities, Plans, and Policies

National Priorities	Consistency of the project with the national priorities
Botswana	
<p>The Constitution of Botswana, 1966¹¹⁰</p>	<p>The constitution of Botswana provides for ensuring the protection of natural resources and protecting citizens from deprivation of property, which includes ensuring soil conservation and the overall conservation of all-natural resources as well as associated work relating to agricultural development. The project will contribute toward the conservation of natural resources in the country.</p>
<p>Botswana Vision 2036¹¹¹: The purpose of Vision 2036 is to achieve prosperity for all and it is built on four pillars, namely:</p> <p>Pillar 1: Sustainable economic development, Pillar 2: Human and social development, Pillar 3: Sustainable environment, and Pillar 4: Governance, peace, and security.</p> <p>Vision 2036 is also aligned to the global agenda for sustainable development and the principles of the Africa Union's Agenda 2063 to meet global and regional goals.</p>	<p>The EarthRanger project will contribute to the attainment of Botswana's Vision through the following:</p> <ol style="list-style-type: none"> Improved management of protected areas will support sustainable economic development (Pillar 1). Strengthening human capacities to address the protected area management challenges, and enhance access to technological solutions for tracking wildlife and curtail poaching (Pillar 2); Strengthening institutional cooperation and coordination for improved management of the protected areas, reducing human/wildlife conflict, enhancing ecological monitoring, promoting quality of the environment, and achieving sustainable development (Pillars 1 and 3); and The project will promote cooperation through peer learning and knowledge sharing for effective protected area management (Pillars 3 and 4).
<p>Wildlife Conservation and National Parks Act 1992 The Act provides a comprehensive framework for wildlife and national parks management under the supervision of the Director of Wildlife and National Parks. Part II designates specific areas as National Parks and gives power to the President to declare any State or bequeathed land as a national park.</p> <p>Botswana has the largest population of elephants in Africa with about 200,000 individuals. To protect this large herd, along with other iconic wildlife species, the government has put in place strong legal measures to protect wildlife against criminal threats such as poaching and trafficking. The Wildlife Conservation and National Parks Act 1992 (Chapter 308:01) provides for conservation and</p>	<p>The EarthRanger project will contribute to the management effectiveness of the protected areas through improving monitoring, identifying elements of poaching and illegal wildlife trade, and providing a real-time response. The Project is, therefore, consistent with the provisions of the Botswana Wildlife Conservation and National Parks Act.</p>

¹¹⁰ Botswana's Constitution of 1966 with Amendments through 2002.

¹¹¹ Government of Botswana. 2016. Vision 2036: Achieving Prosperity for All. Published by LENTSWE LA LESEDI (PTY) LTD. 2016, Gaborone, Botswana.

National Priorities	Consistency of the project with the national priorities
<p>management of Botswana’s wildlife, gives effect to CITES and other international conventions for the protection of fauna and flora to which Botswana may from time to time be a party and provides for the establishment, control, as well as management of national parks and game reserves.</p>	
<p>CBNRM Policy approved by parliament in 2014 The policy provides for the participation of local communities in natural resources management particularly those living adjacent to the PAs. Participation is enabled through issuing of licenses to the communities.</p>	<p>The EarthRanger will contribute to fostering a close working relationship with communities in terms of information sharing and conflict management.</p>
<p>National Development Plan 11 (NDP 11): Under the Sustainable Environment thematic area, the NDP focuses on developing, reviewing, and implementing relevant environmental legislations, improving coordination and governance of the environment sector, strengthening data requirements and technical capacity within key implementing sectors, developing knowledge and skills for securing sustainable environment and productivity, as well as management and conservation of natural resources. To address these issues, the Government is committed to formulating and implementing conservation policies as well as the biodiversity strategy and action plan. Under sustainable use of natural and cultural resources, the NDP focuses on strengthening the existing and development of new policies and legislation to address threats to wildlife and enhance environmental conservation.</p>	<p>The EarthRanger project will contribute to the attainment of Botswana’s NDP 11 aspirations by:</p> <ul style="list-style-type: none"> a) Improving the human resource capacity and enhancing the application of science, technology, and innovations in ecological monitoring and protection of wildlife b) Enhancing wildlife-related information collection, management, and utilization in decision making as protected areas support wildlife-based tourism that contributes to sustainable development c) Strengthening institutional cooperation and coordination will enhance good governance of the environment and natural resources in the country. d) Contributing to employment opportunities, sustainable use of natural resources, and economic growth.
<p>National Biodiversity Strategy and Action Plan (NBSAP)¹¹² The National Biodiversity Strategy and Action Plan (NBSAP) is a multi-sectoral planning instrument for protection of biodiversity in Botswana. The NBSAP’s vision is based on the principles of sustainable development, integrated conservation and development, equity across generations, and biodiversity as the foundation of life and livelihoods. The vision is, “by 2025, ecosystems, species and genetic diversity are valued, protected, and used sustainably and equitably, through the involvement of all sectors of society and the provision of sufficient resources for its sound management”. The goal of the NBSAP is to ensure that 1) Biodiversity is mainstreamed and valued across all sectors of society; 2) The pressure on biodiversity is reduced and natural resources are used sustainably; 3) Ecosystems, species and genetic resources are protected through sound management; 4) Fair and equitable access to the benefits of biodiversity is secured; 5) Participatory planning,</p>	<p>The EarthRanger project will immensely¹¹² contribute to the achievement of the five elements of NBSAP’s goal.</p>

¹¹² National Biodiversity Strategy and Action Plan

National Priorities	Consistency of the project with the national priorities
<p>knowledge management and capacity-building are in place to support NBSAP implementation¹¹³.</p>	
<p>National strategic plans on protected area management</p> <p>National Policy and Strategy for the Conservation and Management of Elephants in Botswana 2003 The elephant population in Botswana is not threatened and is regarded as a natural resource of great economic potential. Being perhaps a third of the continental total population, Botswana’s elephants are of great significance and represent a very great conservation success for the country. At the same time the elephants are the primary agent of ecological change over a large part of the country, are one of the major causes of human-wildlife conflict and source of international controversy. This presents unique management challenges, calling for a strategy that will be able to reconcile a number of complex issues.</p> <p>National Anti-Poaching Strategy (NAPS) 2013 Natural resource management in Botswana is characterized by high levels of competition and conflict between conservation goals, economic development, and livelihoods. In response to the escalation of the wildlife crime in the country, the Government of Botswana, developed NAPS in 2013 aimed at curtailing illegal wildlife off-take and other related illegal activities. The primary rationale of NAPS is to attain conservation of natural resources in Botswana, sustain the country’s wildlife populations and contribute positively to sustainable development.</p> <p>Wildlife Conservation Research Strategic Plan 2016-2020¹¹⁴ The Republic of Botswana’s “Wildlife Policy, 2013” provides clear guidelines under section 5.10 for the strengthening of research and monitoring. The objective is “to research wildlife species, habitat, ecosystems and the value of wildlife resources”. This strategy seeks to respond to the many policy directives provided in the Wildlife Policy of 2013 and the NBSAP by focusing research on long-term and short-term goals and six research themes.</p>	<p>The EarthRanger project will contribute to:</p> <ol style="list-style-type: none"> (1) Improvement of anti-poaching activities (e.g., Earth Ranger will help the anti-poaching team to better monitor park boundaries). (2) Implementation of the National Anti-Poaching Strategy through (i) a coordinated approach to the enforcement of policies and legislation on wildlife conservation (ii) mobilisation of resources for the conservation and sustainable management of natural resources — wildlife in particular — and maintenance of Botswana’s wilderness and protected areas (including WMAs); and (iii) ensuring a holistic and coordinated law enforcement approach to combating wildlife crime-related activities and therefore raise the profile of the country as a tourism destination (3) Wildlife Research Long-term Goal: To contribute to the conservation of biodiversity and sustainable use of wildlife in Botswana by conducting exemplary research and providing scientific information and advice to policymakers, resource managers, stakeholders, and the public. (4) Wildlife Research Short term/Immediate Goal: To develop and implement a research strategy that will:(a) Provide science-based information on wildlife conservation and management options to support the implementation of the 2013 Wildlife Policy and the 2014 National Biodiversity Strategy and Action Plan;(b) Focus and coordinate wildlife research in Botswana on key wildlife conservation and management issues; and (c) Build wildlife research capacity in the country.

¹¹³ Department of Environmental Affairs 2016. National Biodiversity Strategy and Action Plan. Government of Botswana, Gaborone.

¹¹⁴ Department of Wildlife and National Parks 2016. Wildlife Conservation Research Strategic Plan 2016-2020, Government Of Botswana, Gaborone.

National Priorities	Consistency of the project with the national priorities
<p>National Policy on Gender and Development Policy (NPGAD)¹¹⁵ 2015 The policy provides a framework for including a gender perspective in all activities of Government and other sectors, as well as civil society, thereby promoting equitable participation of women and men in transformative development. NDP 11 advocates for the development of effective National Gender Machinery and to ensure participation of partners and stakeholders.</p>	<p>The EarthRanger project under Safeguard Compliance Plans will support gender mainstreaming and enhance gender inclusivity thereby improving the implementation of Botswana’s commitment to international and regional obligations.</p>
<p>Mozambique</p>	
<p>The Constitution of Mozambique Chapter I, Article 10, d) provides for the “promotion of equitable economic, social and regional development of the country”. Chapter II, article 19, 1) seeks to strengthen the relationships with other countries for the consolidation of national independence, democracy and to recover, use and control natural wealth on behalf of the citizens. The constitution also caters to environmental management for the benefit of the people.</p>	<p>By ensuring that at least 2 Protected Areas are safeguarded through the provision of equipment, technologies, and technical capacity to the management staff, the EarthRanger project will contribute to sustainable management and utilization of natural resources and strengthening the relations with other countries as stated in the Constitution.</p>
<p>National Development Plan National Strategy for Development 2015 – 2035 recognizes ecological richness, management, and tourism as treasures for the development of Mozambique.</p>	<p>Effective management of protected areas will improve the survival, abundance, and distribution of threatened species, many of which, e.g., elephants, lions, etc., are important tourist attractions in Mozambique. The EarthRanger project will support the reduction of illegal activities such as poaching, ensuring that forestry and wildlife survive and increasingly attract tourists.</p>
<p>National Policies and laws for natural resource management, including conservation and management of Protected areas/wildlife conservation area</p> <ol style="list-style-type: none"> 1. Law No. 5/2017, replaces law No.16/2014, of 20th June on protection, conservation, and sustainable use of biodiversity. It also guides the establishment and management of the protected area 2. Regulations of Law Nr. 16/2014 of 20 June, amended and republished by Law Nr. 5/2017 of 11 May, the Law on the Protection, Conservation and Sustainable Use of Biological Diversity 3. National Strategy for Adaptation and Mitigation of Climate Change 2013 – 2025 has the vision: “Mozambique prosperous and resilient for climate change with the green economy in all social and economic sectors”. 4. Law No. 35/2014: the law of the revision of penal code which criminalizes all the crimes against the natural resources in Mozambique. 	<p>The Project will contribute to sustainable management of protected areas and enhance conservation of biological diversity, environmental values and contribute to Mozambique’s green economy in line with the national policies and laws on natural resource conservation. The Project introduces the Protected area systems and associated technologies that improve the effectiveness of monitoring wildlife movement and providing a real-time response to illegal activities and human-wildlife conflict. The Project will build the capacity of key stakeholders, specially protected area staff, in the application of EarthRanger technology.</p> <p>With the real-time response, this project will help to reduce illegal and destructive activities, optimize the use of financial and human resources for restoration of degraded areas and mitigate climate change impacts.</p> <p>Data and evidence will be consistently available for the Ministry of Justice and Attorney General to operationalize the Penal Code and prosecute criminals.</p>

¹¹⁵ <http://www.gov.bw/en/Ministries--Authorities/Ministries/Ministry-of-Labour--Home-Affairs-MLHA/Ministers-Speeches/THE-NATIONAL-POLICY-ON-GENDER-AND-DEVELOPMENT/> Website accessed on 28th January 2020 at 15:40 hours.

National Priorities	Consistency of the project with the national priorities
<p>National strategic plans on protected area management</p> <p>Strategic Plan for National Administration of Conservation Areas 2015 – 2024: Mission: Organize and develop National System for Conservation areas and ensure sustainable and participatory use of biodiversity Development objectives: -Strengthen the national capacity to support conservation areas. -Set up a network of conservation areas -Ensure that benefits and costs are balanced. -Improve the well-being of local communities</p> <p>Strategic Agenda 2019 – 2035 and National Forestry Programme for Mozambique The strategic objectives are: -Enhance food security and socio-economic development with a focus on local community involvement. -Strengthen resilience to effects of climate change and natural hazards -Build capacity and integrate principles of good governance in the forestry development</p>	<p>This project includes the provision of technical and technological capacity to make the National Administration for Conservation (ANAC) more active, effective, and operational in the protection and monitoring of protected areas.</p> <p>Given the infrastructure and technical capacity of ANAC, this project contributes to its institutional development. With a reduction of illegal activities and an increase in the number of visitors to the protected areas, more financial resources will be generated, and the benefit-sharing scheme boosted (e.g. 20% of the income received by protected areas is shared with local communities).</p> <p>The project will facilitate monitoring of forestry resources and stakeholders will benefit from data and information generated from the project.</p>
<p>National Biodiversity Strategy and Action Plan (NBSAP)</p> <p>National Strategy and Action Plan for Biological Diversity of Mozambique (2015-2035). -Vision: In 2035, the ecological, socioeconomic, and cultural value of biodiversity in Mozambique will contribute directly to improving the quality of life of Mozambicans, derived from its integrated management, conservation, and fair and equitable use. -Mission for the next 20 years: To ensure the conservation of biodiversity through the integration, training, financing, and the strengthening of partnerships between the different sectors of society.</p> <p>The following are the priority action targets for Mozambique and the Aichi Biodiversity targets: -Target 3: By 2025, adopt and effectively implement policies and legal instruments for preventing and mitigating the impacts of human activities likely to cause biodiversity degradation.</p> <p>-Target 5: By 2035, reduce by at least 20% the area of critical ecosystems (that provide essential goods and services) under degradation and fragmentation. -Target 6: By 2025, have in place at least 30% of habitats of endemic and/or threatened flora and fauna species with strategies and action plans for their conservation.</p>	<p>Improvement in the management of the protected areas in Mozambique is consistent with provisions of NBSAP 2015 – 2035. This project will improve the quality of law enforcement, relationships, and communication with local communities as well coordination amongst different institutions with a stake in sustainable management of protected natural resources and contribute to the achievement of Aichi targets. Furthermore, the project will contribute to resource mobilization through partnership arrangements to improve protected areas management.</p>

National Priorities	Consistency of the project with the national priorities
<p>-Target 12: By 2030, rehabilitate at least 15% of the degraded ecosystems/habitats, restore its biodiversity and ensure its sustainability with a view to mitigating the effects of climate change and combating desertification.</p> <p>-Target 20: By 2020, strengthen national and international partnerships and establish innovative mechanisms for financing and supporting biodiversity programs.</p>	
<p>National Policy on Gender and Development</p> <p>Policy on Gender and Implementation Strategy Vision: a society where women and men enjoy equal rights and opportunities, contribute and benefit from the development process</p> <p>Key strategic interventions outlined in the Gender Policy relevant to this project are:</p> <ul style="list-style-type: none"> -Legislation -Governance -Training and education --Productive resources and employment -Peace and conflict mediation -Information Communication and Technology -Environment and climate change 	<p>The Project will support gender equity and benefit men and women through training, employment, and access to resources without discrimination.</p>
The Republic of Congo	
<p>The Constitution of the Republic adopted on October 25, 2015</p> <p>The Constitution provides for the protection of rights of citizens and stipulates that, among other things, "every citizen has the right to a healthy, satisfactory and sustainable environment and has the duty to defend it". In addition, Title II, Article 35 provides for environment protection and conservation.</p>	<p>The EarthRanger Project will contribute to the effective management of the protected areas and attainment of the aspirations of the Constitution.</p>
<p>National Development Plan</p> <p>National Strategy for Sustainable Development (SNDD 2016-2025) designed to guide Government and other stakeholder actions for accelerated growth, job creation, and poverty reduction. It identifies the forestry and tourism sectors as engines of growth while emphasizing the importance of their sustainable management. The vision for forestry is to make the Congo one of the world leaders in certified tropical timber production, driven by an industry that applies sustainable forest management principles, conserves biodiversity, and ensures carbon sequestration. The Plan also emphasizes nature-oriented tourism, for which wildlife and its habitat are a <i>sine qua non</i>, making their effective management imperative.</p>	<p>The EarthRanger Project will support the implementation of National Development Plan strategies through effective management of the protected areas, increased conservation of tourist attractions, and promotion of the tourism industry. The Project will contribute to sustainable management of natural resources and biodiversity conservation in the Equatorial Forest landscape.</p>
<p>Environmental Policies and Strategies:</p>	<p>The EarthRanger Project will support the government's policy of sustainable management of natural resources and environmental protection in collaboration with communities.</p>

National Priorities	Consistency of the project with the national priorities
<ul style="list-style-type: none"> • National Environmental Action Plan (PNAE) adopted in 1996 by the Government • National Strategy and Action Plan for Biological Diversity, developed in 1999 and updated in October 2001 • National Strategy and Action Plan on Climate Change • National Strategy for Sustainable Development (SNDD 2016-2025) • National Land Use Planning Scheme (SNAT), • National Hygiene Policy and Strategy • REDD+ strategy 	<p>The Republic of Congo is located within the Congo Basin, the world's second-largest forest basin, which is covered by dense Equatorial forests, the second-largest rainforest in the world to the Amazon, which has an exceptional diversity of fauna and flora spread over an area of 1,700,000 km².</p> <p>The creation of protected areas has enabled biodiversity conservation alongside other forest uses such as timber concessions, mining, oil, and agro-industrial grants to companies thus setting values of natural resources.</p>
<p>National policies/plans and laws relating to natural resource management, including conservation and management of protected areas/wildlife conservation areas</p> <p>1- National Policies and Plans</p> <ul style="list-style-type: none"> - National Forest Action Plan (PAFN) - National action program to combat desertification (PAN) - National plan for scientific and technical development (PNDST) - Strategic plan for agricultural recovery - National Strategy and Action Plan on the management of the bush-meat - Great Apes Survival Plan (GRASP) - Interim Post Conflict Program (PIPC) - National Food Security Program (PNFA) - UNESCO Man and Biosphere Program (MAB) - Forest-Environment Sector Program (PSFE) - Rural Development Master Plan (SDDR) <p>2- Laws</p> <ul style="list-style-type: none"> • Law 003/91 of 23 April 1991 on environmental protection • Law 37/2008 of November 28, 2008 on fauna and protected areas defines the actors of wildlife protection by specifying that " without prejudice to the powers of the judicial police , the wildlife and hunting police are provided by the competent services of the Ministry in charge of Water and Forests " (Article 95) and that" eco- guards ... contribute to the practice of wildlife and hunting police "(Article 96), supplemented by Law No. 003/91 of 23 April 1991 on protection of the 	<p>The EarthRanger Project is in line with various environment and natural resource sector policies and strategic plans that promote wild fauna and flora conservation. In particular, the Project will enhance the management of protected areas as set out in the fundamental principles and general conditions for conservation and sustainable management of fauna, habitats, and ecosystems. The Project will also support surveillance of illegal activities and mitigate organized wildlife and forestry crime, and build institutional capacity for effective protection of resources under their mandate.</p>

National Priorities	Consistency of the project with the national priorities
<p>environment and Law No. 8-2010 of July 26, 2010 on the protection of the national cultural and natural heritage. This law modifies the provisions of law 48/83 of April 21, 1983 by defining the conditions for conservation and exploitation of wildlife, as well as Law 49/83 by fixing the taxes provided for by Law 48/83 of April 21, 1983,</p> <ul style="list-style-type: none"> • Law n° 33-2020 of 8 July 2020 modifies provisions of law n° 16-2000 of 20 November 2000 on the revised Forest Code. • Law n° 16-2000 of 20 November 2000 on the revised Forest Code. Congolese criminal law comprises Law no. 1-63 of January 13, 1963, on the code of criminal procedure and the penal code. Law No. 1-63 of January 13, 1963, on the Code of Criminal Procedure defines the mission of the Congolese law enforcement authorities. It was updated by law n°. 19/99 of August 15, 1999, amending and supplementing certain provisions of Law n° 0-22 / 92 of August 20, 1992 on organization of judicial power. The penal code applicable in Congo is the “penal code of French Equatorial Africa” as it applied during the colonial period. The obsolete text does not integrate convention on transnational organized crime. 	
<p>National Strategic Plans for Management of Protected Areas The network of protected areas covers 43,275 km² or 13 % of the national territory. It distinguishes 17 types of areas: 04 national parks, 04 wildlife reserves, biosphere reserve, forest reserve, 03 sanctuaries of fauna (nature reserves), 01 community reserve, and 03 hunting grounds. To achieve 20% protected area coverage, the country is considering the creation of other protected areas. Increase in PA area will help to raise the level of biodiversity conservation in the country.</p> <p>The Ministry of Forest Economy is responsible for PA management where management involves Public-Private Partnership (PPP) in seven protected areas, representing 83.5% of the total area of the protected areas. There are other 10 protected areas under state management. PPP involves local communities and depends on the resources available.</p>	<p>The Project will support sustainable management of protected areas in line with the national strategic plans. The involvement of partners is based on the private-public partnership arrangement by Government.</p>
<p>National Biodiversity Strategy and Action Plan (NBSAP) Vision of the NBSAP: by 2030, the security of Congo's biological resources is ensured through better knowledge of their components and sustainable management that integrate human capacity development, socio-economic</p>	<p>The project will contribute to sustainable development and poverty reduction through better management of biological diversity. The NBSAP aims to safeguard and enhance terrestrial ecosystems, inland water ecosystems and marine and coastal ecosystems. In addition, it will promote access to</p>

National Priorities	Consistency of the project with the national priorities
<p>development and equitable redistribution of profits while complying with international commitments. Strategic directions of NBSAP include reduce threats to biodiversity, strengthening cooperation and mobilization of actors for biodiversity conservation and strengthened local and national governance of biodiversity¹¹⁶.</p>	<p>biological diversity resources and the equitable sharing of the benefits arising from its exploitation, enhance agro-systems and strengthen institutional and legal framework.</p>
<p>Regional Legal Frameworks</p> <p>At the continental level, the Republic of the Congo has adhered to the general convention of cooperation in matters of justice known as of Antananarivo of 1961, and to the extradition convention between the governments of the member states of the Economic and Monetary Community of Central Africa (CEMAC) of January 28, 2004. As a member of the African Union, the country is party to the African Union Convention on the prevention and fight against corruption of 2003. Congo is a member of the Lusaka Agreement (September 8, 1994) on concerted enforcement operations targeting illegal trade in wild flora and fauna.</p>	<p>The Project promotes regional integration and international initiatives to protect wildlife and sustainably manage natural resources for the benefit of national and international stakeholders. Improved management through application of EarthRanger technology will support tracking and control of illegal activities inland and across borders including trade in endangered species of wild fauna and flora.</p>
<p>International Legal Frameworks</p> <p>The Government of the Republic of Congo has ratified various conventions/international agreements and protocols on environment including:</p> <ul style="list-style-type: none"> Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Convention on Biological Diversity (CBD), ratified on June 25, 1996. Convention on the World and Cultural Heritage (CPMC); Convention on Migratory Species of Wild Animals. London Convention for the Conservation of Fauna and Flora in their Natural State. Ramsar Convention or convention on wetlands of international importance particularly as waterfowl habitat. The International Plant Protection Convention and the Montreal Protocol on Substances that Deplete the Ozone Layer. United Nations Framework Convention on Climate Change (UNFCCC). Vienna Convention for the Protection of the Ozone Layer Desertification Convention. Convention on Drought and / or Desertification in Africa Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal. Stockholm Convention on Persistent Organic Pollutants. Rotterdam Convention on the Prior Informed Consent Procedure Applicable to Certain Hazardous Chemicals and Pesticides in International Trade. 	<p>The Earth Ranger project will support the country to comply and further fulfill the rules in the implementation of activities thereby domesticating the international agreements.</p>

¹¹⁶ Republic of Congo, 2015. Strategie Nationale et Plan D'actions Sur La Diversite Biologique (Revise).

National Priorities	Consistency of the project with the national priorities
<p>Kyoto Protocol. Protocol on Sustainable Development. Cartagena Protocol on Biosafety. Nagoya Protocol on the Equitable Sharing of Natural Resources. ix. United Nations Convention against Transnational Organized Crime and related protocols</p>	
<p>National Policy on Gender and Development Strategy paper for poverty reduction and gender (2008 - 2010) The promotion and integration of women in development are elaborated in the National Policy whose objectives are: (a) Strengthening the capacities of women and the fight against inequality in social relations between the sexes through all its manifestations, whether individual, collective or institutional. (b) Gender mainstreaming in all sectors by all institutions, civil society organizations, the private sector, etc. On the other hand, the strategic axes of the national policy on gender revolve around: 1. Mainstreaming gender in development institutions, programs and projects. 2. Improving the productivity of women to increase their income. 3. Improving access to production support services. 4. Improving access to social services. 5. Promotion of equitable participation in the management of power, respect for rights and suppression of violence. 6. Strengthening institutional mechanisms</p>	<p>The project will integrate gender issues to reduce economic, cultural and social inequalities.</p>
<p>National REDD + strategy¹¹⁷ Vision: By 2030, the diversification of the Republic of Congo's economy, following the standards and principles of conservation and sustainable ecosystem management, participatory management and poverty alleviation, is effective through green economy. The strategic and technical tools of the REDD process are in place and operational for the benefit of the national and international community." The strategic options are: 1. Strengthening governance and implementing sustainable financing mechanisms. 2. Sustainable management and development of forest resources. 3. Improving agricultural systems. 4. Rationalization of woodlot production and use and promotion of clean energy; and</p>	<p>Deployment of EarthRanger technology for effective management of protected areas will enhance conservation of biological diversity in protected areas and promote wildlife-based tourism to spur economic development. The Project will also help to mitigate illicit trade in wildlife and forest products.</p>

¹¹⁷ Republic of Congo, 2018. Strategie Nationale REDD+ de la Republique Du Congo. Version validée par le Conseil des Ministres du 11 Avril 2018. Ministère De L'économie Forestière. Brazzaville.

National Priorities	Consistency of the project with the national priorities
<p>5. Development of a green mining sector Under Option 2, the Strategy aims to improve forest conservation in protected areas through development and implementation of management plans, reduce management costs through local and indigenous peoples' participation, piloting co-management and generating economic benefits through ecotourism. The Strategy promotes conservation and sustainable use of biodiversity and the economic development of protected areas through ecotourism development. The Strategy also focuses on combating illegal logging and strengthening law enforcement, traceability via the Computer System for Verification of Legality and Traceability (SIVLT) and promoting good governance in the forestry sector.</p>	

187. This project is consistent with and augments several regional and global environmental agreements related to biodiversity conservation and management of protected areas elaborated below.

- **Convention on Biological Diversity (CBD):** The goals are conservation of biodiversity, sustainable use of its components, and fair and equitable sharing of benefits arising from genetic resources. The Earth Ranger Project will strengthen institutional and human resource capacities of the PA authorities to conserve biodiversity and promote socio-economic development, human wellbeing, and ecological integrity. All the project participating countries (Botswana, Mozambique, and Republic of Congo) are party to the CBD and have developed National Biodiversity Strategy and Action Plans (NBSAPs) as part of their commitment to the Convention. Each country's NBSAPs Vision is provided in the **Table 10**:

Table 10 : Vision of each Target Country's NBSAP

Country	Vision of the National Biodiversity Strategy and Action Plan (NBSAP)
Botswana	By 2025, ecosystem, species and genetic diversity is valued, protected, and used sustainably and equitably, through involvement of all sectors of society and provision of sufficient resources for its sound management (Botswana DEA, 2016 ¹¹⁸).
Mozambique	By 2035, the ecological, socio-economic and cultural value of biodiversity in THE country will contribute directly to improving the quality of life of citizens derived from its integrated management, conservation and fair and equitable utilization (Ministry of Land, Environment and Rural Development, 2015 ¹¹⁹).
Republic of Congo	By 2030, the security of Congo's biological resources is ensured by better knowledge of their components and sustainable management that integrate capacity development human, socio-economic development and redistribution of equitable benefits while honoring international commitments (Ministre du Tourisme et de l'Environnement, 2015 ¹²⁰).

¹¹⁸ Department of Environmental Affairs (DEA). (2016). National Biodiversity Strategy and Action Plan (NBSAP). Gaborone, Botswana: Department of Environmental Affairs (DEA). Retrieved from <https://www.cbd.int/doc/world/bw/bw-nbsap-v3-en.pdf>

¹¹⁹ Ministry of Land, Environment and Rural Development. (2015). National Strategy and Action Plan of Biological Diversity of Mozambique (2015-2035). Maputo, Mozambique: Ministry of Land, Environment and Rural Development. Retrieved from <https://www.cbd.int/doc/world/mz/mz-nbsap-v3-en.pdf>

¹²⁰ Ministre du Tourisme et de l'Environnement. (2015). National Biodiversity Strategy and Action Plan (NBSAP). Brazzaville, Republic of Congo: Ministre du Tourisme et de l'Environnement. Retrieved from <https://www.cbd.int/doc/world/cg/cg-nbsap-v2-fr.pdf>

- **The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization**: it was adopted by the Parties to the Convention on Biological Diversity (CBD). The project participating countries (Botswana, Mozambique and Republic of Congo) are party to the CBD and the Nagoya Protocol¹²¹. The Nagoya protocol seeks to promote fair and equitable sharing of benefits arising from utilization of genetic resources.
- **African Convention on the Conservation of Nature and Natural Resources**¹²²: all the project participating countries (Botswana, Mozambique and Republic of Congo) are party to this convention¹²³. The objective of the convention is to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people. The convention recognizes the importance of natural resources e.g., flora, fauna, water and soil, to the well-being of Africans.
- **Convention on International Trade in Endangered Species (CITES)**: all the project participating countries (Botswana, Mozambique and Republic of Congo) are party to CITES¹²⁴. The convention recognizes that various species, animals and plants represent an irreplaceable part of natural ecosystems. The objective CITES is to ensure that international trade in threatened animals and plant species does not threaten their survival.
- **Ramsar Convention**: it protects wetlands as important ecosystems for the maintenance of biodiversity. It recognizes the ecological importance of wetlands as regulators of hydrological regimes and habitats of specific flora and fauna species. All the project participating countries (Botswana, Mozambique and Republic of Congo) are party to the Ramsar convention¹²⁵.
- **United Nations Framework Convention on Climate Change (UNFCCC)**: it seeks to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. It recognizes the elevated natural greenhouse gas effect caused by human activities and evaluates the extent to which they adversely affect the natural ecosystems and humankind. It also recognizes the role of terrestrial and marine ecosystems as carbon sinks. All the project participating countries (Botswana, Mozambique, and the Republic of Congo) are party to the UNFCCC and other key climate change conventions namely: **The Kyoto Protocol and The Paris Agreement**¹²⁶.

¹²¹ List of countries party to the Nagoya Protocol: <https://www.cbd.int/abs/nagoya-protocol/signatories/>

¹²² African Union. (2003). African Convention on the Conservation of Nature and Natural Resources (revised). Addis Ababa, Ethiopia. Retrieved from <http://extwprlegs1.fao.org/docs/pdf/mul45449.pdf>

¹²³ African Union. List of countries party to the African Convention on the Conservation of Nature and Natural Resources: <https://web.archive.org/web/20120902043558/http://www.africa-union.org/root/au/Documents/Treaties/List/African%20Convention%20on%20nature%20and%20natural%20resources.pdf>

¹²⁴ List of countries party to CITES: <https://www.cites.org/eng/disc/parties/chronolo.php>

¹²⁵ List of countries party to Ramsar Convention: <https://www.ramsar.org/country-profiles>

¹²⁶ List of countries party to UNFCCC, Kyoto Protocol and the Paris Agreement: https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states?field_national_communications_target_id%5B514%5D=514&field_partys_partyto_target_id%5B512%5D=512&field_partys_partyto_target_id%5B511%5D=511

- **United Nations Convention to Combat Desertification (UNCCD):** it seeks to combat desertification and mitigate the effects of drought in countries undergoing serious drought and/or desertification, particularly in Africa. UNCCD recognizes that desertification is caused by complex interactions among physical, biological, political, socio-economic, and cultural factors. All the project participating countries (Botswana, Mozambique, and the Republic of Congo) are party to UNCCD¹²⁷.
- **Cartagena Protocol on Biosafety:** it establishes mechanisms to protect biodiversity and human health risks of Genetically Modified Organisms (GMOs). The Convention seeks to contribute to ensuring an adequate level of protection in terms of safe transfer, handling, and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity. All the project participating countries (Botswana, Mozambique, and the Republic of Congo) are party to the Cartagena Protocol on Biosafety¹²⁸.
- **Bonn Convention on Migratory Species (CMS):** Recognizes the importance of conservation of special habitats of migratory species. All the project participating countries (Botswana, Mozambique, and the Republic of Congo) are party to the CMS¹²⁹.

K. Consistency with GEF Focal Area and/or Fund(s) Strategies

188. This project is aligned with the GEF-7 biodiversity (BD) Focal Area Strategy. Specifically, the project falls under BD-2.7: Address direct drivers to protect habitats and species and improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate.

189. Improved management effectiveness is essential for protected areas to persist as reservoirs of biodiversity. Deployment of tested technologies such as EarthRanger represents a cost-effective means to amplify management capabilities through improved real-time data collection, analysis, and the creation of situational awareness. Additional co-benefits of the EarthRanger technology deployment include improved voice communications, data transmission, data storage, and data analytics. **Table 11** further shows how this project is aligned with the GEF- Programming directions.

Table 11: Alignment with the GEF-7 focal area Strategies

GEF-7 Focal area strategy	GEF-7 Delivery Mechanism (<i>Focal Area Investment</i>)	The Proposed project
<p>Biodiversity Goal: to maintain globally significant biodiversity in landscapes and seasapes.</p> <p>Objective II: Address direct drivers to protect habitats and species</p> <p>Enhance the effectiveness of protected area systems</p>	<p>Improving Financial Sustainability, Effective Management, and Ecosystem Coverage of the Global Protected Area Estate</p>	<p>Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system.</p>

¹²⁷ List of countries party to UNCCD: https://knowledge.unccd.int/search?f%5B0%5D=type%3Afocal_points

¹²⁸ List of countries party to the Cartagena Protocol on Biosafety: <https://bch.cbd.int/protocol/parties/>

¹²⁹ List of countries party to the Bonn Convention on Migratory Species (CMS): <https://www.cms.int/en/parties-range-states>

GEF-7 Focal area strategy	GEF-7 Delivery Mechanism (<i>Focal Area Investment</i>)	The Proposed project
<p>BD-2.7: Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate</p>		<p>Outcomes:</p> <p>Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas</p> <p>Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the Earth Ranger technology.</p> <p>Outcome 3.1: An integrated monitoring and evaluation framework for the project</p>

Source: GEF, 2021

L. Linkages with other GEF Projects and Relevant Initiatives

190. The section describes how the EarthRanger project will coordinate with other ongoing GEF projects in the same region of a similar thematic area. **Table 12** indicates projects at global, regional, and national levels that offer relevant linkages to this Earth Ranger deployment project.

Table 12: Other Relevant Projects and Initiatives

GEF Projects Other Projects/Initiatives	Linkages and Coordination
A. Global GEF projects operating in the focus countries	
<p>Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development Program (GWP) – with programs in Botswana, Mozambique and the Republic of Congo:</p> <ul style="list-style-type: none"> Botswana: <i>“Managing the Human-Wildlife Interface to Sustain the Flow of Agro-Ecosystem Services and Prevent Illegal Wildlife Trafficking and in the Kgalagadi and Ghanzi Drylands”</i> – implemented in Kalahari Savannah – Central Kalahari Game Reserve (CKGR) and the Kalahari Transfrontier Park (KTP); Kgalagadi/Ghanzi drylands in western and south-western Botswana; Orange-Senqu Transboundary River Basin; Ngamiland Mozambique: <i>“Strengthening the Conservation of Globally Threatened Species in Mozambique Through</i> 	<p>The project provides support and capacity building at the country, regional, and global level to enhance management of PAs and wildlife crime prevention (focusing on combating wildlife poaching, trafficking, and demand) and thus provides great leverage to the EarthRanger project that is targeting management effectiveness through ecological monitoring and addressing threats to wildlife. The Earth Range project builds and benefits from the experiences of the Global partnership project, especially for capacity building and information sharing. The learning and coordination platform under GWP that was established for mitigating illegal wildlife trade will benefit the EarthRanger Project through data generation and information sharing.</p>

GEF Projects Other Projects/Initiatives	Linkages and Coordination
<p><i>Improving Biodiversity Enforcement and Expanding Community”</i> – implemented in Gorongosa National Park (Gorongosa-Marromeu Complex); Niassa Reserve; Pungue - DingueDingue Community Conservancy; Northern Rift Valley Community Conservancy; Cheringoma Sub-Complex of Conservancie;</p> <ul style="list-style-type: none"> • Republic of Congo: <i>“Integrated and Transboundary Conservation of Biodiversity in the Basins of the Republic of Congo</i> 	
<p>Biodiversity and Protected Areas Management Programme (BIOPAMA)</p>	<p>This program is aimed at improving long-term conservation and sustainable use of biodiversity and natural resources in protected areas and the surrounding communities in African, Caribbean, and Pacific (ACP) countries. The program aims at strengthening on-site infrastructure/equipment for patrolling, poaching control, developing the capacity of staff). Through its Reference Information Systems (RRIS) tool, information from the many knowledge products, projects, databases on protected areas, species, and related information, is gathered in one place, including the data uploaded, created and generated by the users themselves. The Earth Ranger project will provide the opportunity for countries to learn about the importance of utilizing technology for effective wildlife monitoring and there is great opportunity to have cross learning with BIOPAMA. Lessons learnt from BIOPAMA will be utilized to enhance effective project management of the EarthRanger project.</p>
<p>Sustainable Forest Management Impact Program on Dry-land Sustainable Landscapes</p>	<p>The project was to support the countries Angola, Botswana, Burkina Faso, Kazakhstan, Kenya, Malawi, Mongolia, Mozambique, Namibia, Tanzania and Zimbabwe to avoid, reduce, and reverse further degradation, desertification, and deforestation of land and ecosystems in dry-lands through the sustainable management of production landscapes. In particular, the project supported Mozambique to actively engage in the Miombo Network to revitalize and strengthen key TFCAs to preserve trans-boundary ecosystems, including the Limpopo National Park. The Earth Ranger will build on the achievements in capacity building and coordination efforts.</p>
<p>B. Regional GEF Projects supporting the project countries</p>	
<p>Title of Project: Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development Program Project Location: Afghanistan, Botswana, Republic of Congo, Cameroon, Ethiopia, Gabon, Indonesia, India, Kenya, Mali, Malawi, Mozambique, Philippines, Thailand, Tanzania, Viet Nam, South Africa, Zambia, Zimbabwe Duration: 2015 – 2022</p>	<p>The EarthRanger Project will build on and learn from this World Bank Group’s global coordinating project which establishes a learning and coordination platform to promote enhanced Illegal Wildlife Trade (IWT) interventions and increase technical capabilities.</p> <p>Country-based and regional projects focus on designing and implementing national strategies to improve wildlife and protected area management, enhance community livelihood benefits, strengthen law enforcement and reduce demand through changing</p>

<p style="text-align: center;">GEF Projects Other Projects/Initiatives</p>	<p style="text-align: center;">Linkages and Coordination</p>
<p>Description: This regional project covers three countries namely, Botswana, Congo and Mozambique. The GEF-6 Global Wildlife Program (GWP) is a Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development USD 131 million grant program funded by the Global Environment Facility (GEF) and led by the World Bank Group. The GWP intervenes at the global, regional, and national levels.</p>	<p>behavior. The implementing agencies channeling the funds to the governments or other partners for the national projects are the World Bank Group, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), and the Asian Development Bank (ADB). The GWP also collaborates with the International Consortium on Combating Wildlife Crime (ICWC) and other donors and conservation partners to implement an integrated approach for biodiversity conservation, wildlife crime prevention and sustainable development, including: The Global Environment Facility (GEF), International Union for Conservation of Nature (IUCN), The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, TRAFFIC, WildAid, Wildlife Conservation Society (WCS), World Wildlife Fund (WWF)¹³⁰.</p>
<p>Title of Project: Support to Eligible Parties to Produce the Sixth National Report to the CBD (Africa-1) Project location: Burundi, <u>Botswana</u>, Central African Republic, <u>Republic of Congo</u>, Djibouti, Eritrea, Ethiopia, Gabon, Kenya, Comoros, Rwanda, Sudan, South Sudan, Chad, Tanzania, Uganda, Congo DR The project provides support to GEF-eligible Parties to the Convention on Biological Diversity (CBD) in their work to develop high quality, data driven sixth national reports (6NR) that will improve national decision-making processes for the implementation of NBSAPs; progress towards achieving the Aichi Biodiversity Targets (ABTs) and inform both the fifth Global Biodiversity Outlook (GBO5) and the Global Biodiversity Strategy of 2021 – 2030.</p>	<p>The information and experiences from the EarthRanger project will benefit the preparation of more accurate national reports and thus inform stakeholders to ensure improved national decision-making processes for the implementation of NBSAPs.</p>
<p>Integrated Trans boundary River Basin Management for the Sustainable Development of the Limpopo River Basin Project location: <u>Botswana</u>, <u>Mozambique</u>, South Africa, Zimbabwe The project, aimed at promoting sustainable development in the Limpopo River basin through Integrated Water Resources Management (IWRM) at the trans boundary, national, and local scales to balance environmental, social and economic benefits provides some lessons for the EarthRanger project.</p>	<p>This project, which is now closed, provides lessons to implementation of the EarthRanger project. This EarthRanger project will build on the achievements of the closed trans boundary project, particularly with respect to information as well as experience sharing. The Limpopo National Park which is one of the focus sites of the EarthRanger Project is part of the Great Limpopo Transfrontier Park, comprising the Kruger National Park in South Africa, the Limpopo National Park in Mozambique, and the Gonarezhou National Park in Zimbabwe. There is thus a great opportunity for the EarthRanger project to build on the achievements of the Trans boundary river basin project.</p>

¹³⁰ <https://www.worldbank.org/en/programs/global-wildlife-program/partners> Website accessed on 1st April, 2021 at 1800hours.

GEF Projects Other Projects/Initiatives	Linkages and Coordination
C. National GEF Projects in the Focus Countries	
Botswana	
Managing the Human-Wildlife interface to sustain the flow of Agro-ecosystem services and prevent illegal wildlife trafficking in the Kgalagadi and Ghanzi dry lands (Global Wildlife Program)	The project is still under implementation and key linkages will be on landscape planning and integrated sustainable management; development and implementation of national strategy for combating wildlife crime (Capacity building, inter-agency collaboration and local level participation). While the Earth ranger will focus on combating crime, this will feed into better coordination.
Bio-methane Project in Southeastern Botswana	The project is still under implementation phase. The overall objective of the project is to facilitate low carbon investment and public-private partnerships in the production and utilization of bio-methane from agro-waste (for substitutes to LPG and diesel) in Southeastern district of Botswana. One of the project components is institutional and private-sector strengthening and capacity development for biogas technology development and servicing and improvement of agro-waste management and regulation through awareness-raising, training and dissemination sessions. The EarthRanger project will build on the project, ensuring efficient use of resources and avoid duplication of efforts.
Renewable Energy-Based Rural Electrification Programme	The project closed. The global objective of the project was to reduce the emission of greenhouse gas (GHG) in the Botswana power sector by removing the barriers for large-scale dissemination of solar photovoltaic (PV) technology. The data from the project outcome is an essential input to the MRV system.
Botswana's Third National Communication (TNC) to the UNFCCC and First Biennial Update Report (FBUR)	Component of EarthRanger project shall aim to strengthen capacities for PA data collection, processing and reporting to respond to crime and the national and international reporting requirements.
Incorporating Non-Motorized (NMT) Transport Facilities in the City of Gaborone	The aim of the project was to mitigate greenhouse gas emissions in the urban transport sector by enhancing a modal shift from motorized transport to non-motorized transport. The data from the project outcome is an essential input to the MRV system.
Building Core Capacity for the Implementation, Monitoring and Reporting of Multilateral Environmental Agreements (MEAs) and Relevant Sustainable Development Goals (SDGs) in Botswana.	The overall objective of the project was to strengthen national capacity for environmental information and knowledge management for implementation, monitoring and of Multilateral Environmental Agreements (MEAs) and relevant Sustainable Development Goals (SDGs) in Botswana. Most of the Earth Ranger project stakeholders were trained under the MEAs project, hence the skill gained during the project will be useful for the success of the EarthRanger project.
Mozambique	
Title of Project: Integrated Trans boundary River Basin Management for the Sustainable Development of the Limpopo River Basin	The EarthRanger project complements the Limpopo River Basin Management since it will facilitate monitoring of activities implemented by the staff of the Park allowing more data and information to be processed and collected.

<p style="text-align: center;">GEF Projects Other Projects/Initiatives</p>	<p style="text-align: center;">Linkages and Coordination</p>
<p>Title of Project: Strengthening the conservation of globally threatened species in Mozambique through improving biodiversity enforcement and expanding community conservancies around protected areas.</p> <p>The major objectives under this project include:</p> <ul style="list-style-type: none"> -National strategy to promote the value of wildlife and combat illegal wildlife trafficking -Strengthen enforcement capacity in key protected areas -Establish conservancies to expand the Gorongosa Protected Area 	<p>These projects complement each other as the EarthRanger project supports the capacity building for monitoring activities in the protected areas and builds capacity also at the ANAC - the administration capacity needed for effective coordination. Lessons learnt in implementation of the project will benefit the EarthRanger project particularly with respect to strengthening enforcement capacity at protected area level.</p>
<p>Mozambique Conservation Areas for Biodiversity and Development (MOZBIO)</p>	<p>The project is intended to increase effective management of conservation areas and enhance living conditions of the adjacent local communities. By improving protected area management, the project aims to reduce poaching, wildlife and forest related crimes, and illegal wildlife trade. The EarthRanger project will leverage interventions on human resource management and improvements with Limpopo and Zinave which are also target sites by the MOZBIO initiative – there is thus an opportunity to establish synergies, collaboration and benefit from lessons learnt.</p>
<p>The Kheta Project, implemented by the governments of Mozambique and South Africa by the Department of Environmental Affairs (DEA), South African National Parks (SANParks), the National Administration of Conservation Areas (ANAC) and the Attorney General’s Office in Mozambique (PGR) is aimed at addressing the continued decline of Africa’s elephant and rhino populations due to wildlife trafficking.</p>	<p>This project is implemented in the Limpopo Transfrontier Park and thus provides some great lessons for the EarthRanger project particularly with respect to information sharing in the effective enforcement of anti-poaching and illegal wildlife trade.</p>
<p>Republic of Congo</p>	
<p>Integrated and Trans frontier Conservation of Biodiversity in the North Congo Basins</p> <p>The objective is to strengthen the efficiency of PAs through the operation of peripheral buffer zones and biological corridors for the interconnection of protection nuclei North Congo in the departments of Cuvette, Cuvette Ouest and Sangha. The project covers a total area of 1,533,600 ha including the Odzala-Kokoua National Park (1,354,600 ha), the Lossi Gorilla Sanctuary (35,000 ha) and the creation of Messok -Dja PA on 144,000 ha.</p>	<p>The Integrated and Trans frontier Conservation of Biodiversity in the North Congo Basins project is implemented in the Odzala-Kokoua National Park and thus provides an opportunity for the EarthRanger Project to utilize lessons from its implementation as well as collaboration in supporting enforcement and enhance community collaboration in the buffer zones and biological corridors.</p>
<p>North Congo Forest Landscape Project (PPFNC)</p>	<p>This project is implemented in the north Congo, particularly in Likouala, Sangha and Cuvette West on an area of 9.5 million ha. As the focus of the project is on maintaining ecological integrity and</p>

GEF Projects Other Projects/Initiatives	Linkages and Coordination
<p>The aim is to ensure the maintenance of ecological continuums and preservation of biological diversity in the territories of the North of Congo by supporting socio-economic development and a rational planning of the territory.</p>	<p>conservation of biodiversity, there is great opportunity for collaboration with the EarthRanger project especially in addressing community –wildlife conflicts and reduction of threats to biodiversity resources. The project covers a large area where local communities and indigenous peoples live along logging sites, PAs and agricultural and mining concessions and thus any threats in such areas that may be captured by the EarthRanger project would benefit from linkages with this project to ensure effective enforcement particularly in addressing issues of poaching.</p>
<p>The Congo Conservation Company initiative This initiative works on development of village lands and improvement of the conditions of local communities and indigenous peoples (CLPA) through ecotourism.</p>	<p>The Congo Conservation Company initiative works in North Congo in the departments of Cuvette Ouest, Likouala at the peripheries of Odzala-Kokoua and Nouabalé- Ndoki national parks. There is therefore an excellent opportunity for the EarthRanger project to collaborate with this initiative to support effective enforcement of monitoring threats to Odzala-Kokoua and Nouabalé- Ndoki national parks, especially with respect to poaching and illegal trade in wildlife products.</p>
<p>Inventory and field tests for deployment of IT Legality Verification System (SIVL) with stakeholders. This is an FAO-EU FLEGT initiative whose aim is to monitor and mitigate deforestation in forest management units (FMUs) granted to logging concessionaires.</p>	<p>The linkage of the EarthRanger Project with this initiative will mainly be information sharing as the focus is on traceability of forest products and control of logging. Experience in tracking forest products may be shared to enhance management effectiveness of the target protected areas.</p>
<p>Strengthening the Management of Wildlife and Improving Livelihoods in Northern Republic of Congo¹³¹ The project seeks to increase the capacity of the forest administration, local communities and indigenous peoples to co-manage forests. It is a national GEF project whose three components are located in a primary project of the World Bank called " Forest and Economic Diversification Project (PFDE) ".</p>	<p>There is great opportunity for linkages and for EarthRanger project to be leveraged by this initiative as its objective is to provide support for the national anti-poaching strategy particularly to Ntokou-Pikounda, specifically improving the management effectiveness of Ntokou Pikounda National Park to enhance habitat and biodiversity conservation, and to support eco-tourism activities in the southern ring road of Nouabalé -Ndoki National Park). The EarthRanger work in Nouabalé -Ndoki will thus benefit from this project activities. The co-management aspects with local communities and indigenous peoples of the initiative will enhance the Earth Ranger's project implementation.</p>
<p>Support for conservation and sustainable management of biodiversity in the TRIDOM Interzone Congo area (ETIC)</p>	<p>This project supports anti-poaching surveillance, monitoring animal populations and threats to PAs in northern Congo and provides an opportunity for sharing information and experiences with the EarthRanger Project.</p>

¹³¹ <https://www.thegef.org/project/strengthening-management-wildlife-and-improving-livelihoods-northern-republic-congo>

M. Consistency and Alignment with CI Institutional Priorities

191. CI's work is guided by the "*Southern Cross*" which consists of four interlinked priority areas; (1) Nature for Climate; (2) Sustainable Landscapes and Seascapes; (3) Ocean Conservation at Scale and (4) Innovation in Science and Finance. **This Project falls under Priority two - Sustainable Landscapes and Seascapes.** However, its outcomes indirectly yield co-benefits for priorities 1 and 4. This project is expected to enable the target countries to manage protected areas more effectively.
192. The section below explains how this project's outcomes are aligned with CI's Priority two (Sustainable Landscapes and Seascapes):
- Policy: This project will inform better approaches for ecological monitoring and reduction of threats to biodiversity.
 - Improved response to threats on protected areas.
 - This project will set up an Earth Ranger working group that would help harmonize experiences and share information.
 - Innovation: Through this project, the three project countries will develop an integrated monitoring and reporting system on threats to biodiversity and improved response to the threats.

N. Communications and Knowledge Management

193. The key knowledge management activities under this project will involve: hands-on training on EarthRanger Technology; sharing of project's lessons and success stories through participation at the Annual EarthRanger user conference by the project participating countries and other African countries. There will also be dissemination of information on EarthRanger and other conservation technologies through various modes of communication.
194. Success stories and lessons learnt from this project will be disseminated through the EarthRanger Website (<https://earthranger.com/About-Us.aspx>), other media outlets and social media platforms to be identified during the project implementation Phase. The project will also explore the potential of various national-level platforms and regional platforms, such as Southern African Development Community (SADC) Newsletter, <https://www.sadc.int/news-events/newsletters/>, and the global platforms such as the Knowledge Sharing Platform of the GEF-World Bank Global Wildlife Program (GWP), to share best practices and lessons learned. SADC Secretariat produces a monthly newsletter, "Inside SADAC", which could be utilized to share experiences and good practices to benefit the countries within and beyond the region. GWP has been instrumental in tackling the wildlife issues of poaching and illegal wildlife trade in countries of Asia and Africa (Botswana, Mozambique, and Republic of Congo inclusive) and coordinating outreach with partners, collaborators, and donors. The Project will also take advantage of any other social media platforms and other media outlets as they unveil during implementation.

It is anticipated that through widespread dissemination of EarthRanger's success stories, other African countries will gain interest to install and use conservation technologies to effectively manage their protected areas. Regarding storage of data, the project will build on and enhance existing systems to ensure that data are sent to the central repository following a systematic channel and at each level, a copy of the data will be retained as back-up. Knowledge management for the project will be achieved through relevant outputs with activities and targets focused on information collation and sharing. The details are provided by Project Component in

195. Table 13.

Table 13: Knowledge management outputs with associated timelines and indicative budget allocation

Relevant KM Outputs	Activities for knowledge management	Target	Timing ¹³²	Budget (USD) ¹³³
Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa				
Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA	Support stakeholders from the target PAs to attend the Annual regional EarthRanger User Conference	Stakeholders from the target PAs attend the Annual regional EarthRanger User Conference	Annual	331,382
Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up.	a. Hold Annual national and Regional virtual events on Earth Ranger experience b. Regional women's ranger learning/knowledge exchange summit c. Consolidate commitment of African countries to utilize EarthRanger Technology	Events will provide opportunity for knowledge sharing among the stakeholders Printing of materials	Annual	
Output 2.1.3: Success stories, lessons learnt and best practices published and shared on blogs, websites and other digital platforms (where the Earth Ranger software informed decisions in management effectiveness of PAs).	(i) Develop the capacity of PA staff for effective documentation and digital information sharing (ii) Prepare and disseminate an article that highlights 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field). (iii) Document progress of Earth Ranger implementation experience (Newsletter, stories, fact sheets, brochures, etc.) (iv) Translation of documents (English, French, Portuguese) (v) Protected area Management Authorities to upload Earth Ranger experiences on their websites as appropriate (vi) PA partners to Upload Earth Ranger Experiences onto their websites as appropriate	<ul style="list-style-type: none"> • Newsletters • Fact sheets • Stories • Blog posts • Printing of training materials 	Bi-annual	
TOTAL				331,382

Note: The USD 331,382 under Component 2 covers staff time, conferences, and consultancies (such as translation services).

¹³² Appendix II in the ProDoc provides the details of scheduling of the activities.

¹³³ Details of costings are in the detailed budget attached separately.

SECTION 4: COMPLIANCE WITH CI-GEF PROJECT AGENCY'S ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

A. Safeguards Screening Results and Project Categorization

196. During the Project Preparation Grant (PPG) phase of the project, the proposed project activities were screened using the CI-GEF's Safeguard Screening Form. The screening forms were submitted to the CI-GEF Project Agency, after which the recommended safeguard plans were developed. The summary of the screening results is presented in **Table 14**. The detailed Safeguard screening results report is provided in Appendix VI.

Table 14: Safeguard Screening Results

ESS Standards	Yes	No	TBD	Justification
ESS 1: Environmental & Social Impact Assessment	X			<i>The project is proposing activities that could have adverse impacts i.e. construction or refurbishment of control or infrastructure in protected areas.</i>
ESS 2: Protection of Natural Habitats and Biodiversity Conservation		X		<i>The project is not proposing activities that would have adverse impacts on natural or critical natural habitats, contravene applicable international environmental treaties or agreements or introduce or use potentially invasive, non-indigenous species.</i>
ESS 3: Resettlement and Physical and Economic Displacement		X		<i>The project will not engage in the resettlement of people or cause physical and economic displacement.</i>
ESS 4: Indigenous Peoples		X		<i>The project does not plan to work in lands or territories traditionally owned, customarily used, or occupied by indigenous peoples.</i>
ESS 5: Resource Efficiency and Pollution Prevention		X		<i>There are no proposed activities related to the use of or restricted or prohibited substances, chemicals or hazardous materials.</i>
ESS 6: Cultural Heritage		X		<i>The project does not plan to work in areas where cultural heritage, both tangible and intangible, exists.</i>
ESS 7: Labor and Working Conditions		X		<i>The EA has in place the necessary policies, procedures, systems and capabilities that meets the requirements of</i>
ESS 8: Community Health, Safety and Security		X		<i>The project does not anticipate risks to community health and safety and security but the pandemic may cause delays in implementation of project activities.</i>
ESS 9: Private Sector Direct Investments and Financial Intermediaries		X		<i>The project does not plan to make either direct investments in private sector firms, or channel funds through Financial Intermediaries.</i>
ESS 10: Climate Risk and Related Disasters		X		<i>Moderate risk: The project areas are projected to experience increased temperatures and variable precipitation which lead to flooding, droughts (desertification in some cases), diseases such as malaria and cholera, and food insecurity. The project is specifically designed to strengthen the institutional and technical capacity of the countries to respond to the projected impact of climate change. The improved management effectiveness of priority protected areas will serve to mitigate against the impact of climate change.</i>

197. The results of the project categorization from the review of the screening process are presented in **Table 15**.

Table 15: Safeguard Categorization

PROJECT CATEGORY		Category A	Category B	Category C
				X
		<i>Justification: The proposed project has the potential to cause adverse environmental and social impacts on human populations or environmentally or socially important areas. However, these impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects.</i>		

B. Compliance with Safeguard Requirements

198. The initial screening process was conducted in November 2020 by the CI GEF Project Agency and, based on the information provided in the Safeguard Screening form, one safeguard was triggered by this project, namely, **Environment and Social Impact Assessment (ESIA)**, as the project proposes activities that could have adverse impacts i.e., construction or refurbishment of control room infrastructure in protected areas. To this end, the project undertook a limited ESIA and prepared an **Environmental and Social Management Plan (ESMP)**.

C. Compliance with Gender, Stakeholder Engagement and Accountability and Grievance requirements

199. Apart from the safeguard policy, this project is required to comply with the GEF's policies on Accountability and Grievance, Gender mainstreaming, and Stakeholder Engagement. As such, the project developed the Accountability and Grievance Mechanism; a Gender Mainstreaming Plan (GMP); and a Stakeholder Engagement Plan (SEP) and adhere to COVID-19 guidelines.

Gender Mainstreaming

200. To ensure that the project complies with the GEF's Gender Policy, a **Gender Mainstreaming Plan (GMP)** was prepared during the PPG process. Sex disaggregated data and gender information will be collected and analyzed to inform gender responsive monitoring and evaluation. The following minimum gender indicators will be monitored and reported on:

- (i) Number of men and women that participated in project activities (e.g., meetings, workshops, consultations).
- (ii) Number of men and women that received benefits (e.g., employment, income generating activities, training, equipment, leadership roles) from the project; as relevant.
- (iii) Number of strategies, plans (e.g., management plans and land use plans) and policies derived from the project that are gender inclusive.

Stakeholder Engagement

201. To ensure that the project complies with the GEF's Stakeholders' Engagement Policy, the EA (A12) supported by the PPG consultant developed a **Stakeholder Engagement Plan (SEP)**. The EA will monitor and report on the following minimum stakeholder engagement indicators:

- (i) Number of government agencies, civil society organizations, private sector actors, indigenous peoples and other stakeholder groups that have been involved in the project implementation phase on an annual basis.
- (ii) Number of persons (sex disaggregated) that have been involved in project implementation phase (on a quarterly basis); and
- (iii) Number of engagement activities (e.g., meeting, workshops, consultations) with stakeholders during the project implementation phase (on a quarterly basis).

Accountability and Grievance Mechanism (AGM)

202. To ensure that the project complies with CIGEF's AGM Standard, an **AGM plan** was developed to ensure that the people directly or indirectly affected by the project can bring their grievances for consideration and redress. The main centers for handling the complaints include at country level where the Project Focal Person (Project counterpart) at Protected Area level and the National Project Steering Committee will provide a first level of redress. At regional level, the Project Management Unit and Conservation International – Africa Field Division will be the centers of grievance redress. The mechanism will be in place before the start of project activities and disclosed to all stakeholders at inception and throughout project implementation in a language, manner and means that best suits the local context. The EA will monitor and report on the following minimum accountability and grievance indicators:

- (i) Number of conflict and complaint cases reported to the project's Accountability and Grievance Mechanism.
- (ii) Percentage of conflict and complaint cases reported to the project's Accountability and Grievance Mechanism that have been addressed.

CI-GEF COVID-19 Guidelines

203. The risk in this project associated with COVID-19 has been elaborated in Section 3(F). The measures outlined in the guidelines will be implemented in compliance with the safeguard recommendations developed by CI-GEF.

204. The five detailed safeguard plans listed below are provided in Appendix VII and attached to this document:

- a. CIGEF COVID-19 Guidelines
- b. Environment and Social Impact Assessment
- c. Stakeholder Engagement Plan (SEP)
- d. Gender Mainstreaming Plan (GMP)
- e. Accountability and Grievance Mechanism (AGM)

Stakeholders

205. *Select the stakeholders that have participated in consultations during the program identification phase:*

- Civil Society Organizations
- Indigenous Peoples and Local Communities
- Private Sector Entities
- If none above, please explain why?

206. *Select what role civil society will play in the project:*

- Consulted only.
- Member of Advisory Body; contractor.
- Co-financier.
- Member of project steering committee or equivalent decision-making body
- Executor or co-executor.
- Other (Please explain)

Gender Equality and Women's Empowerment

207. *Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?*

- Yes
- No

208. *If possible, indicate in which result areas the project is expected to contribute to gender equality.*

- Closing gender gaps in access to and control over natural resources
- Improving women's participation and decision making
- Generating socio-economic benefits or services or women

209. *Does the project's results framework or logical framework include gender-sensitive indicators?*

- Yes
- No
- TBD

Private Sector Engagement

210. The EarthRanger technology was developed by Vulcan Inc¹³⁴ in partnership with many conservation partners globally. As of September 2021, the EarthRanger unit was moved to the Allen Institute for Artificial Intelligence (AI2)¹³⁵. Both Vulcan Inc. and AI2 are private sector institutions that were founded by the late Paul G. Allen.

¹³⁴ Vulcan Inc. (2021). Retrieved from <https://vulcan.com/Our-Work.aspx>

¹³⁵

Allen Institute for Artificial Intelligence (AI2) . (2021). <https://earthranger.com/About-Us.html>

211. AI2 has committed US\$ 2.4 million co-financing to this project. AI2's co-financing letter is provided in Section 7 (part B). This letter describes the nature of the co-financing support that will be provided by AI2. Notably, AI2 is also the Executing Agency in this project and its roles and responsibilities are captured in Section 5.

212. The private sector's engagement in the project started at the project conception with AI2 pledging USD 2M co-financing and participating in designing the PIF. AI2 then participated in the PPG processes including undertaking preliminary site assessments to guide site selection, engagement in discussions with PA management agencies during the preliminary site assessments, consultations with potential project execution partners and participation in the preparation of the budget for the required equipment. AI2 also participated in the preparation of the CEO endorsement package.

SECTION 5: [CEO ENDORSEMENT SECTION] IMPLEMENTATION AND EXECUTION ARRANGEMENTS FOR PROJECT MANAGEMENT

213. **Project Duration:** The project duration is 44 months. It is anticipated that project set-up will take approximately 6 months, the actual implementation will take 36 months, project close-out and handover will take 2 months. The mid-term evaluation will be undertaken after 24 months, and the terminal evaluation will commence after 44 months.

A. Execution Arrangements and Partners

Implementing Agency

214. Conservation International (CIGEF) is the GEF Implementing Agency of this project. The overall role of the CI-GEF Implementing Agency includes technical and financial project oversight and supervision, assuring compliance of the project with GEF policies and procedures as well as monitoring and evaluation of the project activities. Finally, CI-GEF will make recommendations to optimize project performance and will arbitrate and ensure the resolution of any execution conflicts. Specifically, CI-GEF will undertake the following tasks:

- Facilitate interactions with the GEF
- Provide technical and financial oversight to the Executing Agency (The Allen Institute for Artificial Intelligence) and Conservation International Africa Field Division (The Executing Agency support partner).
- Oversee and monitor implementation of the project including reviewing quarterly technical and financial project reports, undertaking annual project site visits, and monitoring the implementation of and compliance with safeguards.
- Ensure that project management practices (technical, financial, and administration) comply with GEF requirements.
- Monitor the project's implementation and achievement of the project outputs, ensure proper use of GEF funds,

- Review and approve procurement plans, budgets, and work plans.
- Quality assurance including ensuring that audits are undertaken by external auditors
- Oversee preparation of the annual project implementation report (PIR) for submission to GEFSEC.
- Commission Mid-term and Terminal project evaluations.

The Executing Agency

215. The Allen Institute for Artificial Intelligence (AI2) is the project's Executing Agency supported by Conservation International Africa Field Division (CI AfFD).

216. The Allen Institute for Artificial Intelligence (AI2) as the Executing Agency will consult The Botswana Department of Wildlife and National Parks, The Mozambique National Sustainable Development Fund (FNDS), The Republic of Congo's Ministry of Tourism and Environment, and other executing partners and give guidance as needed. **The AI2 guidance should be in line with the GEF's and the Implementing Agency's policies and guidelines (CIGEF).** The specific role of AI2 is outlined below:

- a. Lead and guide the Project Management Unit (PMU).
- b. Technical backstopping, Quality Control, and Assurance of output deliverables including leading technical trainings and providing guidance and technical input across components.
- c. Provision of technical input and guidance to grantees, service providers, and Conservation International Africa Field Division during the deployment of EarthRanger.
- d. Support Conservation International Africa Field Division in undertaking the finance and operational tasks such as procurement and grants management in line with the GEF and the Implementing Agency's policies and guidelines. AI2 will review and give guidance on the procurement plans, Terms of reference, and procurement packages prepared by the Conservation International Africa Field Division.
- e. Approve Consultant/Grantee activities
- f. Support Conservation International Africa Field Division in the preparation and dissemination of knowledge management products
- g. Approve monitoring and evaluation reports before the Conservation International Africa Field Division submits to the GEF Agency (CIGEF) e.g.,
 - Review and approval of technical and financial periodic reports e.g., annual work plans and budgets, technical and financial progress reports before submission to CIGEF
 - Review and approve safeguards monitoring reports before submission CIGEF
 - Chair the Project Steering Committee (PSC).

Executing Agency support partner

217. The Conservation International Africa Field Division (CI AfFD) is the Executing Agency's support partner. CI AfFD will support AI2 to undertake its day-to-day execution functions. The specific role of CI AfFD is outlined below:

- a. Host the Project Management Unit (PMU) including the provision of technical input across components and guidance on operations.

- b. Manage the project's financial resources and carry out other project management functions as guided by The Allen Institute for Artificial Intelligence (AI2).
- c. Carry out full due diligence of executing partners using the CI-GEF Financial Risk Assessment and safeguards screening forms before signing grant agreements.
- d. Support finance and operational tasks such as procurement, grants management, financial audits, build the capacity of the Government, project staff, and co-executing partners on financial management and reporting in order to ensure compliance with the GEF's fiduciary standards.
- e. Management of technical output deliverables
- f. Management and reporting of consultant and grantee activities.
- g. Undertake Monitoring and Evaluation (M&E) of the project and obtain approval from the Allen Institute for Artificial Intelligence (AI2) before submitting the M&E reports to the GEF Agency (CIGEF). This entails:
 - Preparation of technical and financial periodic reports e.g., annual work plans and budgets, technical and financial progress reports at a reporting frequency required by the GEF Agency.
 - Undertake safeguards monitoring and reporting.
 - Organize and coordinate the project steering committee functions.
- h. Preparation of procurement plans and obtain AI2's approval before submitting to CIGEF
- i. Preparation of Terms of reference and procurement packages and obtain AI2's approval before submitting to CIGEF
- j. Maintenance of records of all project-related documentation
- k. Liaise with stakeholders to prepare and disseminate knowledge management products
- l. Contract financial audits of the project
- m. Provide onsite technical support during and after the deployment of EarthRanger in the 6 sites.

Project Management Unit (PMU):

218. A Project Management Unit (PMU) comprising of 3 staff (1 full-time and 2 part-time) will be under the Conservation International Africa Field Division. The PMU will report to CI-AfFD and the Allen Institute for Artificial Intelligence (AI2). A description of the roles and responsibilities of the PMU staff is provided below. ToRs are provided in Appendix X for positions charging to both components and PMC.

- **Technical Lead/Wildlife Conservation Technology Expert | Part-time:** Overall leadership of the technical inputs of the project and partner engagement, approvals of reports, and operational approvals.
- **Deputy Regional Program Manager | Full time:** responsible for the day-to-day project coordination, M&E, execution of the project activities per the approved work plan and budget, Management and reporting of consultant and grantee activities, support finance and operational tasks such as procurement, grants management, financial audits, maintenance of records of all project-related documentation and undertake project administrative tasks. At the national level, the project manager will guide and report on the performance of grantees and the implementation of safeguard plans.
- **Grants/Finance Officer | Part-time:** Responsible for the financial and grants management of the project; building capacity of sub-grantees to comply with GEF Minimum Fiduciary

Standards, support procurement and coordination management and participate in M&E of the project.

Positions supporting the PMU

- **Safeguard Compliance Officer | Part time:** Responsible for ensuring the project complies with the safeguard's requirements. This will entail setting up the safeguard plans; implementation of the safeguards; monitoring and reporting on safeguard indicators. The safeguards compliance officer will be supported by each protected area (PA) focal point at the PA level.

Executing Partners

219. **The role of Government partners** (The Botswana Department of Wildlife and National Parks (DWNP), The Mozambique National Sustainable Development Fund (FNDS), and The Republic of Congo Ministry of Tourism and Environment). Some of the roles to be undertaken by the Government partners include:

- Providing overall guidance AI2, CI AfFD, and grantees.
- Support the delivery and realization of technical output deliverables
- Strengthen public-private partnerships in PA management
- Participate in the virtual national Project Steering Committees and virtual EarthRanger Working Group
- Identifying key personnel to manage Earth Ranger
- Providing enabling conditions for the identified personnel to learn
- Developing and leading the development of new technologies to support the conservation efforts of the government,
- Help facilitate site visits and support with logistics of site visits
- Support safeguards monitoring and reporting
- Reporting on project progress including review of the project's progress reports prepared by the PMU

220. **The role of sub-grantees** e.g., African Parks, Noé, Peace Parks, and the Wildlife Conservation Society. These partners have a partnership agreement with the respective governments to manage the selected PAs. The partners will:

- Support the delivery and realization of technical output deliverables
- Deploy their resources e.g., personnel and equipment to roll out the earth ranger technology
- Strengthen public-private partnerships in PA management
- Participate in the virtual national Project Steering Committees and virtual EarthRanger Working Group
- Help facilitate site visits
- Support safeguards monitoring and reporting
- Reporting on project progress including review of the project's progress reports prepared by the PMU

221. **Table 16** outlines this project's Executing partners and Sub-grantees, their roles, and rationale for their Inclusion.

Table 16: Project Executing partners and Subgrantees Roles and Rationale for their Inclusion

Country	Protected Area	Grantee/ Subgrantee/ Partner	Specific Role	Rationale
Botswana	Chobe National Park	Executing Partner: The Botswana Department of Wildlife and National Parks (DWNP)	The team from the DWNP will consist of protected area managers in each project site, to provide support to the site-level implementation of work plans and budgets; ensuring the strategic installation of EarthRanger systems and related technologies and monitoring of performance.	The DWNP is the Government institution in Botswana that is responsible for conserving and managing fish and wildlife resources and their habitats in consultation with local, regional and international stakeholders for the benefit of present and future generations
		Sub-grantee: TBD: <i>Together with the DWNP, a project Contractor will be identified during the Inception Phase.</i>	The selected contractor will undertake site assessment, develop a project plan, produce a detailed project budget, and lead the project execution.	TBD: <i>Contractor to be identified during inception the inception</i>
Mozambique	<ul style="list-style-type: none"> • Limpopo National Park • Zinave National Park 	Executing Partner: The Mozambique National Sustainable Development Fund (FNDS)	FNDS will coordinate protected area managers from the Limpopo and Zinave National Parks to provide support to the site-level implementation of work plans and budgets; ensuring the strategic installation of EarthRanger systems and related technologies and monitoring of performance.	The FNDS is the Government institution in Mozambique whose objective is to promote and finance programs and projects that ensure sustainable, harmonious, and inclusive development, to achieve sustainable development.

		Sub-grantee: Peace Parks Foundation (PPF)	PPF has an MoU with the Government of Mozambique and has been involved in the management of both Limpopo and Zinave National Parks. The partnership will continue to be utilised during the implementation of this project.	PPF is a non-government organization that specializes in the establishment of Transfrontier Conservation Areas (TFCAs) and provides support to Governments in the management, financing, and development of protected areas within TFCAs. The support is provided in partnership with Governments at both local and national levels and recognizes that conservation areas must benefit local communities. PPF has also been working in Mozambique and the selected protected area.
The Republic of Congo	All the 3 target protected areas in the Republic of Congo	Executing Partner: The Republic of Congo Ministry of Tourism and Environment	The Republic of Congo's Ministry of Tourism and Environment will coordinate protected area managers from the 3 target national Parks to provide support to the site-level implementation of work plans and budgets; ensuring the strategic installation of EarthRanger systems and related technologies and monitoring of performance.	In collaboration with stakeholders, The Republic of Congo's Ministry of Tourism and Environment is mandated to ensure conservation and management of wildlife resources across all protected areas in the Country
	Conkouati-Douli National Park	Sub-grantee: Noé	Noé has an existing partnership with the Republic of Congo to manage the Conkouati-Douli National Park. This project is building on this partnership	Noé brings a unique skill set that covers Protected Area management, biodiversity conservation, and community economic development involving civil society and the private sector. Noé has been working in the RoC and the selected protected area.

	Nouabalé-Ndoki National Park	Sub-grantee: Wildlife Conservation Society (WCS)	WCS and the Republic of Congo are jointly managing the Nouabalé-Ndoki National Park. This project is building on this partnership	WCS is an NGO that has experience managing protected areas in Africa. WCS's goal is to conserve the world's largest wild places in 14 priority regions, home to more than 50% of the world's biodiversity.
	Odzala-Kokoua National Park	Sub-grantee: African Parks	African Parks and the Republic of Congo are jointly managing the Odzala-Kokoua National Park. This project is building on this partnership	African Parks is a non-profit conservation organization that takes on direct responsibility for the rehabilitation and long-term management of protected areas in partnership with governments and local communities.
	Conkouati-Douli National Park	Sub-grantee: Noé	Noé has an existing partnership with the Republic of Congo to manage the Conkouati-Douli National Park. This project is building on this partnership	Noé brings a unique skill set that covers Protected Area management, biodiversity conservation, and community economic development involving civil society and the private sector. Noé has been working in the RoC and the selected protected area.

The National Project Steering Committees (NPSCs)

222. The National Project Steering Committees (NPSCs) will play a key oversight role in guiding the project and ensuring successful execution. The NPSCs will also provide continuous ad-hoc oversight and feedback on project activities, respond to inquiries or requests for approval from the Project Management Unit or Executing Agency.
223. The NPSC will comprise country-level representatives from the respective governments, AI2, CI AFD, and Executing partners.
224. The NPSC meetings will be scheduled bi-annually by the PMU and co-chaired by the respective Government and AI2. The PMU will be the rapporteur. Notably, the virtual NPSC meetings will also be held regularly if needed to troubleshoot and discuss updates on project implementation progress.

Virtual Regional EarthRanger Working Group

225. The virtual regional EarthRanger Working Group will provide support in the harmonization of implementation approaches across the 6 protected areas and share lessons/progress updates. The meetings will be held virtually and will be organized by the PMU. There will be an opportunity for a physical meeting during the Annual EarthRanger User Conference.

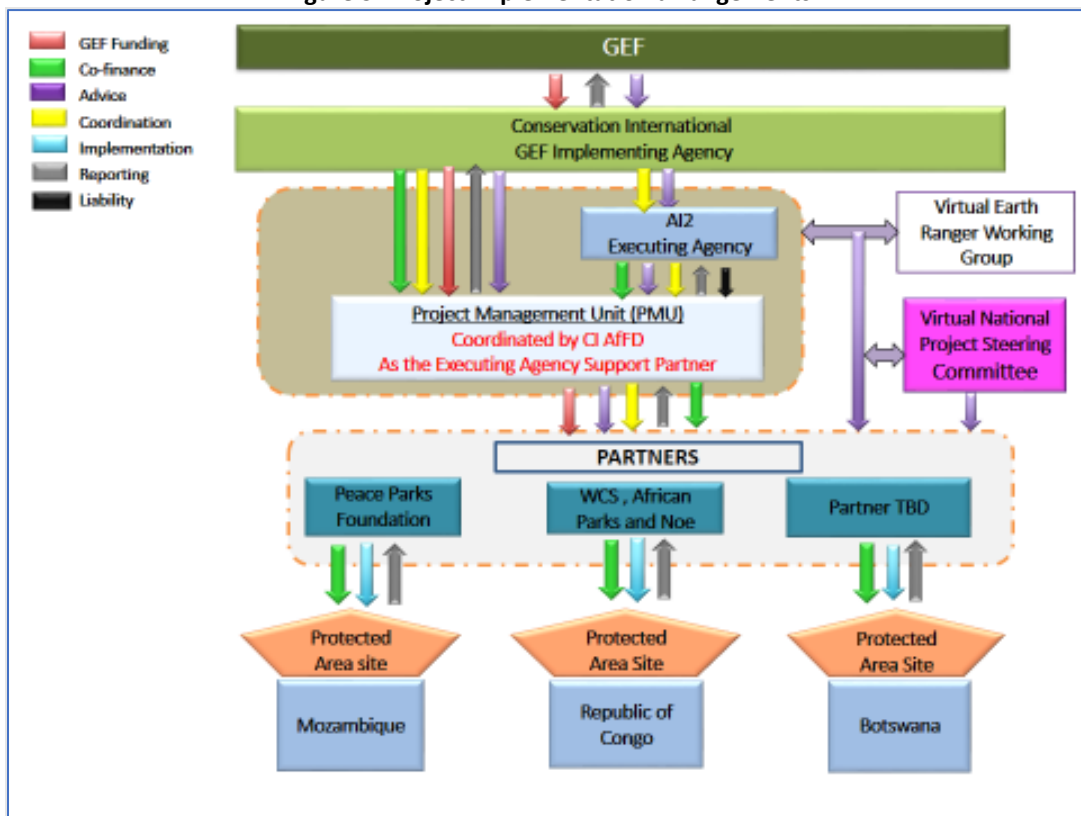
226. The virtual regional EarthRanger Working Group will bring all the project stakeholders from the 3 countries (6 protected areas) and comprise representatives from the respective governments, AI2, CI AFD, and Executing partners.

227. The virtual regional EarthRanger Working Group will be scheduled annually by the PMU and chaired by AI2. The PMU will be responsible for organizing this meeting and act as the rapporteur. The PMU will also prepare and disseminate a knowledge management product following this meeting.

B. Project Execution Organizational Chart

228. The Project’s Execution Arrangement is summarized in **Figure 3**.

Figure 3: Project implementation arrangements



SECTION 6: [CEO ENDORSEMENT SECTION] MONITORING AND EVALUATION PLAN

229. Project monitoring and evaluation will be conducted in accordance with established Conservation International and GEF procedures. The project's M&E plan will be presented and finalized at the project inception workshop, including a review of indicators, means of verification, and the full definition of project staff M&E responsibilities.

A. Monitoring and Evaluation Roles and Responsibilities

230. **The Project Management Unit (PMU)** will be responsible for initiating and organizing key monitoring and evaluation tasks but will utilize the country-level project counterparts (Partners) at each of the PAs. This includes the project inception workshop and report, quarterly progress reporting, annual progress, and implementation reporting, documentation of lessons learned, and support for and cooperation with the independent external evaluation exercises.

231. **The Project Executing Agency** is responsible for ensuring the monitoring and evaluation activities are carried out in a timely and comprehensive manner.

56. **The National Project Steering Committees** play a key oversight role for the project, with regular meetings to receive updates on project implementation progress and approve annual work plans. The Project Steering Committee also provides continuous ad-hoc oversight and feedback on project activities, responding to inquiries or requests for approval from the Project Management Unit or Executing Agency.

232. **Key project executing partners** are responsible for providing information and data for timely and comprehensive project reporting, including results and financial data, as necessary and appropriate.

233. **The CI-GEF Project Agency** plays an overall quality assurance, backstopping, and oversight role in monitoring and evaluation of project activities and resource use.

234. **The CI General Counsel's Office with the Grants and Contracts Unit** is responsible for contracting obligations and providing oversight of the independent mid-term and end of the project evaluations.

B. Monitoring and Evaluation and Project Management Cost's (PMCs) activities

235. The Project M&E and PMC Plan include the following components:

a. Inception workshop

Project inception workshops will be held with the project stakeholders at the country level within the first three months of project start. The overarching objective of the inception workshop is to assist the project team to understand and take ownership of the project's objectives and outcomes. The inception workshop will be used to detail the roles, support services, and complementary responsibilities of the CI-GEF Project Agency and the Executing Agency

b. Inception workshop Report

The Executing Agency (PMU) shall produce an inception report documenting all changes and decisions made, during the inception workshop, to the planned project activities, budget, results framework, and other key aspects of the project. The inception report shall be produced within one month of the inception workshop, as it will serve as a key input to the timely planning and execution of project start-up and detailed project activities.

c. Project Results Monitoring Plan (Objective, Outcomes, and Outputs)

A Project Results Monitoring Plan will be developed by the Project Agency, which will include objective, outcome and output indicators, metrics to be collected for each indicator, methodology for data collection and analysis, baseline information, location of data gathering, frequency of data collection and analysis, responsible parties, and indicative resources needed to complete the plan. Appendix III is the Project Results Monitoring Plan that will be reviewed and updated during the start-up period. **Table 17** is a summary of the Monitoring Plan, and the associated costs and **Table 18** indicates the project management costs.

In addition to the objective, outcome, and output indicators, the Project Results Monitoring Plan will also include all indicators identified in the Safeguard Plans prepared for the project, thus permitting consistent and timely monitoring.

Monitoring of these indicators throughout the life of the project will be necessary to assess if the project has successfully achieved the expected results.

Baseline establishment: in the event that baseline data are not collected during the PPG phase, it will be collected and documented by the relevant project partners within the first year of project implementation.

d. GEF Core Indicator Worksheet

The relevant section of the GEF Core Indicator Worksheet was updated for the CEO endorsement submission. This worksheet will also be updated two times during project implementation: i) prior to project mid-term evaluation, and ii) at project completion.

e. Project Steering Committee Meetings (national level)

Project Steering Committee (NSC) meetings will be held annually in each of the participating countries. Meetings shall be held to review and approve project annual work plans and budgets, discuss implementation issues and identify solutions, and to increase coordination and communication between key project partners.

f. CI-GEF Project Agency Field Supervision Missions

The CI-GEF PA will conduct annual visits to the project country and field sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess, firsthand, the project's progress. Oversight visits will be conducted to coincide with the timing of PSC meetings to enable members of the PSC to participate in the field visits. Field Visit Report will be prepared by the CI-GEF Project Agency staff participating in the oversight mission and circulated to the project team and PSC members within one month from the time of the visit.

g. Quarterly Progress Reporting

The Project delivery partner will submit quarterly technical and financial reports to the CI-GEF Project Agency, including requests for disbursement of funds to cover expected quarterly expenditures. The Project delivery partner may be required to submit financial reports more frequently as deemed fit.

h. **Annual Project Implementation Report (PIR)**

The Project delivery partner will prepare an annual PIR to monitor progress made since the project start and for the reporting period (July 1st to June 30th). The PIR will summarize the annual project results and progress. A summary of the report will be shared with the Project Steering Committee.

i. **Final Project Report**

The Executing Agency support partner (CI AfFD) will prepare a final report at the end of the project. The report will be one of the resource materials consulted by the terminal evaluation consultant.

j. **Independent External Mid-term Review**

The project will undergo an independent mid-term review within 30 days of the mid-point of the grant term. The mid-term review will report the progress made towards the achievement of outcomes and will identify and elaborate on the mitigation measures to address shortcomings in the project. The mid-term review will highlight issues to be addressed by the EA, Executing Agency Support partner (CI AfFD), PSC, and other stakeholders, actions required, and lessons learnt in project design, implementation, and management. Findings and recommendations of the mid-term review will be addressed to secure maximum project results and sustainability during the second half of project implementation.

k. **Independent Terminal Evaluation**

An independent terminal evaluation will take place within six months after project completion and will be undertaken in accordance with CI and GEF guidance. The terminal evaluation will focus on the project's results as initially planned and as corrected after the mid-term evaluation. The Executing Agency and the Executing Agency Support partner (CI AfFD) in collaboration with the PSC, will provide a formal management response to the queries raised in the evaluation report indicating the extent to which they have been addressed.

l. **Financial Statements Audit**

Annual Financial reports submitted by the executing Agency will be audited annually by external auditors appointed by the Executing Agency Support partner (CI AfFD). This is part of the PMC budget.

236. The Terms of References for the evaluations will be drafted by the CI-GEF Project Agency in accordance with GEF requirements. The procurement and contracting for the independent evaluations will be handled by CI's General Counsel's Office. The funding for the evaluations will come from the project budget, as indicated at project approval.

Table 17: M&E Plan Summary

Type of M&E	Reporting	Responsible	Indicative Budget
	Frequency	Parties	from GEF (USD)
a. Inception workshop	Within three months of signing of CI Grant Agreement for GEF Projects	· Project Team	2,500
		· Executing Agency	
		· CI-GEF PA	
b. Inception workshop Report	Within one month of inception workshop	· Project Team	13,148
		· CI-GEF PA	
c. Project Results Monitoring Plan (Objective, Outcomes and Outputs)	Annually (data on indicators will be gathered according to monitoring plan schedule shown on Appendix IV)	· Project Team	26,295
		· CI-GEF PA	
d. GEF Indicator Tracker	i) Project development phase; ii) prior to project mid-term evaluation; and iii) project completion	· Project Team	7,168
		· Executing Agency	
		· CI-GEF PA	
f. CI-GEF Project Agency Field Supervision Missions	Approximately annual visits	· CI-GEF PA	<i>*paid by Agency fees</i>
h. Annual Project Implementation Report (PIR)	Annually for year ending June 30	· Project Team	7,168
		· Executing Agency	
		· CI-GEF PA	
i. Project Completion Report	Upon project operational closure	· Project Team	13,147
		· Executing Agency	
j. Independent External Mid-term Review	Approximate mid-point of project implementation period	· CI Evaluation Office	20,500
		· Project Team	
		· CI-GEF PA	
k. Independent Terminal Evaluation	Evaluation field mission within three months prior to project completion.	· CI Evaluation Office	24,310
		· Project Team	
		· CI-GEF PA	
Summary M&E total			114,236

Table 18: Project Management Costs (PMC) Summary

Type of PMC	Reporting	Responsible	Indicative Budget
	Frequency	Parties	from GEF (USD)
a. Project Steering Committee Meetings	Annually	· Project Team	51,730
		· Executing Agency	
		· CI-GEF PA	
b. Quarterly Progress Reporting	Quarterly	· Project Team	51,731
		· Executing Agency	
c. Financial Statements Audit	Annually	· Executing Agency	10,775
		· CI-GEF PA	
Summary PMC total			114,236

SECTION 7: PROJECT BUDGET AND FINANCING

A. Overall Project Budget

237. The project will be financed by a budget of **USD 7,278,465¹³⁶** with co-financing from (i) Allen Institute for Artificial Intelligence (ii) Conservation International (CI), (iii) Wildlife Conservation Society, (iv) Peace Parks Foundation, (v) African Parks, (vi) Noé and (vii) Ministry of Environment, Wildlife and Tourism of the Government of Botswana. **Table 19** provides the project budget by component. The budget may be revised during project implementation as deemed fit. The detailed Project Budget is provided in Appendix VIII attached separately.

¹³⁶ This includes the PPG funding.

Table 19: Planned Project Budget by Component

	Project budget by component (in USD)				
	Component 1	Component 2	M&E	PMC	Total budget
<i>Personnel Professional Services</i>	51,037	49,571	66,758	94,570	261,936
<i>Travel, meetings and workshops</i>	20,080	55,110	0	9,370	84,560
<i>Grants & Agreements</i>	1,818,368	172,814	37,797	0	2,028,979
<i>Equipment</i>	625	625	625	625	2,500
<i>Other Operating Costs</i>	5,389	5,269	9,056	9,671	29,386
TOTAL GEF FUNDED PROJECT	1,895,498	283,389	114,236	114,236	2,407,360

B. Overall Project Co-financing

238. The amount of GEF funding requested is **USD 2,407,360** and the total co-financing for the project is **USD 4,801,400 (Table 20)**. Out of this amount, AI2 will provide **USD 2,746,000** as co-finance for project management, oversight and monitoring which will cover office space, transportation for the duration of the project and capacity building. Out of the AI2 co-financing, USD 2,000,000 will be in grant and USD 746,000 will be in-kind. The in-kind funds from AI2 will cover a) Earth Ranger software and training costs equivalent to USD 666,000 per country for 3 years; and (b) travel and related costs for AI2 personnel to support project implementation will be USD 80,000 during the project period. The grant component of the AI2 contribution will meet the costs of hardware and software procurement and installation.

239. **Conservation International has devoted USD 25,000 in-kind co-financing** that will cover the costs such CI's global finance, communications, human resources, legal, and IT to support the overall effective implementation of project activities. **Peace Parks Foundation (PPF) provided both cash and in-kind contribution totaling USD 870,000**, through the provision office space, vehicles, staff time and operating costs, incentives and use of existing counter poaching assets and technology in Limpopo and Zinave NPs in Mozambique. The counter-part staff will consist of the Operations Room Controllers (one at Limpopo and one at Zinave), Counter-poaching Unit Supervisor (one at Limpopo and one at Zinave), and one Counter Poaching Unit Administration officer at Limpopo. **The NGO Noé in the Republic of Congo provided USD 194,400 as in-kind co-financing** to support the salaries for of the Law Enforcement Coordinator and for the three 3 Operations Room Supervisors for Conkouati-Douli National Park. **The Wildlife Conservation has provided USD 130,000 as grant co-financing** for project implementation in Nouabalé-Ndoki National Park specifically to cover salaries and operating costs of rangers engaged in implementing and responding to the EarthRanger system. **African Parks has provided USD 486,000 as in-kind co-financing** for the project activities in Odzala-Kokoua National Park (Table 21). The recipient country resources from Botswana are mostly in-kind contributions covering costs of office space, utilities, transportation and counterpart staff time for the project duration.

240. The co-financing commitment letters are attached in the Appendix IX and summarized in **Table 20**.

Table 20: Committed Cash and in-kind Co-financing (USD)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized/Recurrent Expenditure	Amount (\$)
GEF Agency	Conservation International	In-kind	Recurrent expenditure	25,000
Private Sector	The Allen Institute for Artificial Intelligence (AI2) ¹³⁷	Grant	Investment Mobilized	2,000,000
		In-kind	Recurrent expenditure	746,000
Recipient Country Government (Botswana)	The Botswana Ministry of Environment, Wildlife, and Tourism (Department of Wildlife and National Parks)	In-Kind	Recurrent expenditure	250,000
	The Botswana Ministry of Environment, Wildlife, and Tourism (Department of Wildlife and National Parks)	Grant	Investment Mobilized	100,000
Civil Society Organization (CSO)	Peace Parks Foundation in Mozambique	In-kind	Recurrent expenditure	870,000
Civil Society Organization (CSO)	Noé in the Republic of Congo	In-kind	Recurrent expenditure	194,400
Civil Society Organization (CSO)	Wildlife Conservation Society (WCS) in the Republic of Congo	Grant	Investment Mobilized	130,000
Civil Society Organization (CSO)	African Parks in the Republic of Congo	In-kind	Recurrent expenditure	486,000
Total Co-financing				4,801,400

¹³⁷ Change in Executing Agency (EA) from Vulcan Inc. to The Allen Institute for Artificial Intelligence (AI2). The EarthRanger Technology was developed by Vulcan Inc. in partnership with several conservation and technology partners. AI2 is not within Vulcan, but a separate organisation. AI2 is one of Paul Allen's stable organisations, but is separate from Vulcan, and is a different entity type. As of September 2021, EarthRanger Unit was moved to AI2 from Vulcan. AI2 has signed the co-financing letter and will uphold the commitments made by Vulcan Inc. to the GEF at PIF stage and CEO Endorsement

APPENDICES

APPENDIX I: Project Results Framework

Project Objective:	To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through deployment of the EarthRanger Protected Area Management system and related technologies.		
Indicator(s):	<ol style="list-style-type: none"> 1. Number of countries with EarthRanger protected area management system and related technologies compliant with PA needs. 2. Area of terrestrial protected areas under improved management effectiveness by use of EarthRanger protected area management system and related technologies (Target: 4,901,650 ha¹³⁸). 3. Total number of direct beneficiaries (disaggregated by gender) skilled to utilize EarthRanger Protected Area Management system and related technologies (Target: 162 direct beneficiaries (at-least 15% Female¹³⁹). 4. Number of additional African countries interested and committed to install Earth Ranger technology or other PA management technologies. (Target: At least 3 African countries). 		
Expected Outcomes and Indicators	Project Baseline	End of Project Target	Expected Outputs and Indicators
Component 1: Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness			
<p>Outcome 1.1.: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.</p> <p><i>Outcome Indicator 1.1:</i> Hectares of protected areas with improved METT¹⁴⁰ score</p> <p><i>Outcome Indicator 1.2:</i> Number of protected areas in the participating countries utilizing</p>	<p>Baseline Indicator 1.1: All the 6 target PAs with cumulative total of 4,901,650 Ha have not installed the Earth Ranger technology hence might register a low METT score.</p>	<p>Target 1.1: At least 4,901,650 hectares of protected areas with improved METT scores</p> <p>Target 1.2: All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs</p>	<p>Output 1.1.1: Earth Ranger software incorporated in the existing PA management structure in the target countries.</p> <p><i>Indicator 1.1.1.:</i> Number of PAs utilizing EarthRanger technology to manage the PAs.</p> <p>Target 1.1.1: All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs</p> <p>Output 1.1.2: A dedicated, secure, and functional control room facility established to be used by management to improve real-</p>

¹³⁸ Based on the selected PAs

¹³⁹ Presented in the core indicator sheet – Appendix V

¹⁴⁰ Management Effectiveness Tracking Tool (METT) for GEF-7 protected area projects in the biodiversity focal area can be accessed by clicking the following link:
<https://www.thegef.org/documents/gef-7-biodiversity-protected-area-tracking-tool>

<p>EarthRanger technology to manage the PAs</p>			<p>time situational awareness through deployment of EarthRanger technology in each PA in the target countries.</p> <p><i>Indicator 1.1.2: Number of functional control rooms running on EarthRanger software, equipped with reliable power and LAN together with the required computer hardware.</i></p> <p>Target 1.1.2: All the 6 Protected Areas in the target countries with fully equipped control rooms running EarthRanger software</p> <p>Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.</p> <p><i>Indicator 1.1.3. Number of PAs with built infrastructure and internet network (WAN) capabilities installed and functional.</i></p> <p>Target 1.1.3: Built infrastructure and internet network capabilities installed and functional in the six selected PAs in the target countries</p> <p>Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.</p> <p><i>Indicator 1.1.4.: Number of PAs with digital radio or other appropriate communication installed and functional (Repeater stations, base stations, vehicle radios and handheld radios)</i></p>
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			<p>Target 1.1.4: All the 6 selected PAs in the target countries with digital radio or other appropriate communication (e.g., LoRa network) installed and functional.</p> <p>Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries.</p> <p><i>Indicator 1.1.5: Number of PAs with functional EarthRanger software per target country.</i></p> <p>Target 1.1.5: All the 6 selected PAs in the target countries with functional EarthRanger software.</p> <p>Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars and other data transmitters).</p> <p><i>Indicator 1.1.6: Number of field staff in each PA utilizing EarthRanger software for various purposes (sensors, radios, satellite collars, and other data transmitters)</i></p> <p>Target 1.1.6.1: At least 42 Protected Area management staff trained to utilize EarthRanger software (Men = 36; Female = 6) (4 management staff and 3 control room staff per PA)</p> <p><i>Indicator 1.1.6.2: Number of field staff in each PA with reliable voice communications and real-time SOS capability</i></p>
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			Target 1.1.6.2: At least 120 field staff in each PA, (Male=102; Female = 18), with reliable voice communications and real-time SOS capability (<i>At-least 20 in each PA per country</i>).
Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa			
<p>Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.</p> <p><i>Outcome Indicator 2.1:</i> Number of additional PAs identified, and number of African countries committed to install the EarthRanger software and other technologies (GEF8 LoEs, Co-financing pledges)</p>	<p>Baseline Indicator 2.1: Not all protected area management institutions and managers in Africa are utilizing the Earth Ranger Technology to enhance PA management effectiveness.</p>	<p>Target 2.1: At least 6 new PAs identified, and 3 African countries committed to install Earth Ranger Technology in GEF8</p>	<p>Output 2.1.1.: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA</p> <p><i>Indicator 2.1.1.:</i> Number of Learning visits (EarthRanger User Conference) undertaken by each PA.</p> <p>Target 2.1.1: At least 1 learning visit (EarthRanger User Conference) undertaken by each PA once during the duration of the project</p> <p>Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up.</p> <p><i>Indicator 2.1.2:</i> Number of information sharing events</p> <p>Target 2.1.2: At least 1 information-sharing event held per target country per year.</p> <p>Output 2.1.3.: Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (<i>where the EarthRanger software informed decisions in the management of PAs</i>).</p> <p><i>Indicator 2.1.3.:</i> Number of success stories, lessons learnt and best practices published</p>

			<p>and shared on blogs, websites (where the Earth Ranger software informed decisions in management of PAs).</p> <p>Target 2.1.3: At least 6 success stories, lessons learnt, and best practices shared by the project team during the project's lifetime (At least 2 success stories, lessons learnt, and best practices shared by the project annually)</p>
Component 3: Monitoring and Evaluation			
<p>Outcome 3.1: An integrated monitoring and evaluation framework for the project</p> <p><i>Outcome indicator 3.1:</i> Number of M&E reports submitted to the CIGEF Agency for review and approval, and the Number of Evaluations conducted by CIGEF</p>	<p>Baseline Indicator 3.1: No M&E framework for the Project</p>	<p>Target 3.1: Periodic technical and financial reports submitted to CIGEF for review and approval: <i>At least 3 Annual Workplans and Budget, 12 Quarterly Reports, 3 Annual Progress Implementation Reports (PIRs)</i></p> <p>Target 3.2: At least 2 Evaluations conducted by CIGEF: <i>1 Mid-Term Evaluation and 1 Terminal Evaluation</i></p>	<p>Output 3.1.1: Periodic M&E reports submitted to CIGEF Agency</p> <p><i>Indicator 3.1.1:</i> Number of Annual and Quarterly M&E Reports submitted to CIGEF for review and approval.</p> <p>Target 3.1.1: At least 3 Annual Workplans and Budget, 12 Quarterly Technical and Financial Reports; and 3 Annual Progress Implementation Reports (PIRs) submitted to CIGEF for review and approval.</p> <p>Output 3.1.2: Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF</p> <p><i>Indicator 3.1.2:</i> Number of Mid-Term and Terminal Evaluations conducted by CIGEF</p> <p>Target 3.1.2: One Mid-Term Evaluation and One Terminal Evaluation conducted by CIGEF</p>

APPENDIX II: Project Timeline

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Start-up Activities																	
(i) Signing Partnership Contracts	CI-AfFD and AI2	X	X														
(ii) Recruitment of project staff (PMU at CI Africa Field Division (CI-AfFD) and appointment of project focal persons/counterparts at country level)	AI2/CI-AfFD/ Countries/ and Partners	X	X														
(iii) Inception Meetings (4 National level inception meetings for awareness and project ownership)	AI2/ CI-AfFD / Countries/ and Partners		X	X													
(iv) Refinement and completion of the Biodiversity METT tool	CI-AfFD/ Countries/and Partners		X														
(v) Recruitment of a general Contractor	AI2/CI-AfFD/Consultant	X	X	x													
Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness																	
Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.																	
Output 1.1.1: Earth Ranger software incorporated in the existing PA management structure in the target countries.																	
Target 1.1.1: All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs																	
(i) Appointment of project management counterpart focal persons at PA level (Protected Area Manager and National Conservation Specialist)	Countries/CI-AfFD/ AI2 and partners		X	X													
(ii) Increasing awareness on the use of EarthRanger and other related technologies	AI2/ Countries/ and partners			X	X												
(iii) Discuss and confirm Terms of Reference for the National Project Steering Committee	Countries/CI-AfFD AI2/ partners		X														
(iv) Establish the National Project Steering Committee in each of the target countries	Countries/CI-AfFD AI2/ partners		X	X													
(v) Support functioning of the National Project Steering Committee in each target country	Countries/CI-AfFD/AI2				X	X	X	X	X	X	X	X	X	X	X		

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
(vi) Develop Guidelines for integrating Earth Ranger software and associated technology ¹⁴¹	AI2/CI-AffD/Countries/partners					X	X										
(vii) Detailed site level assessments at each selected PA	AI2/AffD/Countries/ and partners	X	X														
Output 1.1.2: A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of Earth Ranger technology in each PA in the target countries																	
Target 1.1.2 All the 6 Protected Areas in the target countries with fully equipped control rooms running EarthRanger software																	
(i) Construction (where required) or refurbishment of control room infrastructure sufficient for effective 24-hour, 7-day-a-week operations	AI2/CI-AffD/Countries			X	X	X	X										
(ii) Procure 2 PC towers with associated hardware and software	AI2/CI-AffD/Countries/ and partners				X	X	X										
(iii) Installation of the necessary computer hardware in each control room - (PC towers, associated hardware, and software for each control room in the selected PAs	AI2/CI-AffD/Countries/ and partners					X	X	X									
(iv) Installation of comfort accessories as required in each control room (e.g., toilet facilities, air conditioner	AI2/CI-AffD/Countries/ and partners				X	X	X	X									
(v) Safeguards compliance implemented at each site	AI2/CI-AffD/countries				X	X	X	X									
(vi) Maintenance of the control room and installations	Countries/ and partners								X	X	X	X	X	X	X	X	
Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.																	
Target 1.1.3: Built infrastructure and internet network capabilities installed and functional in six selected protected areas in the target countries																	
(i) Review and confirm the infrastructure requirements, internet network/software needs, and associated software for each selected PA.	AI2/Countries/ and partners	X	X														
(ii) Determine the sites for the repeater stations and operational modalities	AI2/Countries/ and partners	X	X														

¹⁴¹ Could be part of the training processes

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
(iii) Establishment of Repeater stations	A12/Countries/ and partners			X	X	X	X	X									
(iv) Procure Equipment, PC Hardware, and associated software for repeater stations	Countries/ CI-AfFD /A12/ and partners				X	X	X										
(v) Installation of the required hardware to enable suitable backhaul capabilities for reliable access to the internet	Countries/ CI-AfFD /A12/ and partners				X	X	X	X									
(vi) Contract internet service providers for reliable access to the internet	Countries/ A12/ and partners				X	X	X	X	X	X	X	X	X	X	X		
(vii) Set up of the safeguard plans and Implementation, monitoring and reporting on safeguard indicators	CI-AfFD/A12/ Countries/ and partners			X	X	X	X	X									
Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries																	
Target 1.1.4: All the 6 selected PAs in the target countries with digital radio or other appropriate communication (e.g., LoRa network) installed and functional.																	
(i) Review and confirm needs for the two-way digital radio networks or other appropriate communication networks for each selected PA	A12/ CI-AfFD/ Countries/ and partners	X	X														
(ii) Procure the two-way Digital Radio and other communication network equipment for each selected PA	A12/ CI-AfFD/ Countries/ and partners				X	X	X										
(iii) Procurement of sensor and tracking technologies (cameras, traps, collars, etc) that are considered fit-for-purpose for a particular protected area to detect illegal activities and/or to monitor key wildlife species or other assets	A12/ CI-AfFD/ Countries/ and partners				X	X	X										
(iv) Install the two-way Digital Radio network or other communication network equipment for each selected PA	A12/ CI-AfFD/ Countries/ and partners					X	X	X									
(v) Installation of sensor and tracking technologies that are considered fit-for-purpose for a particular protected area to detect illegal activities and/or to monitor key wildlife species or other assets	A12/ CI-AfFD/ Countries/ and partners					X	X	X									

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Partner/ Cost center																	
(vi) Test and Commission digital radio and other communication network equipment for each selected PA	A12/ CI-AfFD/ Countries/ and partners						X	X	X								
(vii) Systems maintenance/service for the two-way digital radio and other communication equipment	A12/ CI-AfFD/Countries/ and partners								X	X	X	X	X	X	X	X	X
(viii) Test and Commission the communication network for each selected PA in the target countries	A12/ CI-AfFD/Countries/ and partners							X	X								
(ix) Maintenance/service the communication network software and equipment for each selected PA	A12/ Countries/ and partners									X	X	X	X	X	X	X	X
Output 1.1.5: EarthRanger Software Installed and functional in the selected PAs in the target countries																	
Target 1.1.5: All the 6 selected PAs in the target countries with functional EarthRanger software.																	
(i) Review and confirm the requirements for EarthRanger software installation for each selected PA	A12/ Countries/ and partners	X	X														
(ii) Procure EarthRanger software for each control room	A12/ Countries/ and partners				X	X	X										
(iii) Installation of the Earth Ranger software on the control room computer equipment as an aggregator of real-time data feeds	A12/ Countries/ and partners				X	X	X	X									
(iv) Aggregation of open-source data feeds on Earth Ranger that will improve management decision-making	A12/ Countries/ and partners							X	X	X	X	X	X	X	X	X	X
Output 1.1.6: Protected area management staff trained to utilize Earth Ranger software (sensors, radios, satellite collars and other data transmitters)																	
Target 1.1.6.1: At least 42 Protected Area management staff trained to utilize EarthRanger software (Men = 36; Female = 6) (4 management staff and 3 control room staff per PA)																	
(i) Identify key staff for training	A12/ Consultant/ Partners						X										
(ii) Conduct demonstrative training of trainers, consisting of PA Management staff and Control Room staff	A12/ Consultant/ Partners						X	X									
(iii) Conduct demonstrative training of PA field staff	A12/ Consultant/ Partners							X	X								

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
(iv) Conduct a baseline gender assessment of PA rangers in project sites (3 focus groups + 10 key informant interviews. The output is a report to guide targets and engagement)	AfFD/ Countries/ and partners		X	X	X												
Target 1.1.6.2: At least 120 field staff in each PA, (Male=102; Female = 18), with reliable voice communications and real-time SOS capability (At-least 20 in each PA per country).																	
(i) Identify key staff for training	AI2/ Consultant/ Partners						X										
(ii) Conduct demonstrative training of trainers, consisting of PA Management staff and Control Room staff	AI2/ Consultant/ Partners						X	X									
(iii) Conduct demonstrative training of PA field staff	AI2/ Consultant/ Partners							X	X								
Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa																	
Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.																	
Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA																	
Target 2.1.1: At least 1 learning visit (EarthRanger User Conference) undertaken by each PA once during the duration of the project																	
(i) Attending Annual EarthRanger User Conference	CI-AfFD/AI2 /Countries				X				X				X				
Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up																	
Target 2.1.2: At least 1 information-sharing event held annually per target country																	
(i) Hold Annual national and Regional virtual events on Earth Ranger experience	CI-AfFD/AI2 /Countries/ partners				X			X				X			X		
(ii) Regional women's ranger learning/knowledge exchange summit	CI-AfFD/AI2 /Countries							X				X				X	
(iii) Consolidate commitment of African countries to utilize EarthRanger Technology	CI-AfFD/AI2 /Countries/ partners												X				X
Output 2.1.3: Success stories published on blogs, websites, etc... (where the Earth Ranger software informed decisions in the management of PAs)																	
Target 2.1.3: At least 6 success stories, lessons learnt, and best practices shared by the project team during the project's lifetime (At least 2 success stories, lessons learnt, and best practices shared by the project annually)																	
(i) Develop the capacity of PA staff for effective documentation and digital information sharing:	CI-AfFD/AI2 /Countries/ partners							X					X				

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Partner/ Cost center																	
(ii) Prepare and disseminate an article that highlights 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field).	AI2/ Countries/ and partners							x				x				x	
(iii) Document progress of Earth Ranger implementation experience (Newsletter, stories, fact sheets, brochures, etc.)	CI-AfFD/AI2 /Countries/ partners							x	x			x	x			x	x
(iv) Translation of documents (English, French, Portuguese)	CI-AfFD /Countries/Cons ultant/ partners								x				x				x
(v) Protected area Management Authorities to upload Earth Ranger experiences on their websites as appropriate	CI-AfFD/AI2 /Countries/ partners								x	x	x	x	x	x	x	x	x
(vi) PA partners to Upload Earth Ranger Experiences onto their websites as appropriate	CI-AfFD/AI2 /Countries/ partners								x	x	x	x	x	x	x	x	x
Component 3: Monitoring and Evaluation																	
Outcome 3.1: An integrated monitoring and evaluation framework for the project																	
Output 3.1.1: Periodic M&E reports submitted to CIGEF Agency																	
Target 3.1.1: At least 3 Annual Workplans and Budget, 12 Quarterly Technical and Financial Reports; and 3 Annual Progress Implementation Reports (PIRs) submitted to CIGEF for review and approval.																	
(i) Inception Workshop and Report	AI2/CI-AfFD		x														
(ii) Annual Workplan and Budget			x			x				x				x			
(iii) Quarterly technical and financial reporting	AI2/CI-AfFD	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(iv) Discussion and refinement of the M&E Plan/ Information collection and synthesis on M&E Indicators (M&E plan)	AI2/CI-AfFD/ partners			x													
(v) Annual progress implementation reporting (APR/PIR)	AI2/CI-AfFD				x				x				x				x
(vi) National Project Steering Committee Meetings (bi-annually)	AI2/CI-AfFD/Countries/ partners		x		x		x		x		x		x		x		x
(vii) Virtual Regional EarthRanger Working Group (Annually)	AI2/CI-AfFD/Countries/ partners				x				x				x				x
(viii) CI-GEF Project Agency Field Supervision Missions	CI-GEF							x				x				x	
(ix) Update the Biodiversity (METT) tracking tool (Annually)	CI-GEF/AI2/CIAFD				x				x				x				x

	Responsible	Timeline															
		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
(x) Update the Core indicator worksheet (Annually)	CIAFD/AI2/Countries/Partners				X				X				X				X
(xi) Financial Statements Audit	CI-AfFD/AI2/Countries/Partners					X				X				X			X
Output 3.1.2: Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF																	
Target 3.1.2: One Mid-Term Evaluation and One Terminal Evaluation																	
(i) Mid-term review of the project - commissioned by CI-GEF	CI-GEF/AI2/CIAFD/Countries/Partners								X	X							
(ii) Terminal evaluation of the project - commissioned by CI-GEF	CI-GEF/AI2/CIAFD/Countries/Partners																X
Close-up Activities																	
(i) Technical Reporting - PIR and other Technical Reports (A Comprehensive consolidated final Earth Ranger Project report and policy brief covering 5 countries to developed)	AI2/CI/AfFD				X				X				X				X
(ii) Financial Reporting –Final Financial Report	AI2/CI-AFD																X

APPENDIX III: Project Results Monitoring Plan

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources ¹⁴²
Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through deployment of the EarthRanger Protected Area Management system and related technologies.							
Indicator 1: Number of countries with EarthRanger Protected Area Management system and related technologies compliant with PA needs.	Number of countries with functional EarthRanger PA management System	Review of the progress reports from the project participating countries	Number of countries with functional System at project start.	Relevant Ministry at country level in each of the project participating countries.	Annually	Relevant Ministry (National focal point)	Staff time
Indicator 2: Area of terrestrial protected areas under improved management effectiveness by use of EarthRanger protected area management system and related technologies (Target: 4,901,650 ha).	Area in Ha. Of terrestrial protected areas under improved management effectiveness by use of EarthRanger protected area management system and related technologies (Target: 4,901,650 ha).	Review of progress reports.	Area of PA under effective management by use of EarthRanger and related technologies.	AI2 and PA agencies	Annually	Concerned Ministry/ CI-AfFD and AI2	Staff time
Indicator 3: Total number of direct beneficiaries (disaggregated by gender) skilled to utilize EarthRanger Protected Area Management system and related technologies (Target: 162 direct beneficiaries (at-least 15% Female)	Number of direct beneficiaries (men and women) skilled to utilize EarthRanger PA Management system and related technologies	Surveys and Progress reports	Number of stakeholders (men and women)	National focal point	Annually	National focal point and the PMU within CI AfFDI inking with the country leads at national level	Staff time
Indicator 4: Number of additional African countries interested and committed to install Earth Ranger technology or other PA management technologies.	Number of additional African countries interested and committed	Review of progress reports	Number of additional African countries interested and committed	Sectorial Ministries	Annually	AI2 as well as CI-AfFD	Staff time
Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness							

¹⁴² Refer to M&E costs in the project budget

Outcome Indicator 1.1.: Hectares of protected areas with improved METT ¹⁴³ score	Area in Hectares of protected areas with improved METT score	-Review of progress reports -Review of tracking tools such as minutes of meetings	Current area in Hectares of protected areas with improved METT score	National focal point	Annually	Concerned Ministry AI2 and CI- AfFD	Staff time
Outcome Indicator 1.2: Number of protected areas in the participating countries utilizing EarthRanger technology to manage the PAs	Number of Protected areas in the participating countries utilizing EarthRanger technology to manage the PAs	Review of project reports	Current number of PAs utilizing Earth Ranger technology.	Sectoral ministries	Annually	National focal point	Staff time
Indicator 1.1.1.: Number of PAs utilizing Earth Ranger technology to manage the PAs.	Number of PAs utilizing Earth Ranger technology to manage the PAs.	Review of project reports	Current number of PAs utilizing Earth Ranger technology.	Sectoral ministries	Annually	National focal point	Staff time
Indicator 1.1.2.: Number of functional control rooms running on Earth Ranger software and equipped with reliable power and internet connection together with the required computer hardware.	Number of functional control rooms.	Review progress reports and observation.	Current number of functional control rooms	PA management agencies	Annually	National focal Ministries	Staff time
Indicator 1.1.3: Number of PAs with built infrastructure and internet network (WAN) capabilities installed and functional.	Number of PAs with built infrastructure.	Review of implementation report.	Current number of PAs with built infrastructure and internet network capabilities installed and functional	Ministry responsible	Once a year	Ministry	Staff time
Indicator 1.1.4: Number of PAs with digital radio or other appropriate communications installed and functional (Repeater stations, base stations, vehicle radios and hand-held radios)	Number of PAs	Review progress reports	Current number of PAs with digital radio or other appropriate communications installed and functional (Repeater stations, base stations, vehicle radios and hand-held radios)	Selected Ministry	Annually	Ministry concerned	Staff time

¹⁴³ Management Effectiveness Tracking Tool (METT) for GEF-7 protected area projects in the biodiversity focal area can be accessed by clicking the following link:
<https://www.thegef.org/documents/gef-7-biodiversity-protected-area-tracking-tool>

Indicator 1.1.5: Number of PAs with functional EarthRanger software per target country.	Number of PAs with functional EarthRanger software	Progress Reports	Current number of PAs with functional EarthRanger software	PA management Agency and responsible Ministry	Annually	Concerned Ministry	Staff time
Indicator 1.1.6.: (1.1.6.1) Number of field staff in each PA utilizing Earth Ranger software for various purposes (sensors, radios, satellite collars and other data transmitters) (1.1.6.2) Number of field staff in each PA with reliable voice communications and real-time SOS capability	Number of Field Staff	Progress reports	Current number of field staff in each PA: (1.1.6.1) utilizing Earth Ranger software for various purposes (sensors, radios, satellite collars and other data transmitters) (1.1.6.2) with reliable voice communications and real-time SOS capability	PA management Agency	Quarterly	PA management Agency	Staff time
Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa							
Outcome Indicator 2.1.: Number of additional PAs identified, and number of African countries committed to install the EarthRanger software and other technologies (GEF8 LoEs, Co-financing pledges)	Number of PAs and countries	Progress Reports	Current number of countries committed (GEF8 LoEs, Cofinancing pledges) to install the Earth Ranger project	AI2/ CI-AfFD	Annually	AI2/ CI-AfFD	Staff time
Indicator 2.1.1: Number of Learning visits (EarthRanger User Conferences) undertaken by each PA ¹⁴⁴	Number learning site visits	Progress Reports	Previous learning site visits undertaken by other countries to a PA.	AI2/ CI-AfFD and Responsible Ministry	Annually	AI2/ CI-AfFD and Ministry responsible	Staff time
Indicator 2.1.2: Number of information sharing events	Number of information sharing events	Progress Reports	Previous information sharing events	AI2/ CI-AfFD and Responsible Ministry	Annually	AI2/ CI-AfFD and Responsible Ministry	Staff time

¹⁴⁴ Link with and utilize lessons from the WB GWP program with projects being implemented in Botswana, Mozambique and Republic of Congo.

Indicator 2.1.3.: Number of success stories, lessons learnt and best practices published and shared on blogs, websites (where the Earth Ranger software informed decisions in management of PAs).	Number of success stories, lessons learnt and best practices published	Reviewing progress reports	Current number of success stories, lessons and best practices	AI2/ CI-AfFD and Protected Area Agencies	Annually	AI2/ CI-AfFD and Ministry responsible	Staff time
Component 3: Monitoring and Evaluation							
Outcome Indicator 3.1: Number of M&E reports submitted to the CIGEF Agency for review and approval, and the Number of Evaluations conducted by CIGEF	Number of M&E reports	Progress Reports	Current number of M&E reports	CI-AfFD and the PA agencies	Annually	CI-AfFD and PA agencies	Staff time
Indicator 3.1.1: Number of Annual and Quarterly M&E Reports submitted to CIGEF for review and approval.	Number of periodic M& E reports	Progress Reports	Periodic M &E reports currently prepared	PA management agencies, AI2 and CI-AfFD	Quarterly	PA management agencies, AI2 and CI-AfFD	Staff time
Indicator 3.1.2: Number of Mid-Term and Terminal Evaluations conducted by CIGEF	Number of policy briefs on lessons learnt and best practices	Progress Reports	Policy briefs currently prepared	PA management agencies, AI2 and CI-AfFD	Annually	PA management agencies, AI2 and CI-AfFD	Staff time
Safeguard Plans:							
Indicator 1.1.: Cases reported	Number of conflicts and complaint cases reported to the Accountability and Grievance Mechanism Committee	Review of minutes of project Accountability and Grievance Mechanism	n/a	AfFD/PMU and Project counterparts at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time
Indicator 1.2.: Justice	% of conflict and complaint cases reported and resolved	Review of minutes of project Accountability and Grievance Mechanism	n/a	AfFD/PMU and Project teams at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time

Indicator 2.1.: Participation	Number of men and women represented on PA management teams	Review of progress reports	Base on existing establishment staffing	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time
Indicator 2.2.: Project planning considerations	Number of strategies, plans and policies derived from the project that include gender considerations	Policy documents	Zero	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time
Indicator 2.3.: Activities	Number of women trained to manage EarthRanger software and participation in project planning and implementation (e.g., Co-opt women on PSC)	Training and project reports	Base on existing establishment staffing	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Biennial	CI-AfFD	Staff time
Indicator 2.4.: Existing gender capacity	Number of women engaged in PAS and related activities	Surveys	N/A	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time
Indicator 2.5.: Gender conscious	No of PA institutions with Gender FPs of relevance to the project	Surveys and project reports	N/A	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Annually	CI-AfFD	Staff time
Indicator 3.1.: Institutional involvement	Number of government agencies, CSO, Private and other non-state actors involved in the project activities	Review of implementation project reports	N/A	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Twice a year	CI-AfFD	Staff time
Indicator 3.2.: Activities of engagement	Number of project activities (meetings, workshops, consultations) in which PA stakeholders are engaged EarthRanger activities	Review of project implementation reports	N/A	CI-AfFD PMU and Project teams at country level in each of the project participating countries.	Twice a year	CI-AfFD	Staff time

APPENDIX IV: Biodiversity Tracking Tool

Excel Biodiversity (METT) Tracking Tool uploaded separately

METT scores were calculated mainly through virtual discussions with some stakeholders for all the six selected sites during the PPG phase to provide baseline estimates. Covid-19 travel restrictions impeded in-depth consultations at Protected Areas level. Therefore, further assessments will be undertaken during the project implementation phase as part of the project setup activities.

APPENDIX V: GEF-7 Core Indicators

Core Indicator 1	Terrestrial protected areas created or under improved management for conservation and sustainable use			<i>(Hectares)</i>			
				<i>Hectares (1.1+1.2)</i>			
				<i>Expected</i>		<i>Achieved</i>	
				PIF stage	Endorsement	MTR	TE
Indicator 1.1	Terrestrial protected areas newly created						
Name of Protected Area	WDPA ID	IUCN category	Hectares				
			Expected		Achieved		
			PIF stage	Endorsement	MTR	TE	
			(select)				
		(select)					
		Sum					
Indicator 1.2	Terrestrial protected areas under improved management effectiveness						
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score			
				Baseline		Achieved	
					Endorsement	MTR	TE
1. Chobe	600	National Park (IB: Wilderness Area)	1,100,000		72		
2. Zinave	9035	II: National Park	412,100		54		
3. Limpopo	20295	II: National Park	1,115,000		59		
4. Nouabalé-Ndoki	72332	II: National Park	415,000		72		
5. Odzala-Kokoua	643	II: National Park	1,354,600		81		
6. Conkouati-Douli	109018	Ramsar site	504,950		44		
		Sum	4,901,650				

Core Indicator 2	Marine protected areas created or under improved management for conservation and sustainable use					<i>(Hectares)</i>			
	Hectares (2.1+2.2)								
	Expected			Achieved					
	PIF stage	Endorsement	MTR	TE					
Indicator 2.1	Marine protected areas newly created								
Name of Protected Area	WDPA ID	IUCN category	Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
			(select)						
		(select)							
		Sum							
Indicator 2.2	Marine protected areas under improved management effectiveness								
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score					
				Baseline		Achieved			
				PIF stage	Endorsement	MTR	TE		
				(select)					
		(select)							
		Sum							
Core Indicator 3	Area of land restored					<i>(Hectares)</i>			
	Hectares (3.1+3.2+3.3+3.4)								
	Expected			Achieved					
	PIF stage	Endorsement	MTR	TE					
Indicator 3.1	Area of degraded agricultural land restored								
			Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
Indicator 3.2	Area of forest and forest land restored								
			Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
Indicator 3.3	Area of natural grass and shrublands restored								
			Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored								
			Hectares						
			Expected		Achieved				
			PIF stage	Endorsement	MTR	TE			
Core Indicator 4	Area of landscapes under improved practices (hectares; excluding protected areas)					<i>(Hectares)</i>			

		Hectares (4.1+4.2+4.3+4.4)			
		Expected		Expected	
		PIF stage	Endorsement	MTR	TE
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity				
			Hectares		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations				
Third party certification(s):			Hectares		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Indicator 4.3	Area of landscapes under sustainable land management in production systems				
			Hectares		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided				
Include documentation that justifies HCVF			Hectares		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Core Indicator 5	Area of marine habitat under improved practices to benefit biodiversity				
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations				
Third party certification(s):			Number		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial				
			Number		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
Indicator 5.3	Amount of Marine Litter Avoided				
			Metric Tons		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE

Core Indicator 6	Greenhouse gas emission mitigated					<i>(Metric tons of CO₂e)</i>
	Expected metric tons of CO ₂ e (6.1+6.2)					
		PIF stage	Endorsement	MTR	TE	
	Expected CO ₂ e (direct)					
	Expected CO ₂ e (indirect)					
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
	Expected metric tons of CO ₂ e					
		PIF stage	Endorsement	MTR	TE	
	Expected CO ₂ e (direct)					
	Expected CO ₂ e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.2	Emissions avoided Outside AFOLU					
	Expected metric tons of CO ₂ e					
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
	Expected CO ₂ e (direct)					
	Expected CO ₂ e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.3	Energy saved					
	MJ					
		Expected		Achieved		
		PIF stage	Endorsement	MTR	TE	
Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
Core Indicator 7	Number of shared water ecosystems (fresh or marine) under new or improved cooperative management					<i>(Number)</i>
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE

Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	Globally over-exploited fisheries Moved to more sustainable levels					<i>(Metric Tons)</i>
Fishery Details	Metric Tons					
			PIF stage	Endorsement	MTR	TE
Core Indicator 9	Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products					<i>(Metric Tons)</i>
	Metric Tons (9.1+9.2+9.3)					
	Expected			Achieved		
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
	Metric Tons					
	POPs type		Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	(select)	(select)	(select)			
	(select)	(select)	(select)			
	(select)	(select)	(select)			
Indicator 9.2	Quantity of mercury reduced					
	Metric Tons					
	Expected			Achieved		
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Hydrochlorofluorocarbons (HCFC) Reduced/Phased out					
	Metric Tons					
	Expected			Achieved		
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
	Number of Countries					
	Expected			Achieved		
			PIF stage	Endorsement	MTR	TE
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
	Number					
	Expected			Achieved		
		Technology	PIF stage	Endorsement	MTR	TE
Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
	Metric Tons					
	Expected			Achieved		
			PIF stage	Endorsement	PIF stage	Endorsement

Core Indicator 10	Reduction, avoidance of emissions of POPs to air from point and non-point sources					<i>(grams of toxic equivalent gTEQ)</i>
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					<i>(Number)</i>
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	-	24		
		Male	-	138		
		Total	-	162¹⁴⁵		

Based on the current staffing levels and gender composition of the PA rangers.

APPENDIX VI: Safeguard Screening Form

Preliminary Screening (check if performed at GCF Concept Note (CN) Stage or GEF Project Identification Form (PIF) Stage)

Secondary Screening (check if performed at GCF Project Preparation Facility (PPF) Stage or GEF Project Preparation Grant (PPG) Stage)

1. The CI-GCF/GEF Project Agency undertakes environmental and social safeguard screening for every project at the beginning of the full proposal development¹⁴⁶ phase to determine the risk categorization for the project, the safeguard policies triggered by the project, and the mitigation measures to be put in place by the project.
2. The CI-GCF/GEF Project Agency classifies the project into one of three categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental and social impacts. The descriptions of the categories and lists of types of projects identified are presented in Appendix I of the CI-GCF/GEF ESS Policy. These descriptions are meant to serve as guidance and are not exhaustive.
3. CI-GCF/GEF does not fund projects that involve the construction or rehabilitation of large or complex dams, and resettlement of people. CI cannot support projects that contradict its mission and policies.
4. The Executing Entity (EE-GCF) or Executing Agency (EA- GEF) is responsible for providing accurate responses to each question in this screening form and submitting the completed form to CI-GCF/GEF Project Agency in a timely manner.
5. The CI-GCF/GEF Project Agency is responsible for ensuring that the project complies with the CI-GCF/GEF ESS, Gender, and Stakeholder Engagement policies and will use the completed screening form to determine the mitigation measures for the EA to implement.
6. In addition to preparing and implementing mitigation plans for the ESS policies triggered, the EE/EA will also need to prepare a Gender Mainstreaming Plan and a Stakeholder Engagement Plan.
7. The EE/EA is responsible for informing the CI-GCF/GEF Project Agency in a timely manner, if at any time during the preparation and implementation of the project, the information provided in this Screening Form changes in a way that results in the risks of the project being increased.

I. PROJECT INFORMATION		
GCF/GEF Project ID: 10551	Country: Regional (Botswana, Mozambique, Republic of Congo)	
Project Title: The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks.		
Name of the Executing Entity/Agency: The Allen Institute for Artificial Intelligence (AI2)		
Partners:		
<ol style="list-style-type: none"> 1. Conservation International - Africa Field Division 2. Botswana Ministry of Environment, Wildlife, and Tourism (Department of Wildlife and National Parks) 3. Ministry of Tourism and Environment in the Republic of Congo 4. National Sustainable Development Fund (FNDS) in Mozambique 5. Peace Parks Foundation (Mozambique) 6. Wildlife Conservation Society (WCS) (Republic of Congo) 7. African Parks (Republic of Congo) 8. Noé (Republic of Congo) 		
Length of Project: 44 months	Proposed Start date: July 2022	Anticipated End date: March 2026

¹⁴⁶ For GCF projects this is the phase when the Funding Proposal is developed, with GCF Project Preparation Facility funds or other resources. For the GEF projects this is the phase when the Project Document is being developed, using a Project Preparation Grant (PPG).

GCF Results Area(s) / GEF Focal Area(s): Biodiversity	
GCF/GEF Project Amount: USD 2,407,360	Co-Financing Amount: USD 4,801,400
<p>Project Objectives: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies.</p>	
<p>Project components and proposed main activities:</p> <p>Component 1: Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness. This component consists of one Outcome, namely, <i>Outcome 1.1. Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.</i> The outcome is to be achieved through six (6) outputs as outlined below:</p> <p>Output 1.1.1: EarthRanger software incorporated in the existing protected areas management structure in the target countries Activities include: (i) Appointment of project management counterpart focal persons at PA level: (ii) Detailed sites level assessments for the requirements at each PA (iii) Discuss and confirm Terms of Reference for the National Project Steering Committee (iv) Establish the virtual National Project steering Committee in each of the target countries (v) Support functioning of the Virtual National Project steering Committee in each target country (vi) Establish and support the functioning of the Virtual EarthRanger Working Group (vii) Develop Guidelines/Standard Operating Procedures (SOPs) for integrating Earth Ranger software and associated technologies (viii) Conduct a baseline gender assessment of PA rangers in project sites (3 focus groups + 10 key informant interviews. The output is a report to guide targets and engagement) (ix) Set up of the safeguard plans and Implementation, monitoring and reporting on safeguard indicators</p> <p>Output 1.1.2: A dedicated, secure and functional control room facility established to be used by management to improve real-time situational awareness through deployment of EarthRanger technology in each protected area in the target countries Activities include: (i) Selecting a site for construction of a control room (ii) Construction of control room (involves bills of quantities, clearing site, construction, installations – electricity, plumbing, quality assurance/supervision) (iii) Procure 2 PC towers with associated hardware and software (iv) Install PC towers, associated hardware and software for each control room in the selected PAs (v) Maintenance of the control room and installations (vi) Safeguard compliance</p> <p>Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target country Activities include: (i) Review and confirm the infrastructure requirements, internet network/software needs and associated software for each selected PA. (ii) Determine the sites for the outposts/repeater stations and operational modalities (iii) Establishment of outposts/ Repeater stations (iv) Procure equipment, PC hardware and associated software for outposts/repeater stations (v) Install equipment, PC hardware and associated software for outposts/repeater stations (vi) Connecting outposts to the control room (vii) Maintain/service of equipment, PC hardware and software</p>	

(viii) Set up of the safeguard plans and Implementation, monitoring and reporting on safeguard indicators

Output 1.1.4: Digital radio or other appropriate communications network, as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries

Activities include:

- (i) Review and confirm needs for the two-way digital radio networks or other appropriate communication network for each selected PA
- (ii) Procure the two-way Digital Radio and other communication network equipment for each selected PA
- (iii) Install the two-way Digital Radio network or other communication network equipment for each selected PA
- (iv) Test and Commission digital radio and other communication network equipment for each selected PA
- (v) Systems maintenance/service for the two-way digital radio and other communication equipment

Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries

Activities include:

- (i) Review and confirm the requirements for EarthRanger software installation for each selected PA
- (ii) Procure EarthRanger software sensors (camera traps, collars etc...) for each selected PA
- (iii) Install the EarthRanger software and associated equipment for each selected PA
- (iv) Test and Commission the EarthRanger software for each selected PA in the Project participating countries
- (v) Maintain/service the EarthRanger software and associated equipment for each selected PA

Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).

Activities include:

- (i) Identify key staff for training
- (ii) Conduct demonstrative training of trainers, consisting of PA management staff and control room staff
- (iii) Conduct demonstrative training of PA field staff
- (iv) Provide hands-on training in the field to operational staff
- (v) Conduct a baseline gender assessment of PA rangers in project sites (3 focus groups + 10 key informant interviews. The output is a report to guide targets and engagement)

Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa. This component seeks to increase uptake and enhance awareness about the benefits of utilizing the EarthRanger as one of the conservation technologies. It consists of one outcome i.e. **Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install EarthRanger technology.** This outcome will be achieved through the following outputs and associated activities:

Output 2.1.1: Learning visits (EarthRanger User Conference) undertaken by each PA

Activities:

- (i). Attending Annual EarthRanger User Conference

Output 2.1.2 Information sharing events undertaken to enhance learning and promote scaling up

Activities

- (i). Hold Annual national and Regional virtual events on Earth Ranger experience
- (ii) Regional women's ranger learning/knowledge exchange summit
- (iii) Consolidate commitment of African countries to utilize EarthRanger Technology

Output 2.1.3: Success stories, Lessons learnt and best practices published and shared on blogs, websites and other digital platforms (where the Earth Ranger software informed decisions in the management of protected areas).

Activities

- (i). Develop the capacity of PA staff for effective documentation and digital information sharing
- (ii). Prepare and disseminate an article that highlights 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field).
- (iii). Document progress of Earth Ranger implementation experience (Newsletter, stories, fact sheets, brochures, etc.)
- (iv). Translation of documents (English, French, Portuguese)
- (v) Protected area Management Authorities to upload Earth Ranger experiences on their websites as appropriate
- (vi) PA partners to Upload Earth Ranger Experiences onto their websites as appropriate

Component 3: Monitoring and Evaluation. This component focuses on monitoring project activities as well as making suggestions for any improvements that ensure the success of the project. The component will ensure the monitoring and evaluation activities during the implementation of this project is on track. The component has one outcome namely: **Outcome 3.1: An integrated monitoring and evaluation framework for the project.** This outcome will be achieved through the following outputs and associated activities:

Output 3.1.1: Periodic M&E reports submitted to CIGEF Agency.

Activities

- (i). Hold inception workshop and produce inception report
- (ii). Undertake internal project progress monitoring
- (iii) Annual Workplan and Budget
- (iv) Quarterly technical and financial reporting
- (v) Virtual Regional EarthRanger Working Group (Annually)
- (vi) Update the Biodiversity (METT) tracking tool (Annually)
- (vii) Update the Core indicator worksheet (Annually)
- (viii). Discuss and refine the M&E Plan/Collect and synthesize information on M&E Indicators (M&E plan)
- (ix). Produce Annual Progress and Implementation Report (APR/PIR)
- (x). Hold Project Steering Committee Meetings (bi-annually)
- (xi). CI-GEF Project Agency to undertake Field Supervision Missions
- (xii). External Project Evaluations
- (xiii). Carry out Financial Statements Audit.

Output 3.1.2: Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

Activities

- (i). Conduct a mid-term review of the project
- (ii). Conduct a terminal evaluation of the project

Safeguard Screening Form Completed by: Green Approaches Limited (PPG Consultant)

Date of Submission/Resubmission of Completed Form to CI-GCF/GEF: November 2021

CI-GCF/GEF Comments:

II. PROJECT CONTEXT

PROJECT LOCATION

BOTSWANA (latitudes 22°00'S and longitudes 24°00'E) is a landlocked country in Southern Africa bordered by Namibia, South Africa, and Zimbabwe. It covers 581,730 km² of which 97.42% is land and 2.58% is water. The population is 2,351,627 people. The climate is mostly subtropical. Botswana has a flat landscape that lies at an altitude of about 1000 m to 1100 m. The highest point is Monalanong Hill (1494m) south of Gaborone and the junction of Limpopo and Shashe Rivers is the lowest point (513 m). The country is dominated by the Kalahari

Desert, which covers up to 70% of its land surface. The Okavango Delta, one of the world's largest inland deltas, is in the northwest, the Makgadikgadi Pan lies in the north. A plain with semi-arid grass, shrub, and tree savannah form the center of the Kalahari Basin. Botswana has experienced radical changes in its information and communication technology (ICT) institutional and regulatory framework to allow internet service providers (ISPs) to provide voice over internet protocol (VoIP), the mobile operators to build their infrastructure and the international voice gateway to be opened to competition¹⁴⁷. VSAT service provides access to the internet via satellite in Botswana through iDirect, UHP, Newtec, and Comtech VSAT technology. It allows connections to remote locations via satellite¹⁴⁸.

Target site in Botswana

The Chobe National Park (18° 40' 00" S, 24° 30' 00" E)¹⁴⁹ East- was gazetted in 1968 (GN No.4 of 1968)¹⁵⁰ and is located on the banks of a perennial watercourse, the Chobe River, which is also a transboundary resource between Botswana, Namibia, Zambia, and Zimbabwe. From Botswana, the Chobe River converts into the Zambezi River to feed into Victoria Falls. It encompasses floodplains, swamps, and woodland in the Northern part of Botswana within the Chobe District. It is the second-largest National Park (NP) in the country and has more than 75 mammal and 450 bird species. The Department of Wildlife and National Parks (DWNP) in the Ministry of Environment, Natural Resource Conservation and Tourism is responsible for the management of the Park, in collaboration with the local Community-Based Organizations (CBOs) (Community Trust CBOs) formed at villages adjacent to the NP, under community-based natural resource management (CBNRM) arrangement.

REPUBLIC OF THE CONGO (latitudes 4°N and 5°S, and longitudes 11° and 19°E) is located in the western coast of Central Africa and covers 342,000 km². It is bordered by Gabon to the west, Cameroon to the northwest, the Central African Republic to the northeast, the DRC to the southeast, Angola to the south, and the Atlantic Ocean to the southwest. The population is 5,558,793 people. The climate is equatorial with an average daily temperature is 24 °C. The rainy season begins in October and ends in May with a short dry season in January-February. Congo's landscape consists of coastal plains, mountains, plateaus, and valleys. The highest point mountain is Mont Nabemba (1,020 m). A growing proportion of the public, especially youth, are accessing the Internet more frequently and utilizing online social media. Vizocom is one of the largest ISPs in the country has established a partner network to ensure coverage is available to all locations. Vizocom terrestrial and satellite services include VSAT, Voice over IP, wireless Systems, collaboration Systems, supply chain & mission support services. The Republic of Congo has developed an ICT policy to promote the application of ICT in several social sectors including education, environment, and natural resources¹⁵¹.

Target sites in the Republic of Congo

- a. **Nouabalé-Ndoki National Park** (2°35'8.48"N; 16°37'44.87"E)¹⁵² was established in 1993 and is part of the contiguous lowland rainforest in the northern Republic of Congo. The forest is part of the larger Sangha Tri-National Forest Landscape and a stronghold for populations of large mammals including forest elephants, western lowland gorillas, and chimpanzees. There is a range of different land uses across the

¹⁴⁷ Steve Esselaar and Sebusang Sebusang 2013. What is happening in ICT in Botswana - A supply- and demand- side analysis of the ICT sector. Evidence for ICT Policy Action Policy Paper 1. Accessed from website https://researchictafrica.net/publications/Evidence_for_ICT_in_Botswana.pdf.

¹⁴⁸ VSAT Internet Satellite Services in Botswana 2020. Accessed from website <https://www.nt-vsats.com/vsat-services-in-botswana/> on 25 October 2021 at 0140 hours.

¹⁴⁹ https://geographic.org/geographic_names/name.php?uni=-2005206&fid=&c=botswana. website accessed on 15th November 2021 at 0930 hours.

¹⁵⁰ Chobe National Park accessed on website <https://www.botswanaturism.co.bw/explore/chobe-national-park> on 19th March 2021 at 0725 hours.

¹⁵¹ Congo VSAT & Satellite Internet 2020. Accessed from website <https://www.vizocom.com/internet/congo/> on 25 October 2020 at 0220 hours

¹⁵² <https://www.distancesto.com/coordinates/cg/nouabale-ndoki-national-park-latitude-longitude/history/38272.html> website accessed on 15th November 2021 at 1100hours.

larger Ndoki landscape that extends outside the national park. These include biodiversity conservation. The Park also contains forest clearings that offer a window into the lives of shy forest wildlife, creating fantastic opportunities for tourism development and conservation science¹⁵³. The management of the NP is the responsibility of the Wildlife and Protected Areas Agency, Ministry of Tourism and Environment, in partnership with Wildlife Conservation Society - Congo, (WCS).

- b. **Odzala-Kokoua National Park** (Longitude 15° 49' 39.5724" latitude - 0° 13.6813')¹⁵⁴ - is one of Africa's oldest national parks, designated in 1935 and received the Biosphere Reserve status in 1977. It covers an area of 1,354,600 ha. The National Park is one of the most biologically diverse and species-rich areas on the planet. In 2010, African Parks entered into a 25-year-long agreement with the Republic of the Congo's Ministry of Forest Economy, Sustainable Development and Environment to protect this globally significant park.
- c. **Conkouati-Douli National Park** (03° 54' 17.99" S; 11° 28' 12.00" E)¹⁵⁵ – is one of the largest biodiversity reserves in Congo, with very dense flora, typical of equatorial vegetation. Its lush forests provide a living environment for more than 8,000 chimpanzees and 2,000 western lowland gorillas. The Conkouati-Douli National Park is also home to more than 1,000 forest elephants. The Ministry of Forest Economy responsible for the management of the protected areas has entered a partnership with Noé, an NGO, for the management of the park.

MOZAMBIQUE (latitudes 10°-27°S and longitudes 30°-41°E) is located on the east coast of southern Africa on the Indian Ocean. The country is bordered by the United Republic of Tanzania in the north, South Africa in the south, Swaziland in the southwest and South Africa, Zimbabwe, Zambia in the west, and Malawi in the northwest¹⁵⁶. The country has a total area of 799380 km² with a coastline of 2,515 km. it has a population of 29.5 million people. Monte Binga, (2436 m) at the Zimbabwe border, is the highest point. The geographic divisions comprise a coastal belt which covers 44% of the country, a middle plateau, ranging from 200-1000 m in elevation and covering about 29% of the country, and a plateau and highland region with average elevations of around 1000 m to the north of the Zambezi River covering about 27% of the country¹⁵⁷. Mozambique has a warm, tropical, and subtropical climate with an average maximum and minimum temperature of 30° C and 19° C respectively. The annual average precipitation for the whole country is 1032 mm and the rainy season lasts from October to April. Mozambique has five Intelsat satellite earth stations (two the Atlantic Ocean and three Indian Ocean) but does not have satellites of its own. Commercial mobile satellite services such as INMARSAT, Iridium, and Thuraya also provide voice and data communication services to Mozambique.

Target sites in Mozambique

- a. **Zinave National Park** (21°40'43.76"S; 33°32'20.64"E)¹⁵⁸ was established in 1972 and is an integral part of the Mozambican component of the Great Limpopo Transfrontier Conservation Area that includes Kruger National Park in South Africa. The Park is generally flat and comprises mainly a savannah type of vegetation, with flooded pans in the northeast, a riverine forest, miombo woodlands, and open woodlands.

¹⁵³ Eric Arnhem 2020. Wild places: Nouabalé-Ndoki National Park. WCS Congo Programme, Brazzaville, Republic of Congo.

¹⁵⁴ <https://www.findlatitudeandlongitude.com/Odzala-Kokoua+National+Park+congo/5718559/> Website accessed on 15th November 2021 at 1600hrs.

¹⁵⁵ <https://geovp.com/37/conkouati-douli-national-park-2637550/> Website accessed on 15th November 2021 at 1140 hours.

¹⁵⁶ Mozambique Country Handbook accessed from website <https://info.publicintelligence.net/MCIA-MozambiqueHandbook.pdf> on 25 October 2021 at 12222 hours

¹⁵⁷ FAO 2016 Country profile – Mozambique. FAO, Rome. Accessed from website <http://www.fao.org/3/i9805en/i9805EN.pdf> on 25 October 2020 at 0113 hours.

¹⁵⁸ <https://www.distancesto.com/coordinates/mz/r425-latitude-longitude/history/1588540.html> website accessed on 15th November 2021 at 1300hrs.

- b. **Limpopo National Park** (22° 25' 59.9952" S, 1° 22' 0.0012" E)¹⁵⁹ is one of Africa's most remarkable wilderness areas. It consists of vast mountainous to flat landscapes, with limited hills along the western border along with the Lebombo Mountain range. It is covered by a mixed forest, with dense Mopani bush and Sandveld; and the Shingwedzi River flows from W -SE through the lower third of Park. It was officially declared a national park in 2001 by the Mozambique government after the country's protracted civil war that decimated nearly 90% of the wildlife population.

Biological Context of Project Area

Botswana

There are seven eco-regions (Kalahari Acacia-Baikiaea Woodlands, Southern African Bushveld, Zambeian Baikiaea Woodlands, Zambeian, and Mopane Woodlands, Zambeian flooded grasslands, Zambeian Halophytics, and Kalahari Xerix Savannah). The central and eastern Miombo woodlands and the Zambeian flooded savanna (Okavango system) are part of the global 200 eco-regions of conservation priority because of their vulnerability to degradation and species loss.

Land use types include protected areas, wildlife management areas, pastoral residential areas, farms, and mining concessions. The country's vast land area and low population have made it possible to establish expansive protected areas with over 45% of the country under some form of environmental management.

There is rich biodiversity, especially in and around the Okavango Delta with a species richness index between 9.3 and 15. Plant species are estimated at between 2,150 and 3,000, of which 15 are endemic and 43 on the IUCN Red List. There are 150 identified species of mammals, of which three are endemic and 112 are red-listed, 570 species of birds with 1 near-endemic species and 15 red-listed, 131 species of reptile with 2 red-listed, 34 species of amphibian, and 99 species of freshwater fish. Data are still lacking on the distribution of some species, breeds, and varieties which hinders the conservation of some species and critical habitats.

Chobe National Park is part of the seasonal flood plains around the Okavango and Zambezi and extensive wilderness areas that support high densities of large mammals and provide wildlife migration routes in Southern Africa. The Park is part of the country's 12 Important Bird Areas (IBAs), with the Okavango delta supporting 463 species. Chobe National Park supports the highest densities of many raptors, such as *Torgos tracheliotus* and *Terathopius ecaudatus* more than found anywhere in southern Africa¹⁶⁰. The park also supports important populations of *Ardeotis kori* and of the Palearctic migrants *Falco naumanni* (and *F. amurensis* and *F. vespertinus*) and *Circus macrourus*. Those species of bird are largely confined to the Chobe river and its flood-plain. The rich biodiversity creates an excellent opportunity for wildlife tourism in Botswana. Unfortunately, some of the main threats to biodiversity in Botswana are tourism-related with unregulated motorbike tours threatening fauna in the Magadikadi Pans, and sightseeing parties and vehicles disturbing waterbird breeding sites.

Mozambique:

It comprises five phytogeographical regions and the most common are Miombo, Mopane, undifferentiated woodlands, and coastal mosaics. Sites of biodiversity importance include the Gorongosa Mountains, the Great Inselberg Archipelago of Quirimbas, and the Chimanimani Massif. The biodiversity hotspots are the Coastal Forests of Eastern Africa, the Maputaland-Pondoland-Albany, and the Eastern Afromontane. The Zambeian Coastal Flooded Savannah is a unique eco-region. Mozambique is home to about 5,500 species of flora and 4,271 species of terrestrial wildlife, of which 72% are insects, 17% birds, 5% mammals, and 4% reptiles. Of these species, several are endemic including 2 species of mammal, 7 reptiles, 11 freshwater fish, and 5 vascular plant species. There are 300 species on the IUCN Red List in Mozambique, of which 120 are threatened.

¹⁵⁹ <https://www.latlong.net/place/great-limpopo-transfrontier-park-mozambique-30901.html> website accessed on 15th November 2021 at 1200hrs.

¹⁶⁰ <http://datazone.birdlife.org/site/factsheet/6045> Website accessed on 15 November 2021 at 1750hours.

The coastline of 2,770 km long consists of several marines and coastal habitats including the coral reefs, mangroves, and seagrass meadows. The coral reefs cover about 1,860 km² and the mangroves cover 400,000 ha. Seventeen marine fish species are endemic to Mozambique including the dugong, 7 species of dolphin, humpback whales, 77 hermatypic species of coral, and 5 species of turtle.

There are extensive benefits and ecosystem services arising from biodiversity that include the provision of timber for firewood, furniture, sculpture, water supply/purification, soil fertility, and flood protection among others. In addition, most of the important traditional and modern medicines, on which 80% of the population depends for their primary healthcare, are derived from wild plants, animals, fungi, and bacteria. The rich biodiversity mostly protected within National Parks supports tourism which is a major source of foreign exchange for the country. The parks targeted by this project are Zinave and Limpopo.

Zinave National Park is home to wildlife that includes spotted hyena, wildebeest, sable antelope, hartebeest, reedbuck, cheetah, giraffe, zebra, elephant, buffalo, black rhino, eland, roan antelope, and ostrich. Most of the large mammals were however decimated by illegal hunting. Species that are locally extinct or close to extinct include black rhinoceros, Cape buffalo, cheetah, reedbuck, eland, elephant, giraffe, Lichtenstein's hartebeest, roan antelope, sable antelope, spotted hyena, wildebeest, and Selous' zebra¹⁶¹. Restoration of the park is on-going and since 2018, more than 700 animals have been translocated under a donation from South Africa's Department of Forestry, Fisheries and the Environment to the Ministry of Land and the Environment in Mozambique, as they work together, supported by Peace Parks Foundation, to restock and rebuild key parks within the Great Limpopo Transfrontier Conservation Area. The NP is currently under joint management by ANAC and Peace Parks Foundation (PPF), a Government-Private sector partnership arrangement through a Memorandum of Understanding (MoU).

The restoration of **Zinave National Park** has been one of southern Africa's most remarkable conservation success stories. Zinave now boasts 13 species including impala, reedbuck, waterbuck, buffalo, zebra, wildebeest, giraffe, sable and elephant. Thriving in their safe and plentiful habitat, these reintroduced populations have more than doubled in numbers to close to 6 000 animals. With the herbivore populations flourishing, the first predators – a clan of four spotted hyenas – were reintroduced into the park at the end of 2020 and have already produced their own offspring¹⁶².

Limpopo National Park is home to 147 species of mammals and more than 500 bird species, and it is a setting ambitiously linking economic development and biodiversity conservation¹⁶³. There are approximately 66 lion and 35 cheetah in Limpopo National Park. A 2010 fixed-wing census of Limpopo National Park estimated 1 400 elephant and 1 050 buffalo in the park, as well as healthy populations of sable, kudu and nyala. In Banhine National Park lion, cheetah, wild dog, leopard and spotted hyena were found by the researchers, in addition to elephant, buffalo, and healthy herds of impala and large flocks of ostrich.¹⁶⁴ Census results indicate that buffalo numbers have also increased from 1 339 in 2016 to 5 883 in 2018. Continued growth in numbers of indicator species such as nyala and kudu, which are evenly distributed across the Park, as well as the high growth in buffalo numbers indicate a healthy and widely protected ecosystem that is getting better as further support promotes management effectiveness.

THE REPUBLIC OF CONGO

¹⁶¹ Marc Stalmans, M and Peel, M. 2011. [Plant communities and landscapes of the Parque Nacional de Zinave, Mozambique](https://doi.org/10.4102/koedoe.v52i1.703). *Koedoe* 52 (1). doi:10.4102/koedoe.v52i1.703.

¹⁶² https://www.dffe.gov.za/mediarelease/creecy_collaborativeconservation_southafrica-mozambique Website accessed on 15th November, 2021 at 1930hours.

¹⁶³ <https://www.afd.fr/en/actualites/grand-angle/mozambique-biodiversity-and-development-natural-alliance> Website accessed on 15th November 2021 at 1944hours.

¹⁶⁴ <https://www.peaceparks.org/wildlife-diversity-in-limpopo-national-park/> Website accessed on 15th November 2021 at 2000hours.

The country has 15 protected areas covering about 11% of the surface area (3,655,402 ha¹⁶⁵). The landscape consists of terrestrial ecosystems, with various forest types covering 65% of the country and the second-largest rainforest in the world. The major forests are Mayombe (1,503,172 ha), Chaillu (4,386,633 ha) and North-Congo (15,991,604 ha).

Logging roads have increased access to wildlife by poachers and those involved in commercial bushmeat and trophy hunting especially ivory tusks and skins of certain protected species. In the tropical forests, hunters target medium to large mammals, including chimpanzees, gorillas, other primates, elephants, bongo, and several species of antelope for bushmeat¹⁶⁶. Several of these species are globally endangered, although locally abundant. Duikers (small forest antelopes) were the most abundant animal hunted, with 400 individuals sold per week¹⁶⁷. Rarefaction of wildlife is visible and threatens the already endangered species, such as the world's largest population of western lowland gorillas (*Gorilla gorilla gorilla*), listed on the IUCN Red List as critically endangered, elephants, marshbucks (*Tragelaphus speki*), and bongos. Waterbucks and lycaons have already disappeared.

The savannah grasslands occupy 35% (12 million ha) of the country with 300,000 ha (1% of the total area) covering the littoral zone. The grasslands support grazing wildlife and livestock production. The hydrographical network (225,000 km²) is of great importance and it is organized around two main watersheds: the Congo River Basin (4 million km²) and the Kouilou-Niari River Basin (60 000 km²) that supply water to various ecosystems (fresh and marine water, mangrove and coastal forests, wetlands, beaches, among others) and support rich biodiversity. The ecosystems are being degraded thus endangering many aquatic species. Snakes, lizards, and turtles are abundant despite the environmental variability linked to anthropogenic actions.

The **Ramsar sites** include Odzala Kokoua, Nouabalé-Ndoki; Conkouati-Douli and Lac Télé/Likouala community reserve, among others.

The Biosphere reserves are Dimonika and **Odzala-Kokoua National Park**. The **Conkouati-Douli National Park** (5,049.5 km²) is a UNESCO-recognised coastal national park and the main activities include community outreach, biological research, and tourism development. It is the most bio-diverse park in the country and includes the only marine-protected area in Congo. It is home to elephants, buffaloes, gorillas, leopards, chimpanzees, red river hogs, sitatunga, mandrill, endangered turtle, and dolphin. It is a priority site for great apes in the IUCN great ape conservation action plan as it is home to around 8,000 central chimpanzees (*Pan troglodytes*) and 2,000 western lowlands gorillas (*Gorilla gorilla gorilla*).

Nouabalé-Ndoki National Park (3,921.61 km²) is home to western lowland gorillas and the eastern subspecies of chimpanzees. It is a pristine tropical rainforest with a rich biodiversity of 300 bird species, plus 1,000 plant and tree species which include the endangered mahoganies. The most prominent species are colobus monkeys (black-and-white colobus, red colobus), the endangered lowland gorillas, chimpanzees, and mustached guenon monkeys. There are over 300 bird species including eagles, hawks, owls, scavenging vultures, and wading herons. There are also rare African forest elephants, forest buffalo, bongo, leopard, and blue duiker¹⁶⁸.

Socio-economic Context of Project Area

¹⁶⁵ [Permanent Mission of the Republic of the Congo to the United Nations](#) 2020.

Congo Biodiversity. Accessed from website <https://www.un.int/congo/congo/congo-biodiversity>.

¹⁶⁶ Hennessey, A.B. and J. Rogers. 2008. A study of the bushmeat trade in Ouessou, Republic of Congo. *Conservation & Society* 6(2): 194-230.

¹⁶⁷ Current conservation 2020. Accessed from website <https://www.currentconservation.org/issues/bushmeat-trade-in-ouesso-republic-of-congo/> on 25 October 202 at 1218 hours.

¹⁶⁸ Biosphere reserves of the Republic of the Congo. Accessed from website: https://en.wikipedia.org/wiki/Category:Biosphere_reserves_of_the_Republic_of_the_Congo.

Botswana: With an estimated population of 2,318,774 people¹⁶⁹ and a GDP of USD 18.6 billion in 2018¹⁷⁰, the country has a fast-growing economy based on diamonds, beef, and tourism. The country has experienced steady socio-economic growth since independence as a result of prudent policies and stable governance. In spite of the country's diamond-led development model, socio-economic growth is slower. However, economic growth is expected to remain stable in the medium-term as stated in the National Development Plan 11 (NDP 11). Poverty has dropped to about 16%, and there has been an improvement in shared prosperity and declining income inequality.¹⁷¹ Several factors have contributed to poverty reduction and welfare improvement including increased labor-related wages and reduction in unemployment.¹⁷²

Mozambique: About two-thirds of Mozambique's population of more than 29 million (2018) live and work in rural areas. With a GDP of 14.93 billion US dollars in 2019¹⁷³, growth is expected to decline to 1.3% in 2020, down from a pre-COVID forecast of 4.3%, with significant downside risks¹⁷⁴. Mozambique is also expected to experience large external and fiscal financing gaps in 2020 and 2021 in a context characterized by exposure to external shocks and limited fiscal space.

Republic of Congo: The Gross Domestic Product per capita in the Republic of the Congo was estimated at 2613 US dollars in 2019¹⁷⁵ and the economy is natural resource-based.

Climate Change and Natural Disaster Risks and Hazards

Botswana

The main threat to biodiversity in Botswana is habitat reduction/destruction and barriers to species movement, although the scale of these threats is dependent on location. Threats from invasive species are still relatively low although, in the southwest of the country, *Prosopis glandulosa* is emerging as a problem while, in the Okavango Delta, *Salvinia molesta* poses a threat to the aquatic environment. An invasive bird species, the Indian Myna (*Acridotheres tristis*), has established itself in Gaborone although little is known about its impacts in Botswana.

Of the seven main eco-regions in Botswana, four are vulnerable. The South African Bushveld is threatened by deforestation, overgrazing through unregulated cattle grazing, range degradation, and veldt fires. The Zambeian Baikiaea Woodlands are faced with increased encroachment from unregulated cattle grazing resulting in changing vegetation communities. Zambeian Halophytics are threatened by mining, rangeland degradation, bushfires, wind erosion, increased water extraction for irrigation resulting in increased salinity, disruption of wildlife migration routes through fencing, overgrazing, lack of protection for avian breeding sites, and uncontrolled tourism. Climate change is emerging as a major threat to biodiversity in the Okavango Delta. An integrated hydrological model, developed to assess the Okavango Delta hydrological response to various natural and anthropogenic scenarios, projected that climate change will have the greatest impact on the Kalahari basin and the delta. Other specific threats to species are related to poaching, particularly to flagship species such as Rhinos and Elephants; there are, however, extensive anti-poaching measures already put in place.

Mozambique

Major threats to biodiversity are population increase, development, and past political instability which have led to habitat fragmentation and loss as well as changes in the number and distribution of large terrestrial mammals.

¹⁶⁹Based on the Worldometers elaboration of the latest United Nations data. <https://www.worldometers.info/world-population/botswana-population/>. Website accessed on 25th October, 2019 at 1615hrs.

¹⁷⁰ Botswana GDP, 2018. <https://countryeconomy.com/gdp/botswana>. Website accessed on 28th October 2019, at 1428 hours.

¹⁷¹ The World Bank 2020. An overview of the Political and Socio-economic context of Botswana. <https://www.worldbank.org/en/country/botswana/overview>. Website accessed on 25th June, 2020 at 1040.

¹⁷² The World Bank 2015. Botswana Poverty assessment. Report No. 88473-BW. <http://documents.worldbank.org/curated/en/351721468184754228/pdf/88473-REVISED-WP-P154659-PUBLIC-Box394819B.pdf>. Website accessed on 25th June 2020.

¹⁷³ <https://tradingeconomics.com/mozambique/gdp> Website accessed on 9th October, 2020 at 1506 hours.

¹⁷⁴ <https://www.worldbank.org/en/country/mozambique/overview> Website accessed on 9th October, 2020 at 1510hours.

¹⁷⁵ <https://tradingeconomics.com/republic-of-the-congo/gdp-per-capita> Website accessed on 9th October, 2020 at 1454hours.

During the civil war period, terrestrial fauna massively declines. But since 1992, the Government has directed efforts towards the recovery of lost wildlife populations, especially within the conservation areas. The main threats to fauna are hunting, uncontrolled fires, and the destruction of habitats, whereas the main threats to flora are vegetation clearing, slash-and-burn agriculture, increased human settlement, and uncontrolled fires.

Threats to mangrove forests include deforestation, aquaculture, and construction of salt pans. Coral reefs are mainly under pressure from coral bleaching and increased activities such as fishing, tourism, and others. Seagrasses are being threatened by siltation due to floods, collection of invertebrates, trampling, and destructive fishing techniques. Due to population pressure, human-animal conflicts have increased due to destruction and human deaths caused by crocodiles, lions, elephants, and hippos. For instance, 265 people were killed and 82 injured between 2006 and 2008, and agriculture has suffered from damages by hippos and elephants.

The Republic of Congo

The main threats are anthropogenic, climatic, and motivated by various factors such as the human need for food and energy, industrial development, illegal wildlife trade, and hunting trophies, epidemics and viral diseases, as well as socio-political troubles experienced in the 1990s. Deforestation and the uncontrolled harvesting of non-timber forest products, shifting cultivation, and bushfires are the main pressures on forest ecosystems.

The non-existence of adequate monitoring mechanisms for vegetation worsens the situation. Wildlife habitats are destroyed and fragmented by human activities that also affect the ecological balance. Genetic erosion is occurring as a result of the depletion of plant species, or the disappearance of endemic ones.

Unsustainable agricultural methods (shifting cultivation, slash and burn agriculture, use of fertilizers and pesticides, uncontrolled grazing land management) are also putting pressure on natural ecosystems. Inland waters are threatened by overexploitation, destructive fishing methods (use of non-regulatory mesh nets, chemicals, explosives), and spread of invasive alien species, while marine waters are threatened by dredging, pollution from oil exploitation, overfishing without quotas compliance, and coastal erosion that destroys the spawning grounds.

Institutional Capacity

The Allen Institute for Artificial Intelligence (AI2) is a non-profit research institute established in 2014 based in Seattle, Washington (USA). The core mission is to contribute to humanity through high impact Artificial Intelligence research and engineering. They have experience in providing solutions to security, ecological management and Human-Wildlife conflict through EarthRanger technology in a number of countries across Africa, Asia, Europe and America. The institute supports initiatives that work to address some of the global challenges affecting oceans, climate, biodiversity conservation and communities. AI2 applies innovative approaches to support the conservation of endangered species, address climate change, improve ocean health, explore new frontiers in natural resources management and conservation, research on how sustainable natural resources and communities. Since 2014, AI2 has been working on a real-time situational awareness software program, now called Earth Ranger, to enable and capacitate improved management and effectiveness in protected areas management through deployment of data visualization, capture and monitoring technology. Earth Ranger is a data visualization and analysis software for protected area management. The technology collects, integrates and displays all historical and real-time data available from a protected area—wildlife, the rangers protecting them, spatial information, and threats among others. Earth Ranger empowers protected area managers and rangers to take immediate, proactive actions to prevent and mitigate threat incidents. To date, Earth Ranger technology has been tested and successfully deployed across numerous public and privately managed protected areas.

The staff at AI2 have wide experience in supporting security operations, monitoring of the ecosystem health promoting human-ecosystem co-existence with wildlife. AI2 has capacity to manage environmental and social safeguards and will adhere to the CI-GEF safeguard policies. As researchers in artificial intelligence they have keen interest in safeguards for both socio-economic wellbeing and sustainable environment management.

III. ESS SCREENING

This section will help the CI-GCF/GEF Project Agency to determine the category of the project and the ESS policies triggered by the project. Please provide accurate answers and details including supporting documents, where requested.

Will the project:	Yes	No
I. Propose to create significant destruction or degradation of <i>critical natural habitats</i> ¹⁷⁶ of any type or have significant negative socioeconomic and cultural impacts that cannot be cost-effectively avoided, minimized, mitigated, and/or offset?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. Propose to create or facilitate significant degradation and/or conversion of <i>natural habitats</i> of any type including those that are legally protected, officially proposed for protection, identified by authoritative sources for their high conservation value, or recognized as protected by traditional local communities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. Propose to carry out <i>unsustainable</i> harvesting of natural resources -animals, plants, timber, and/or non-timber forest products (NTFPs)- or the establishment of forest plantations in <i>critical natural habitats</i> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. Propose the introduction of exotic species that can certainly become invasive and harmful to the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. Contravene major international and regional conventions on environmental issues?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. Involve <i>involuntary resettlement, land acquisition, and/or the taking of shelter and other assets</i> belonging to local communities or individuals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VII. Propose the use of pesticides that are unlawful under national or international laws?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. Involve the removal, alteration, or disturbance of any <i>physical cultural resources</i> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. Include the construction, rehabilitation, and/or operation of large or complex dams?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. Involve trafficking of persons, procuring commercial sex acts, or the use of other forms of forced labor as described in CI's Anti-Trafficking policy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. Produce the conditions for or include activities involving harmful or exploitative forms of forced labor/harmful child labor?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XII. Include the construction and/or operation of dams?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Questions xiii through xxi are ONLY for GCF Projects pursuing the Simplified Approval Process (SAP): (N/A)

Will the project:	Yes	No
i. Involve associated facilities ¹⁷⁷ and require further due diligence of such associated facilities?	<input type="checkbox"/>	<input type="checkbox"/>
ii. Involve transboundary impacts including those that would require further due diligence and notification to downstream riparian states?	<input type="checkbox"/>	<input type="checkbox"/>

¹⁷⁶ Habitats considered essential for biodiversity conservation, provision of ecosystem services and the well-being of people at the local, national, regional or global levels. They include, among others, existing protected areas, areas officially proposed as protected areas, areas recognized as protected by traditional local communities, as well as areas identified as important for conservation, such as Key Biodiversity Areas (KBAs), Alliance for Zero Extinction (AZE) Sites, Important Bird and Biodiversity Areas (IBAs), Biodiversity Hotspot, Ramsar Sites, areas identified as important for ecosystem services such as carbon storage, freshwater provision and regulation, etc.

¹⁷⁷ Associated facilities are those that are not funded as part of the project, and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.

iii. Adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women or child labor?	<input type="checkbox"/>	<input type="checkbox"/>
iv. Generate hazardous waste and pollutants including pesticides and contaminated lands that would require further studies on management, minimization and control, and compliance to the country and applicable international quality standards?	<input type="checkbox"/>	<input type="checkbox"/>
v. Involve the construction, maintenance, and rehabilitation of critical infrastructure (i.e. dams, water impoundments, coastal and riverbank infrastructure) that would require further technical assessment and safety studies?	<input type="checkbox"/>	<input type="checkbox"/>
vi. Involve the resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	<input type="checkbox"/>	<input type="checkbox"/>
vii. Be located in protected areas and areas of ecological significance including critical habitats, key biodiversity areas, and internationally recognized conservation sites?	<input type="checkbox"/>	<input type="checkbox"/>
viii. Affect Indigenous Peoples that would require further due diligence, free, prior, and informed consent (FPIC), and documentation of development plans?	<input type="checkbox"/>	<input type="checkbox"/>
ix. Be located in areas that are considered to have archeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contain features considered as critical cultural heritage?	<input type="checkbox"/>	<input type="checkbox"/>
If you answer YES to any of the questions above, your project will undergo further review to determine eligibility for the Simplified Approval Process.		

Safeguard Policies:

Minimum Standard 1: Environmental and Social Assessment, Management and Monitoring		
<p>Will the project potentially:</p> <p>(a) cause significant adverse environmental and social impacts (which may affect an area broader than the project area) that are sensitive, diverse, or unprecedented; or</p> <p>(b) cause adverse environmental and social impacts (which are site-specific and few if any of them are irreversible) on human populations or environmentally or socially important areas?</p> <p><input type="checkbox"/> NO (to all of the above)</p> <p><input type="checkbox"/> TO BE DETERMINED</p> <p><input checked="" type="checkbox"/> YES (to any of the above)</p> <p>If TBD or Yes, please provide details here.</p> <p>The project is proposing activities that could have adverse environmental and social impacts i.e., construction or refurbishment of control room infrastructure with comfort accessories in protected areas. To this end, the project undertook a limited ESIA and prepared an ESMP</p>		
<p>(c) Has a full or limited ESIA that covers the proposed project already been completed?</p> <p><input type="checkbox"/> NO</p> <p><input checked="" type="checkbox"/> YES (If Yes, answer the following)</p>		
(d) Is the assessment a: <input type="checkbox"/> A FULL ESIA <input checked="" type="checkbox"/> A LIMITED ESIA	Yes	No
(e) Does the assessment meet its terms of reference, both procedurally and substantively?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(f) Does the assessment provide a satisfactory assessment of the proposed project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(g) Does the assessment describe specific environmental and social management measures (e.g., avoidance, minimization, mitigation, compensation, monitoring, and capacity development measures)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(h) Does the assessment identify the capacity needs of the institutions responsible for implementing environmental and social management issues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(i) Was the assessment developed through a consultative process with key stakeholder & rights holder engagement, including issues related to gender mainstreaming and Indigenous Peoples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(j) Does the assessment assess the adequacy of the cost of and financing arrangements for environmental and social management issues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>For any "no" answers, describe below how the issue has been or will be resolved or addressed.</p>		

Minimum Standard 2: Accountability, Grievance and Conflict Resolution

Does the EA have in place an accountability system that:

- (a) is able to receive complaints/grievances from stakeholders;
- (b) is independent, transparent, and effective;
- (c) is accessible and broadly advertised to stakeholders;
- (d) keeps complainants abreast of progress with cases brought forward;
- (e) maintains records on all cases and issues brought forward for review, with due regard for the confidentiality of complainants' identity and information; and
- (f) takes appropriate and timely measures to minimize the risk of retaliation to complainants?

- NO (to any of the above)
- TO BE DETERMINED (TBD)
- YES (to all of the above)

If TBD or YES, please provide details here

An Accountability and Grievance Mechanism has been developed for the project

Minimum Standard 3: Biodiversity Conservation and the Sustainable Management of Living Natural Resources

Will the project:

- (a) involve adverse impacts on Critical Habitats¹⁷⁸, including forests that are Critical Habitats, including from the procurement of natural resource commodities, except for adverse impacts on a limited scale that result from conservation actions that achieve a Net Gain of the Biodiversity values associated with the Critical Habitat;
- (b) contravene applicable international environmental treaties or agreements; or
- (c) introduce or use potentially invasive, non-indigenous species?
- (d) affect species identified as threatened at the local and/or global levels?
- (e) implement habitat restoration activities?

- NO (to all of the above)
- TO BE DETERMINED (TBD)
- YES (to any of the above)

If TBD or Yes, please provide details here. In the case of Protected Areas, provide name, location, area size, management category, governance arrangement, and current management activities of protected areas being affected by the project.

¹⁷⁸ Critical Habitat means a Habitat with high Biodiversity value, including (i) Habitats of significant importance to Critically Endangered or Endangered species, as listed on the International Union for the Conservation of Nature (IUCN) Red List of threatened species or equivalent national approaches, (ii) Habitats of significant importance to endemic or restricted-range species, (iii) Habitats supporting globally or nationally significant concentrations of migratory or congregatory species, (iv) highly threatened or unique ecosystems, and (v) ecological functions or characteristics that are needed to maintain the viability of the Biodiversity values described in (i) to (iv).

Minimum Standard 4: Restrictions on Land Use and Involuntary Resettlement

Will the project

- (a) involve the voluntary or involuntary resettlement of people;
- (b) restrict land use and access; or
- (c) cause economic displacement of people?

- NO (to all of the above)
- TO BE DETERMINED (TBD)
- YES (to any of the above)

If TBD or Yes, please provide details here.

Minimum Standard 5: INDIGENOUS PEOPLES ¹⁷⁹

Does the project plan to:

- (a) work in lands or territories traditionally owned, customarily used, or occupied by indigenous peoples?
- (b) cause impacts on land and natural resources, including restrictions on land use or loss of access to natural resources, subject to traditional ownership or under customary use or occupation, or the location of a project or program on such land or the commercial development of such natural resources;
- (c) cause relocation of Indigenous Peoples from land and natural resources subject to traditional ownership, or under customary use or occupation; or
- (d) cause significant impacts on an Indigenous People's cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous People's lives, or the use of such cultural heritage for commercial purposes;

- NO (to all of the above)
- TO BE DETERMINED (TBD)
- YES (to any of the above)

If TBD or Yes, please provide details here.

The EarthRanger project will involve limited site clearing for construction or refurbishment of control rooms in protected areas, and this is envisaged to entail, and to a very limited extent, vegetation removal, localized trampling, and soil disturbance. It is expected that the construction of the control room (and associated facilities) will be in an area that already has offices and the vegetation is regularly maintained as part of compound management through the use of light and handheld equipment such as motorized mowers, slashers, and hoes. In addition, radio waves will be emitted by the EarthRanger technology, and mitigation measures have been stated in the ESIA Plan. In view of the above, for this EarthRanger project, no major potential adverse impacts are anticipated on the physical, biological, socio-economic, and cultural heritage, transboundary resources, human health, as well as safety and security.

Communities in the three countries experience varying degrees of user rights regulations with respect to the Protected area resources. Section IV of the ESMP provides the context of both the physical and social-economic aspects of project implementation.

Section V of the ESMP provides an overview of the potential environmental and social impacts and mitigation measures. It is noted that projects that are implemented in natural ecosystems such as national parks, around which local communities live, often have spatial and temporal environmental and social impacts which need to be evaluated and mitigated. The EarthRanger project will however not have significant adverse impacts on the parks' resources and the livelihoods of the adjacent communities. The details with respect to both the positive and negative impacts resulting from the project implementation to both the resources and the communities are provided in section V of the ESMP.

¹⁷⁹ According to CI Policy on Indigenous Peoples, "CI identifies indigenous peoples in specific geographic areas by the presence, in varying degrees, of: a) Close attachment to ancestral and traditional or customary territories and the natural resources in them; b) Customary social and political institutions; c) Economic systems oriented to subsistence production; d) An indigenous language, often different from the predominant language; and f) Self-identification and identification by others as members of a distinct cultural group".

Minimum Standard 6: Cultural Heritage¹⁸⁰

Will the project implement activities that affect cultural heritage, including archaeological, paleontological, historical, architectural, and sacred sites including graveyards, burial sites, and sites with unique natural values?

- NO
 TO BE DETERMINED (TBD)
 YES

If TBD or Yes, please provide details here.

Management interventions for this safeguard have been included as part of the ESMP that has been developed for the project. The ESMP guides that EarthRanger project will involve limited site clearing for construction or refurbishment of the control room in protected areas, and this is envisaged to entail, and to a very limited extent, vegetation removal, localized trampling and soil disturbance. The construction of the control room (and associated facilities) are to be in an area which already has offices and the vegetation is regularly maintained as part of compound management through use of light and hand held equipment such as motorized mowers, slashers and hoes. The specific site for construction activities have not yet been identified.

No major potential adverse impacts are therefore anticipated on cultural heritage¹⁸¹.

¹⁸⁰ *Cultural Heritage means both tangible and intangible cultural heritage, including movable or immovable objects, sites, structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance, located in urban or rural settings, above ground, underground or under water; as well as practices, representations, expressions, knowledge, or skills – as well as the instruments, objects, artifacts and cultural spaces associated therewith – that communities, groups, and in some cases individuals, recognize as part of their heritage, as transmitted from generation to generation and constantly recreated by them in response to nature and a shared history*

¹⁸¹ Sections IV and V of the ESMP (Appendix VII b) provide details on the context and potential environment and social impacts and the associated proposed mitigation measures.

Minimum Standard 7: Resource Efficiency and Pollution Prevention

Will the project:

- (a) promote the trade-in or use of any substances listed under the Stockholm Convention on Persistent Organic Pollutants, or other chemicals or hazardous materials subject to international bans, restrictions, or phase-outs due to high toxicity to living organisms, environmental persistence, the potential for bioaccumulation, or potential depletion of the ozone layer, consistent with relevant international treaties and agreements.
- (b) generate wastes and effluents, and emissions of short- and long-lived climate pollutants.
- (c) involve pest management measures, Integrated Pest Management or Integrated Management of Vectors and Intermediate Hosts.
- (d) procure pesticides; or
- (e) use energy, water, and other resources and material inputs, where significant water consumption is involved and would cause adverse impacts on communities, other water users, and the environment?

- NO (to all of the above)
- TO BE DETERMINED (TBD)
- YES (to any of the above)

If TBD or Yes, please provide details here.

Minimum Standard 8: Labor and Working Conditions

Does the EA have in place the necessary policies, procedures, systems, and capabilities to ensure that:

- (a) the fundamental rights of workers, consistent with the International Labour Organization’s (ILO) Declaration on the Fundamental Principles and Rights at Work are respected and protected.
- (b) written labor-management procedures are established in accordance with applicable national laws.
- (c) workers are provided with clear and understandable documentation of employment terms and conditions, including their rights under national law to hours of work, wages, overtime, compensation, and benefits.
- (d) workers are provided regular and timely payment of wages; adequate periods of rest, holiday, sick, maternity, paternity, and family leave; and written notice of termination and severance payments, as required under national laws and the labor-management procedures.
- (e) decisions relating to any aspect of the employment relationship, including recruitment, hiring, and treatment of workers, are made based on the principles of non-discrimination, equal opportunity, and fair treatment, and not on the basis of personal characteristics unrelated to inherent job requirements.
- (f) appropriate measures are in place to prevent harassment, intimidation, and exploitation, and to protect vulnerable workers, including but not limited to women, children of working age, migrants, and persons with disabilities.
- (g) workers who participate, or seek to participate, in workers’ organizations and collective bargaining, do so without interference, are not discriminated or retaliated against, and are provided with the information needed for meaningful negotiation in a timely manner.
- (h) forced labor and child labor are not used in connection with the project or program.
- (i) occupational health and safety (OHS) measures are applied to establish and maintain a safe and healthy working environment, including supply chain workers;
- (j) workers are informed of applicable grievance and conflict resolution systems provided at the workplace level; and
- (k) workers may use these mechanisms without retribution, and the grievance and conflict resolution systems do not impede access to other judicial or administrative remedies available under the law or through existing arbitration procedures, or substitute for grievance systems provided through collective agreements?

- NO (to any of the above)
- TO BE DETERMINED (TBD)
- YES (to all of the above)

If TBD or Yes, please provide details here.

AI2 is a non-profit research institute based in Seattle, Washington (USA) with a functional Human Resources system and process. The organization is Compliant with International Labor Organization’s (ILO) regulations.

AI2 is an equal opportunity employer that values diversity. Vulcan encourages people to apply without regard to race, age, gender, religion, disability, LGBTQ status, or any other characteristic protected by law. The management team does not tolerate discrimination or harassment at any point during job application and employment, especially with respect to recruitment, hiring, placement, promotion, transfer, training, compensation, benefits, employee activities, and general treatment during employment.

More information about AI2 can be accessed by clicking the following link: <https://allenai.org/>

Minimum Standard 9: Community Health, Safety, and Security

Will the project:

- (a) potentially expose communities including disadvantaged or vulnerable groups or Individuals in particular women and children to both accidental and natural hazards, particularly where the structural elements of the project or program are accessible to members of the affected community, or where their failure could result in injury to the community.
- (b) generate risks and impacts to the health and safety of the affected communities; or
- (c) pose potential conflicts at the project site to the affected communities or the workers?

- NO (to all of the above)
- TO BE DETERMINED (TBD)
- YES (to any of the above)

If TBD or Yes, please provide details here.

ESS 10: Climate Risk and Related Disasters

Please refer to guidance notes in Appendix XI of the ESMF (Version 7) to answer the questions below:
Describe the climate projections for the country or region, or if possible, for the specific location of the project for the next 30 years from the start date of the project.

Botswana

The current temperature range is 6°C to 42°C¹⁸² with an average of 34°C¹⁸³. The temperature is projected to increase in consonance with the global increase of 1.5°C to 2.0°C. The implications include drying of dams, sporadic flooding, and spikes in malaria incidences. Droughts and rainfall variability are predicted to increase with climate change¹⁸⁴. Rainfall is predicted to drop by 9 percent annually while the number of dry days is similarly predicted to increase by 10-17 per year¹⁸⁵. The country will thus experience less domestic water, the runoff in Limpopo catchment will decline by 26-36 percent. Crop yields will decline by 20 percent and livestock losses will increase by 30 percent. Generally, rain-fed agricultural practices will be unviable. Slowed agricultural production and productivity, increasing food and nutrition insecurity and increased water scarcity and water stress have already been witnessed, and are therefore likely to continue. Extreme events associated with climate change are likely to lead to increased incidence of vector-borne diseases such as malaria and Bilharzia¹⁸⁶.

Mozambique

Temperatures are expected to increase by 1.4- 3.7°C by 2060, with warming more rapid in southern and coastal areas. The number of hot days and nights (defined as the temperature exceeded on 10% of days or nights in the current climate of that region and season) are projected to increase throughout the country, hot days by 17- 35% in 2060 and hot nights by 25- 45% in 2060. The number of cold nights (defined as the temperature below which 10% of days or nights are recorded in the current climate of that region or season) is projected to steadily decrease.

¹⁸² Nkemelang, T., New, M. and Zaroug, M. 2018. Temperature and precipitation extremes under current, 1.5 °C and 2.0 °C global warming above pre-industrial levels over Botswana, and implications for climate change vulnerability. Published 14 June 2018 • © 2018 The Author(s). Environmental Research Letters, Volume 13, Number 6. IOP Publishing Ltd.

¹⁸³ Ham, A. 2019. Weather and climate –Botswana. <https://www.safaribookings.com/botswana/climate>. Website accessed on 28th October 2019 at 1712 hours.

¹⁸⁴ Botswana, NDC. 2015.

¹⁸⁵ New, M and Bosworth, B. 2018. Opinion: What global warming of 1.50C and higher means for Botswana and Namibia. Climate and Development Knowledge Network.

¹⁸⁶ Botswana, NDC. 2015.

The Republic of Congo

The Republic of Congo has an equatorial climate with a bimodal rainfall pattern and temperature structure. March through May sees a rainy season as well as September through November. Mean monthly temperatures range from 23-26°C, with February through March experiencing the highest temperatures, and June through August experiencing the lowest. The length of the dry season follows a gradient from south to north, with southern locales experiencing a longer dry season than northern ones. The dry season extends for 3 to 4 months at 2°S and 1 to 2 months for the rest of the country. The mean annual precipitation for the Republic of Congo is 1,612 mm. The wettest areas of the country are between 1-3°S, with annual precipitation above 2,000 mm. The Inter-Tropical Convergence Zone (ITCZ) is also an important force in driving the rainy seasons as it migrates between the equator and the tropics throughout the year. The mean annual temperature has increased by 0.6°C. The cities of Brazzaville and Pointe-Noire have seen average temperatures increase between 0.6°C and 0.8°C. Mean annual precipitation has decreased over the Republic of Congo between the 1950s-1980s. The intra-seasonal precipitation pattern during the September-November and March-May rainy seasons has fluctuated in recent years, either shortening and/or lengthening seasons.

Describe the relevant potential hazards (e.g. heavy rainfall leading to flooding, low rainfall leading to drought, temperature changes which could lead to heat waves, sea-level rise, or changes in other extreme events such as hurricanes and cyclones) that could prevent the project from achieving its objectives and/or outputs.

Botswana

Botswana is among the countries in the world with the highest number of people affected by natural disasters (13,529 per 100,000 inhabitants) in the last three decades. Besides periodic droughts, which seem to occur with increasing frequency and that affect the whole population and all water-using sectors, Botswana has in the past experienced few natural disaster events. The temperature is projected to rise between 1 and 3 degrees by 2050, resulting in higher potential evaporation rates. Future trends in rainfall are uncertain, but the overwhelming majority of general circulation models predict a rainfall decrease, possibly with more intense rains locally. Desertification is a major concern to Botswana and IPCC estimates that, by the 2080s, the proportion of arid and semi-arid lands in Africa is likely to increase by 5-8%.³¹

Mozambique

Mozambique's vulnerability to climate change is a function of its location and geography: large areas of the country are exposed to tropical cyclones, droughts (every three to four years), and river/coastal storm surge flooding. More than 60 percent of the population lives in low-lying coastal areas, where intense storms from the Indian Ocean and sea-level rise put infrastructure, coastal agriculture, key ecosystems, and fisheries at risk. Increased frequency and severity of intense storms, droughts, and floods are likely to exacerbate the country's development challenges.

The Republic of Congo

The Republic of Congo is extremely vulnerable to climate change impacts, with low levels of readiness to address those impacts. The country is the 45th most vulnerable in the world and the 19th least- ready to respond to climate change ¹⁸⁷ with a high risk of flooding due to precipitation and sea-level rise.

¹⁸⁷ ND-GAIN Index for RoC: <https://gain-new.crc.nd.edu/country/congo>.

Describe the current and projected exposures, vulnerabilities, and adaptive capacities (e.g. technical, institutional, financial) and how these could prevent the project from achieving its objectives and/or outputs.

Botswana

Water scarcity or water stress and land degradation will have negative impacts on GDP, poverty, health, and food production.³² Climate change is likely to impact Botswana's ecosystems, especially the Okavango Delta, with a probable negative impact on tourism as well as livelihood opportunities for the peoples residing in the basin. Climate change impacts are expected to increase the frequency of pests and diseases affecting wildlife and to alter fire regimes.

Mozambique

Several leading causes of death in Mozambique are likely to be exacerbated by climate change. Malaria, the top cause of death of children under five, is more likely to appear in areas previously unsuitable for the disease to thrive, such as the higher elevations of Tete and Niassa Provinces, and malaria transmission will be more unpredictable. Diarrheal disease, the fourth leading cause of death overall, will likely increase due to rising temperatures and heavy rainfall events. An increased risk of flooding is also likely to increase the risk of cholera outbreaks, as evidenced by the cholera outbreaks in 2017 in Nampula and Cabo Delgado that were linked to severe flooding in those provinces. These climate risk factors come on top of other risk factors contributing to poor health in Mozambique, such as low access to improved sanitation, improved water sources, and health facilities.

The Republic of Congo

Climate change in Congo is expected to impact infrastructure and urban development. Flooding poses a risk to agriculture as well as water-borne illnesses, notably malaria. Sea level is projected to rise, threatening the *Port Autonome de Pointe-Noire*. The Congo Basin forests are an important natural asset and can be a long-term source of jobs, income, and government revenues.

What mitigation measures have been identified and incorporated into the design of the project/planned for the implementation phase to reduce the likelihood and/or consequences of risks or to respond to consequences so as to ensure that the project achieves its objectives and/or outputs?

Botswana, Mozambique, Republic of Congo

Identified mitigation measures to reduce the consequences of climate risks include:

- Providing early warning systems at national, sub-national, and local levels to strengthen preparedness and build resilience (e.g. provide timely information and advisories about roads/routes that are unreachable due to climate-related disasters,);
- Building research capacity and strengthening platforms for research innovations.
- Contextualizing information at more localized scales
- Utilization of geospatial tools, technologies, remote sensing, and earth observation data to assist with the required evidence-based science required for enhanced resilience.

IV: ADDITIONAL INFORMATION

Identify any other risks not captured in Section III that can affect the success of the project. Also, describe any important external factors that may affect your project from implementing safeguard measures/plans.

Corona Virus Pandemic (COVID19):

The project recognizes that the Corona Virus Disease Pandemic (COVID-19) may cause delays and/or slow down the implementation of project activities such as delays to set-up the project; delays to recruit project staff; delay/long periods before the imported equipment arrive in the target countries and low stakeholder engagement/ turn out.

In order to mitigate the risks outlined above, the project proposes the following measures:

- a) The project will prepare and implement relevant safeguard plans which will indicate activities being put in place to address risks triggered by COVID-19.
- b) The project team will prepare and submit quarterly technical and financial reports to CIGEF. The reports will indicate project implementation progress, any delays, and adaptive measures being put in place by the project team. The information will enable the Agency to guide how best to adapt to the situation on the ground from technical and financial perspectives.
- c) The project team will develop and implement the project's Adaptive Management Plan for the COVID-19 situation. The plan will also provide activities to be implemented by the Project Manager (Lead) to ensure that the team delivers selected project activities on time while working remotely (if needed).
- d) The project will create a COVID-19 repository and prepare a communication strategy for disseminating information related to the pandemic with project teams and stakeholders. This effort will also entail communicating to stakeholders the impact that COVID-19 will have on the project and the adaptive measures that will be put in place by the project.

APPENDIX VII: Safeguard Compliance Plans

Attached herewith, are the following safeguard plans:

- a. The CIGEF Covid-19 Guidelines
- b. The limited Environmental and Social Impact Assessment (ESIA) The Environmental and Social Management Plan (ESMP)
- c. The Accountability and Grievance Mechanism (AGM)
- d. The CI-GEF Gender Mainstreaming Plan (GMP), and
- e. The Stakeholder Engagement Plan (SEP)

A. CIGEF COVID-19 Guidelines



CI-GEF/GCF Agency's Guidelines for Projects during the Corona Virus Disease 2019 (COVID-19) Pandemic

Issue date: March 23, 2020

In accordance with CI-GEF/GCF Agency donor safeguard requirements, *"Projects and programs avoid, where feasible, or minimize the risk of community exposure to disease and other relevant health risks, taking into account differentiated levels of exposure, and the needs and exposure of Disadvantaged or Vulnerable Groups or Individuals"*

As such, the CI-GEF/GCF Agency at this time recommends that project activities continue with the following guidelines:

- Stop project-related travel and restrict to only essential travel such returning home to be with family. Project-related travel includes visits to project communities, especially those that have vulnerable populations. You can maintain communication with communities via phone calls, teleconference or other appropriate ways. Those returning from travels in high risk areas should self-quarantine for 14 days and follow the guidance of local authorities. Please wait to hear from us on when it is appropriate to resume project-related travel.
- Avoid large gatherings and in-person meetings/events at this time. Postpone large gatherings to a later date or consider teleconference using tools such as Skype, Zoom, Whatsapp and Microsoft Team. If you do hold essential meetings/events, please retain the names and contact details of all participants for at least one month. This will help public health authorities trace people who may have been exposed to COVID-19, if one or more participants become ill shortly after the meeting/event.
- Actively encourage sick project staff, contractors and stakeholders to stay away from the workplace and to get medical help. If a project staff becomes sick at the workplace with COVID-19 symptoms, they should immediately inform their supervisor. The supervisor must act on the information including isolating the project staff, and notifying other project staff of possible exposure (while maintaining confidentiality of the sick staff).
- Explore and establish policies and practices, such as flexible worksites (e.g. telecommuting) and flexible work hours (e.g. staggered shifts) to increase the physical distance among project staff and other stakeholders. Note that some project staff may need to work from home if they have children where their school/day care have been closed or if they need to care for a sick family member.
- Emphasize the need for proper respiratory etiquette and hand hygiene by all project staff, contractors and stakeholders. Place posters at the entrance to the workplace and in other workplace areas where they are likely to be seen on the signs and symptoms of COVID-19, coughing and sneezing etiquette, proper hand washing techniques,



social/physical distancing and other important information such as local contact numbers for public health authorities. Provide in the workplace soap and water and/or alcohol-based hand rubs containing at least 60% alcohol, and ensure that these are refilled regularly.

- Maintain good housekeeping. Routinely clean all frequently touched surfaces in the workplace, such as workstations, countertops, phones, and doorknobs. Use the recommended cleaning agents and follow the directions on the label (e.g. concentration, application method and contact time).
- Follow guidance given by national and local public health authorities, World Health Organization (WHO), and Centers for Disease Control and Prevention (CDC).
- Prepare a plan of action in the event of an outbreak in the project area. This may include how to decide if/when to suspend project activities, and carry out an assessment on how the suspension will impact project activities and revising timeline of deliverables. We are working on guidance regarding the administrative and financial implications and will share that with you shortly.
- Continue to monitor the local situation carefully and implement the plan of action. Also, immediately notify CI-GEF/GCF Agency when there are confirmed cases in the project area.

We will continue to closely monitor the situation and issue new guidelines as necessary.

Please contact us at cigef@conservation.org or cigcf@conservation.org should you have any questions.

B. The limited Environmental and Social Impact Assessment (ESIA)/The Environmental and Social Management Plan (ESMP)

The Environmental and Social Impact Assessment (ESIA) Plan outlines the differentiated measures that the Executing Agency/Entity will implement to ensure effective mitigation of key environmental and social impacts that could arise as a result of project implementation. The purpose of conducting the EarthRanger ESIA is to identify, assess and prevent or minimize (mitigate) the adverse impacts of the EarthRanger technology deployment project on the environment and people at the target protected areas sites in Botswana, Mozambique, and the Republic of Congo. The principle of ESIA requires that the impacts of the EarthRanger project be assessed and measured over the lifetime of the project – from the installation of the technology through to operations and thereafter¹⁸⁸.

Globally, protected areas (PAs) have the mandate to protect and maintain biological diversity, natural habitats, and associated cultural resources managed through legal or other effective means¹⁸⁹. The primary role of PA is to conserve biodiversity and provide a rich natural resource that permits stakeholders to meet their various needs. With proper management, investment in protected areas (as proposed in this EarthRanger project) can provide a significant benefit to national and local economies¹⁹⁰. Consequently, environmental and social impacts that include qualitative descriptions of the scale of change need to be assessed and mitigation measures put in place to protect biodiversity and ecosystems.

This ESIA Plan is prepared in conformity with CI’s mission of ensuring responsible and sustainably care for nature and global biodiversity for the benefit of humanity. Furthermore, the Plan is based on CI’s recognition of the value of safeguards for risk management in the projects funded by GEF. This ESIA Plan will guide the CI-GEF assessment of the EarthRanger project. Considering the importance of the project, this ESIA Plan includes appropriate mitigation measures proposed in accordance with CI policies and principles, and the requirements of the CI-GEF Environmental and Social Management Framework.

SECTION I: Project Information

PROJECT TITLE:	The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks		
GEF/GCF PROJECT ID:	10551	PROJECT DURATION:	44 months
EXECUTING AGENCY/ENTITY:	The Allen Institute for Artificial Intelligence (AI2)		
PROJECT START DATE:	July 2022	PROJECT END DATE:	March 2026
ESIA PREPARED BY:	Green Approaches Limited		
DATE OF (RE)SUBMISSION TO CI-GEF/GCF:	November 2021		
ESIA APPROVED BY:	Ian Kisson, Director of ESS, CI-GCF/GEF Agency		
DATE OF CI-GEF/GCF APPROVAL:	30 th November 2021		

¹⁸⁸ ISSD 2021. Impact Assessment and Mitigation. Accessed from website <https://www.iisd.org/learning/eia/eia-7-steps/step-3-impact-assessment-and-mitigation/>.

¹⁸⁹ IUCN (1994) *Guidelines for Protected Area Management Categories*. IUCN, Gland, Switzerland and Cambridge, UK.

¹⁹⁰ IUCN (1998). *Economic Values of Protected Areas: Guidelines for Protected Area Managers*. IUCN, Gland, Switzerland and Cambridge, UK.

SECTION II: Introduction

The project titled, “*The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks*” was approved at the June 2020 GEF Council Meeting. The objective of the project is to strengthen the management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies. This regional project is to be implemented in Botswana, Mozambique, and The Republic of Congo. The objective of the project is to strengthen the management effectiveness of priority Protected Areas (PAs) in Botswana, Mozambique, and the Republic of Congo to deliver global environmental benefits through the deployment of the EarthRangertechnology in selected protected area management systems. The Project has three main components outlined below:

Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness.

Component 1 will support technical and institutional capacity-building, focusing on site-specific infrastructure installations and training of protected area management staff on the use of the EarthRanger software. In consultation with the respective governments of the project participating countries, regional institutions, and experts, needs assessments were carried out for each PA during the PPG Phase to determine site-specific infrastructure and human resource requirements. However, follow-up detailed site assessments will be undertaken in the project inception period during the implementation phase to ascertain if the infrastructure and other requirements identified at the PPG phase are up-to-date and also to respond to emerging gaps and needs. The Component has one outcome described below:

Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas. This outcome will be delivered through six outputs namely:

- **Output 1.1.1:** EarthRanger software incorporated in the existing protected area management structure in the project countries.
- **Output 1.1.2:** A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each protected area in the target countries.
- **Output 1.1.3:** Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.
- **Output 1.1.4:** Digital radio or other appropriate communications network, (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.
- **Output 1.1.5:** EarthRanger software installed and functional in the selected PAs in the target countries
- **Output 1.1.6:** Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).

Component 2: Learning, knowledge sharing, and scaling the EarthRanger technology across Africa

Component 2 seeks to increase awareness about the benefits of using conservation technologies specifically the Earth Ranger technology in protected area management and promote uptake in other PAs in African countries. It is anticipated that the interest of other African countries will be stimulated through the dissemination of success stories and best practices related to the EarthRanger technology, and demand for installation and application of this and other conservation technologies to manage their protected areas. The main activities under this component include sharing of the project’s lessons, success stories, and best practices through visits (EarthRanger User Conference) and dissemination of information through appropriate modes of communication. Success stories, lessons learnt, and best practices from this project will

be disseminated through the Earth Ranger Website (<https://earthranger.com/About-Us.aspx>). The project will also share lessons with the ongoing project such as the GEF-World Bank Global Wildlife Program (GWP) and any other available media outlets and social media platforms. This component targets to achieve one outcome stated below.

Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install EarthRanger technology. This outcome will be achieved through three outputs namely:

- **Output 2.1.1:** Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA
- **Output 2.1.2:** Information sharing events undertaken to enhance learning and promote scaling up
- **Output 2.1.3:** Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (*where the Earth Ranger software informed decisions in the management of protected areas*).

Component 3: Monitoring and Evaluation

Component 3 will focus on monitoring project activities as well as making suggestions for any improvements that ensure the success of the project. The component will ensure the monitoring and evaluation activities during the implementation of this project is on track. The component has one outcome namely:

Outcome 3.1: An integrated monitoring and evaluation framework for the project. This outcome will be achieved through two outputs namely:

- **Output 3.1.1:** Periodic M&E reports submitted to CIGEF Agency.
- **Output 3.1.2:** Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

SECTION III: Overview and scope of the ESIA plan

a) Alignment with CI-GEF Environmental and Social Management Framework (ESMF)

This ESIA Plan is prepared in conformity with CI's mission of ensuring responsible and sustainably care for nature and global biodiversity for the benefit of humanity. Furthermore, the Plan is based on CI's recognition of the value of safeguards for risk management in the projects funded by GEF. This ESIA Plan will guide the CI-GEF assessment of the EarthRanger project. Considering the importance of the project, this ESIA Plan includes appropriate mitigation measures proposed in accordance with CI policies and principles, and the requirements of the CI-GEF Environmental and Social Management Framework.

The objectives of the ESMF that conform with the EarthRanger project are to (i) strengthen the quality of the project's development by ensuring a principled approach; (ii) avoid adverse impacts on people and the environment; (iii) minimize, mitigate and manage adverse impacts where avoidance is not possible; (iv) strengthen CI and partners' capacities to manage social and environmental risks, and (v) ensure full and effective stakeholder engagement in the project including putting in place a mechanism to respond to complaints from project-affected people.

Viewed against the above background, the purpose of this ESIA Plan is to ensure that any anticipated adverse environmental and social risks and impacts of the EarthRanger project are avoided or, when unavoidable, minimized and appropriately mitigated and/or offset (compensated)¹⁹¹. In congruence with *Policy 2: Gender Mainstreaming of the ESMF*, the EarthRanger project will adopt an implementation approach that enhances

¹⁹¹ CI-GEF Project Agency 2020. Environmental and Social Management Framework (ESMF). GEF/GCF Project Agency, Conservation International (CI), 2011 Crystal Drive, Suite 600 - Arlington, VA 22202.

gender equality and equity in the application of the technology in the project countries' protected areas. Furthermore, this ESIA Plan adopts the CBD's mitigation hierarchy namely, to *avoid, minimize, restore or offset* any harm to the environment and people by incorporating environmental and social concerns as an intrinsic part throughout the EarthRanger project implementation.

b) Policy, Legal and Administrative Framework

Conservation International (CI) with partners including AI2 has been providing interventions to improve the management of biodiversity-rich protected areas that are severely threatened by combinations of proximate and underlying factors. Some of the critical factors include resource use pressure leading to illegal activities such as wildlife poaching that negatively affect biodiversity and ecosystem services. The EarthRanger project will contribute to the removal of key barriers to sustainable management of selected protected areas in Botswana, Mozambique, and the Republic of Congo with the potential to extend the application of the technology and approaches to other countries in Africa.

The policy framework applicable to the project includes the participating countries' national constitutions, policies related to environment and natural resources management. The regulatory framework also includes national development planning frameworks, national development strategies, and sectoral policies on tourism, wildlife, environment, ICT among others. Global and regional strategies to implement international conventions on environment, biodiversity conservation, and sustainable development also apply.

In Botswana, the Ministry of Environment, Natural Resources Conservation, and Tourism promote a sustainable environment for the benefit of the country. Environmental Assessment Act, 2011 and Environmental Assessment Regulations, 2012 provide for environmental impact assessment to be used to assess the potential effects of planned developmental activities; to determine and to provide mitigation measures¹⁹². In Mozambique Ministério para a Coordenação da Acção Ambiental (MICOA) is responsible for environmental policy and legislation and liaises with other ministries on environmental impact assessment of projects. LAW Nº 20/97 of October 1, 1997, regulates environmental audit and impact assessment¹⁹³. The Ministry of Tourism and Environment of the Republic of Congo is responsible for environmental and social impact assessment. The 2002 Constitution protects the people's right to a healthy, satisfactory and sustainable environment (articles 35, 36, and 37), and forbids and punishes any agreement or arrangement having the direct consequence of depriving the nation of the benefits of its resources, natural or otherwise (articles 38 and 39)¹⁹⁴.

c) Objectives of the EarthRanger ESIA Plan

The overall objective of this ESIA Plan is to assess and predict potential adverse social and environmental impacts and to develop suitable mitigation measures.

The specific objectives are to:

- (i) Analyze policy, legal and administrative frameworks that pertain to environmental and social matters that need to be considered during the implementation of the EarthRanger project in the participating countries.
- (ii) Identify and analyze stakeholders in terms of participation in the ESIA processes and the potential impacts

¹⁹² ELAW 2019. Botswana Legal Framework. Accessed from website <https://www.elaw.org/eialaw/botswana>

¹⁹³ The Republic Of Mozambique 1997. The Assembly Of The Republic Law Nº 20 / 97 of October 1 1997. Accessed from website <http://extwprlegs1.fao.org/docs/pdf/moz15370E.pdf>.

¹⁹⁴ Dunia P. Zongwe 2014. The Legal System of the Republic of the Congo (Congo-Brazzaville): Overview and Research. Hauser Global Law School Program, New York University School of Law. Accessed from website https://www.nyulawglobal.org/globalex/Congo_Brazzaville.html

of the project on them.

- (iii) Provide an understanding of the current environmental and social conditions that form the baseline against which the EarthRanger project impacts can be predicted and measured during project implementation.
- (iv) Assess environmental and social impacts and make predictions in terms of their probability and significance on people's livelihoods and biodiversity.
- (v) Analyze alternatives to identify other options, including not implementing the project, to achieve the project objectives and compare their impacts with the original proposal.

RECOMMENDATIONS

1. The ESIA did not achieve objective II above. During the implementation phase, the Safeguards Officer will seek input from stakeholders and update the ESMP activities as needed - particularly at the site level.

d) Implementation scope of the EarthRanger ESIA Plan

This ESIA Plan will be implemented in compliance with the ESMF and its associated policies as required by CI-GEF for all projects that are implemented through the funding of GEF, in this case, the EarthRanger project. As the EarthRanger project will be implemented by CI-GEF Project Agency in conjunction with AI2 and other co-funding partners, the environmental and social rules and policy of the partners will be applied.

As indicated in the approved safeguard screening form, the EarthRanger project will involve limited site clearing for construction or refurbishment of the control room in protected areas, and this is envisaged to entail, and to a very limited extent, vegetation removal, localized trampling, and soil disturbance. It is expected that the construction of the control room (an associated facility)¹⁹⁵ will be in an area that already has offices and the vegetation is regularly maintained as part of compound management through the use of light and handheld equipment such as motorized mowers, slashers, and hoes. In addition, radio waves will be emitted by the EarthRanger technology, and mitigation measures have been stated in this ESIA Plan. Given the above, for this EarthRanger project, no major potential adverse impacts are anticipated on the physical, biological, socio-economic, and cultural heritage, transboundary resources, human health, as well as safety and security.

SECTION IV: Mapping and analysis of stakeholders in the ESIA process

Table 21 outlines the main categories of stakeholders in the ESIA process, including the potential impact of the project on them and the proposal for their participation in the development of ESIA/ESMP. It is noted that the development of this ESIA/ESMP involved fewer stakeholders as a result of limitations imposed by COVID-19 restrictions on movement. Therefore, further consultations should be undertaken during the Project Inception phase to enrich the ESIA/ESMP.

¹⁹⁵ In the CI-GEF ESMF (2020), associated facility means a facility necessary for the project to be viable and would not have been constructed if the project did not exist.

Table 21: Key stakeholders in the ESIA process

Stakeholder category	The potential impact of the Project on stakeholder	Participation in the ESIA development process
1. Government agencies responsible for regulating environmental management, including ESIA/ESMP	Interested in improved management of the protected areas. The project's innovation may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were not involved during the ESIA process. Should participate in decision making and involvement in all aspects related to this project Should be consulted during the Project inception
2. Ministries, Departments, and Agencies responsible for regulating the environment, including ESIA/ESMP (regulators)	Interested in improved management of the protected areas. The project's innovations may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were not involved during the ESIA process. Should participate in decision making and involvement in all aspects related to this project Should be consulted during the Project inception
3. Lead agencies responsible for the management of protected areas	Interested in improved management of the protected areas. The project may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were consulted during the PPG process and provided useful information which was used in the development of the ESIA/ESMP. Should participate in decision making and involvement in all aspects related to this project Should review the ESIA/ESMP for comments and updates during the Project inception
4. Lead Agencies responsible for digital communications networks	The project may introduce communication gadgets that are detrimental to the environment and people, which must be checked.	Were not involved during the PPG phase. Should be consulted during the Project inception to review the ESIA/ESMP
5. The six target Protected Areas in the participating countries (Botswana, Mozambique, and the Republic of Congo)	Interested in improved management of the protected areas. The project may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were consulted during the PPG process and provided useful information which was used in the development of the ESIA/ESMP. Should participate in decision making and involvement in all aspects related to this project Should review the ESIA/ESMP for comments and updates during the Project inception
6. The Project Executing Partners	Interested in improved management of the protected areas. The project may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Consulted and provided information that was used in drafting the ESIA/ESMP They should review and update the document during the project Inception phase

Stakeholder category	The potential impact of the Project on stakeholder	Participation in the ESIA development process
		Should participate in decision making and involvement in all aspects related to this project
7. The broader stakeholders with interest in biodiversity conservation, including researchers, promoters, education institutions, etc.	Interested in sustainable conservation of biodiversity. The project may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were not involved during the ESIA process. Should review the ESIA/ESMP for comments
8. Environmental Practitioners, including Consultants and private entities	Interested in ensuring proper identification of adverse impacts of the project on the environment and social benefits. The project may introduce unwanted adverse environmental and social impacts on the PAs, which must be checked.	Were not involved during the ESIA process. Should review the ESIA/ESMP for comments
9. The general public		Were not involved during the ESIA process. Should review the ESIA/ESMP for comments
10. The Project Executing Agency and the related Project Management Unit	The ESIA/ESMP must be aligned to environmental and social safeguards. The Project should be checked to ensure that adverse impacts are not allowed	Reviewed the draft ESIA/ESMP
11. CI-AfFD	The ESIA/ESMP must be aligned to environmental and social safeguards. The Project should be checked to ensure that adverse impacts are not allowed	Reviewed the draft ESIA/ESMP
12. CI-GEF	The ESIA/ESMP must be aligned to environmental and social safeguards. The Project should be checked to ensure that adverse impacts are not allowed	Reviewed the draft ESIA/ESMP

SECTION V: Description of the affected environment

a) Geographical, socio-cultural (including gender), and institutional context of the project countries

This regional project focuses on six protected areas consisting of Chobe National Park in Botswana; Limpopo and Zinave National Parks in Mozambique; and Nouabalé-Ndoki, Odzala-Kokoua, and Conkouati-Douli National Parks in The Republic of Congo. An overview of the project countries and the target protected areas is provided below:

Botswana (latitudes 17 and 27°S, and longitudes 20 and 29°E) covers an area of 582,000 km². It is bordered by Namibia, South Africa, Zimbabwe, and Zambia. The country is dominated by the Kalahari Desert, which covers up to 70% of its land surface. Botswana's GDP is USD 17.34 billion in 2021 and its current annual GDP growth of 8.71%¹⁹⁶. Botswana's stable political environment includes a multi-party democratic tradition, with general elections held every five years. Living conditions have improved and poverty has fallen significantly. The proportion of people living below the poverty line has declined from 30.6 percent in 2002/3 to 16.3 percent in 2015/16¹⁹⁷ (Xinhuanet, 2021). The population of 2,390,128 has more than 20 ethnic groups; Bantu language speakers live in the northwestern sandveld, west of the Okavango Delta, and include the Herero, Mbanderu, and Mbukushu¹⁹⁸. Management of the protected areas is solely the responsibility of the government of Botswana through the Department of Wildlife and National Parks. The Department is responsible for conserving and managing wildlife resources and their habitats in consultation with local, regional, and international stakeholders for the benefit of present and future generations. The Department will coordinate the implementation of the project.

Mozambique: (latitudes 10° and 27°S, and longitudes 30° and 41°E) covers an area of 801,590 km² and is bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Eswatini (Swaziland) and South Africa to the southwest. The GDP is USD 15.2 billion; the prevalence of the COVID-19 pandemic reduced the GDP growth to -0.5% in 2020 and is expected to rise to 2.1% in 2021¹⁹⁹. As of June 2020, about 120,000 jobs were lost and 63,000 employment contracts suspended, with women being the most affected²⁰⁰. The people of Mozambique are ethnically diverse; the ethnic groups are Makua-Lomwe, Tsonga, Sena, Ndau, Chopi, Chewa, Yao, Makonde, and Ngoni. Mozambique's rate of population growth is lower than that of most other African countries²⁰¹. The population is young as more than 40% are less than 15 years old. More than 31 million (2020) live and work in rural areas²⁰². Four of the six countries bordering Mozambique are landlocked and hence depend on the country as a conduit to global markets.

National Administration of Conservation Areas (ANAC) of Mozambique: is a state institution responsible for the conservation of biodiversity and the sustainable development of ecotourism in Mozambique. Its main functions involve planning, coordination, and implementation of activities in conservation areas, in partnership with other organizations and local communities. ANAC will work with African Parks to implement the project. African Parks is a non-profit conservation organization responsible for the rehabilitation and

¹⁹⁶ The World Bank Group 2021. The World Bank In Botswana – An overview. Accessed from website <https://www.worldbank.org/en/country/botswana/overview>.

¹⁹⁷ Xinhua net 2021. Population living below poverty line falls in Botswana: statistics. Accessed from website http://www.xinhuanet.com/english/2018-01/19/c_136906457.htm.

¹⁹⁸ Denbow, J & Thebe, P.C. 2006. Culture and Customs of Botswana. Greenwood Press, London.

¹⁹⁹ Nordea 2021. The economic context of Mozambique. Accessed from website <https://www.nordeatrade.com/en/explore-new-market/mozambique/economical-context>.

²⁰⁰ World Bank 2021. *Mozambique Economic Update : Setting the Stage for Recovery (English)*. Mozambique Economic Update. The World Bank Group, Washington, D.C. accessed from website <http://documents.worldbank.org/curated/en/931171614625070870/>.

²⁰¹ Statistics Botswana 2021. 2021 Population & Housing Census. Gaborone. Accessed from website <https://www.statsbots.org.bw/2021-population-housing-census-stakeholder-consultative-workshop-census-topics>.

²⁰² Penvenne, J.M. 2021. Mozambique. Britannica. Accessed from website <https://www.britannica.com/place/Mozambique>.

long-term management of national parks in partnership with governments and local communities. It cooperates with the government to manage national parks and protected areas in Mozambique.

Republic of Congo: (latitudes 4°N and 5°S, and longitudes 11° and 19°E) straddles the equator on the western coast of Central Africa, along the Gulf of Guinea. It covers an area of 342,000 km². It is bordered by Gabon to the west, Cameroon to the northwest, the Central African Republic to the northeast, the Democratic Republic of Congo (DRC) to the southeast, Angola to the south, and the Atlantic Ocean to the southwest. The country is largely covered by tropical forests and possesses vast expanses of unused arable land that covers about one-third of the total area²⁰³.

The population is 5.2 million, sparsely distributed with a density is 12.8 persons per square kilometer. More than half of the population is concentrated in Brazzaville and Pointe-Noire cities, 12 percent live along the main railway between these cities and the rest live in rural areas. The country is ethnically diverse comprising 15 Bantu groups and 75 subgroups. The largest ethnic groups are the Bakongo (48 percent of the population), the Sangha (20 percent), the Teke (17 percent), and the M'Bochi (12 percent). The Binga Pygmies live in small bands providing farm labor for the surrounding communities.

The GDP is 49.82 billion U.S. dollars. The economy resumed an upward trajectory in 2018 with real GDP growth projected to reach 1.6% after two years of negative growth. Economic growth is projected to gain an average of 1.8% per year for the period 2020-21. Division of labor by gender is guided by the Fundamental Act which prohibits discrimination based on race or sex. Women are mainly engaged in the informal sector, where no rules are enforced²⁰⁴.

Ministry of Forest Economy will work with African Parks to implement the project. African Parks is a non-profit conservation organization responsible for the rehabilitation and long-term management of national parks in partnership with governments and local communities. It cooperates with the government to manage national parks and protected areas in the Republic of Congo.

b) Biophysical context including species, habitats, ecosystems, and ecosystem services found in the project areas

Botswana

The country has diverse biophysical features that encompass the Okavango Delta - the world's 3rd largest Ramsar wetlands inhabited by more than 500 species of birds including the globally threatened Wattled crane, the Slaty egret, Lesser kestrel, Corncrake, and the Black-winged pratincole²⁰⁵. The swamps are critical habitats for the Nile crocodile and the IUCN Red List Hippopotamus, Sitatunga, and Red lechwe²⁰⁶.

The country's ecosystems support 157 species of mammals, 570 bird species, 82 fish species, and 131 reptile species many of which are globally threatened. Botswana has one of the largest remaining populations of the African wild dog and the African elephant. There are declining populations of the eland, gemsbok, giraffe, hartebeest, lechwe, sable spring, and wildebeest. The African Buffalo, Plains Zebra, African Elephant, Blue Wildebeest, Tsessebe, Southern Reedbucks, Bushbuck, Puku Antelope, Impala, Waterbuck utilize the higher

²⁰³ The World Bank 2021. The World Bank in the Republic of Congo. The World Bank, Washington, DC. Accessed from website <https://www.worldbank.org/en/country/congo/overview>

²⁰⁴ Advameg Inc. 2021. Culture of Republic of Congo. In: Countries and their cultures, World culture Encyclopedia. <https://www.everyculture.com/Bo-Co/Republic-of-Congo.html#ixzz6tGAR0Ejr>.

²⁰⁵ Arntzen J. (2018) Makgadikgadi Wetlands (Botswana): Planning for Sustainable Use and Conservation. In: Finlayson C., Milton G., Prentice R., Davidson N. (eds) The Wetland Book. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-4001-3_24.

²⁰⁶ Lens Tracks 2016. [Southern Africa's Ramsar Sites](https://www.saramsar.com/): A project to visit all the Ramsar wetland sites in Southern Africa and expose it as eco-tourism destinations. Okavango Delta System (Botswana). <http://www.saramsar.com/>

dry landmasses found within the Okavango Delta and the riverfronts of the Linyanti and Kwando. One of the largest remaining populations of the African Wild Dog roams the islands in the Delta²⁰⁷.

The vegetation consists of about 2800 plant species of which 13 are endemic, 10 potentially endemic, 7 near-endemic and 43 threatened. The Cubango-Okavango River Basin stretches approximately 700,000 km² and its native plants and animals have synchronized their biological cycles with the annual flooding from the Okavango River, which occurs during the dry season^{208,209}.

Chobe National Park - was gazetted in 1968 (GN No.4 of 1968)²¹⁰ and is located on the banks of a perennial watercourse, the Chobe River, which is also a transboundary resource between Botswana, Namibia, Zambia, and Zimbabwe. From Botswana, the Chobe River converts into the Zambezi River to feed into Victoria Falls. It encompasses floodplains, swamps, and woodland in the Northern part of Botswana within the Chobe District. It is the second-largest National Park (NP) in the country and has more than 75 mammal and 450 bird species. The Department of Wildlife and National Parks (DWNP) in the Ministry of Environment, Natural Resource Conservation and Tourism are responsible for the management of the Park, in collaboration with the local Community-Based Organizations (CBOs)(Community Trust CBOs) formed at villages adjacent to the NP, under community-based natural resource management (CBNRM) arrangement. Each CBOs is governed by a Board of Trustees (BoTs), which are the legal entities to transact business on behalf of the CBOs. The DWNP leases part of the park to the CBOs, who then enter a partnership with safari tour companies (e.g., Wilderness Safari) for tourism development. The main challenges and threats to biodiversity are poaching and human-wildlife conflicts. The Park is widely known for its large elephant population, estimated to be around 50,000, and other wildlife (e.g., hippos, buffalos, zebras, giraffes, tsessebe, puku, lions, leopards, cheetahs, and wild dogs). It is however noted that elephant numbers vary due to seasonal migrations²¹¹. Local communities living in the five villages in the Chobe enclave and around the park are involved in crop cultivation and livestock rearing. Land-use constraints along with the poor performance of agriculture exacerbated by the human-wildlife conflicts that include livestock predation and crop damage by wildlife such as elephants²¹² have reduced economic activities. Villagers cannot expand communal grazing lands without encroaching on the protected areas.

Mozambique:

The phytogeographical regions are Miombo, Mopane, undifferentiated woodlands, and coastal mosaics. Natural forests and other woody vegetation covers about 620 000 km² (78%) of the country's surface area dominated by moist woodland (63.3%), semi-arid woodland (28.8%), evergreen and deciduous forest (6.1%), moist grassland (0.7%) and wetland (1.1%)²¹³. The Coastal Forests, the Maputaland-Pondoland-Albany, Mt Namuli, and Mt Ribuaue are the biodiversity hotspots. Mozambique is home to about 5,500 species of flora and 4,271 species of terrestrial wildlife comprising 72% insects, 17% birds, 5% mammals, and 4% reptiles. An

²⁰⁷ All Africa 2020. Botswana's Okavango Delta on UNESCO's Biosphere Reserve List. <https://allafrica.com/stories/200001170081.html>

²⁰⁸ SAIIA 2021. Maintaining the ecological integrity of Botswana's Okavango Delta. Accessed from website. <https://saiia.org.za/research/maintaining-the-ecological-integrity-of-botswanas-okavango-delta/>.

²⁰⁹ SAIIA 2021. Maintaining the ecological integrity of Botswana's Okavango Delta. Accessed from website. <https://saiia.org.za/research/maintaining-the-ecological-integrity-of-botswanas-okavango-delta/>.

²¹⁰ Chobe National Park accessed on website <https://www.botswanaturism.co.bw/explore/chobe-national-park> on 19th March 2021 at 0725 hours.

²¹¹ Chase, M., Schlossberg, S., Sutcliffe, R. & Seonyatseng, E. (2019) Dry Season Aerial Survey of Elephants and Wildlife in Northern Botswana: July–October 2018. Elephants Without Borders & Department of Wildlife & National Parks of Botswana, Kasane, Botswana.

²¹² <https://www.cambridge.org/core/journals/oryx/article/panic-at-the-disco-solar-powered-strobe-light-barriers-reduce-field-incursion-by-african-elephants-loxodonta-africana-in-chobe-district-botswana/2341B3ED382CE91DE519C609F2AC6965>; published online 03 July 2020.

²¹³ Albano, G. 2002. Tropical Secondary Forest Management in Africa: Reality and perspectives. Mozambique Country Report. FAO, Rome. Accessed from website <http://www.fao.org/3/J0628E57.htm>.

annotated checklist of the 271 strict-endemic taxa (235 species) and 387 near-endemic taxa (337 species) of vascular plants constitute 9.3% of the total flora and include five strict-endemic genera (*Baptothachis*, *Emiocarpus*, *Gyrodroma*, *Icuria*, and *Micklethwaitia*) and two near-endemic genera (*Triceratella* and *Oligophyton*)^{214,215}. Other endemic species include 2 species of mammal, 7 reptiles, 11 freshwater fish, and 5 vascular plant species. There are a total of 300 species on the IUCN Red List of which 120 are threatened²¹⁶.

The Quirimbas Park is a Biosphere Reserve situated in Cabo Delgado province in the north. The Ramsar sites are Lake Niassa and its coastal zones and Zambezi delta both covering a total of 4,534,872 hectares²¹⁷. The Zambezi Delta is a global biodiversity conservation hotspot and a habitat of the African buffalo, elephant, hippopotamus, lion, and leopard. It has a large concentration of waterbird species including white-backed and pink-backed pelicans, herons, flamingos, egrets, African fish eagles, storks, Caspian terns, wattled cranes, and endangered grey crowned cranes. Mount Namuli is designated as a Level 1 Priority Important Bird Area, Important Plant Area, and an Alliance for Zero Extinction Site²¹⁸ while Mt Ribaue is home to 30% of the country's biodiversity and the first Tropical Important Plant Area to be designated in Mozambique²¹⁹.

Limpopo National Park is one of Africa's most remarkable wilderness areas. It consists of vast mountainous to flat landscapes, with limited hills along the western border along with the Lebombo Mountain range. It is covered by a mixed forest, with dense Mopani bush and Sandveld; and the Shingwedzi River flows from W - SE through the lower third of Park. It was officially declared a national park in 2001 by the Mozambique government after the country's protracted civil war that decimated nearly 90% of the wildlife population. The Park was the battlefield during the civil war with wildlife providing food and finance for the armies. Twenty-seven thousand people lived in the park and its buffer zones resulting in rampant poaching and landscape degradation. When hostilities ceased in the 1990s, the park came under better management when a deal was struck with South African authorities to pull down the fence separating Limpopo National Park from Kruger National Park in South Africa²²⁰. Animals were trans-located from Kruger into Limpopo and other wildlife slowly started moving into the neighboring land. An agreement between the governments of Mozambique, South Africa, and Zimbabwe to form a cross-border wilderness area including Kruger National Park, Limpopo National Park, and three conservation areas in Zimbabwe (covering a total area of 35 000 km²) has ensured the ecological integrity, future protection, and survival of Limpopo National Park²²¹. The NP is currently under joint management by ANAC and Peace Parks Foundation (PPF), a Government-Private sector partnership arrangement through a Memorandum of Understanding (MoU). The main threats to biodiversity include poaching (mainly on foot using snares and gin traps), and human-wildlife conflict.

Zinave National Park was established in 1972 and is an integral part of the Mozambican component of the Great Limpopo Transfrontier Conservation Area that includes Kruger National Park in South Africa. The Park is generally flat and comprises mainly a savannah type of vegetation, with flooded pans in the northeast, a riverine forest, miombo woodlands, and open woodlands. Wildlife includes spotted hyena, wildebeest, sable antelope, hartebeest, reedbuck, cheetah, giraffe, zebra, elephant, buffalo, black rhino, eland, roan antelope,

²¹⁴ Darbyshire, I., Timberlake, J., Osborne, J., Rokni, S., Matimele, H., Langa, C., Datizua, C., de Sousa, C., Alves, T., Massingue, A., Hadj-Hammou, J., Dhanda, S., Shah, T., and Wursten, B. 2019. The endemic plants of Mozambique: diversity and conservation status. *PhytoKeys* 136: 45-96.

²¹⁵ Hyde, M.A., Wursten, B.T., Ballings, P. and Coates Palgrave, M. 2019. Flora of Mozambique. Information available from website <https://www.mozambiqueflora.com/>.

²¹⁶ Ministry of Land, Environment and Rural Development 2015. National Strategy and Action Plan of Biological Diversity of Mozambique. Government of Mozambique, Maputo.

²¹⁷ Annotated List of Wetlands of International Importance: Mozambique. Accessed from website https://rsis.ramsar.org/sites/default/files/rsiswp_search/exports/Ramsar_Sites-annotated-summary-Mozambique.pdf?1605026125.

²¹⁸ http://www.cepf.net/where_we_work/regions/africa/eastern_afromontane/Pages/default.aspx.

²¹⁹ CFC 2020. Mozambique: Community Conservation of "Sky Islands" in East Africa. Accessed from website <https://icfcanada.org/our-projects/projects/mozambique-namuli>.

²²⁰ Peace Parks Foundation 2020. Displacement in Limpopo National Park, Mozambique. Environmental Justice Atlas.

²²¹ AFD 2019. Rehabilitating Limpopo National Park. Accessed on 29.01.2021 from website <https://www.afd.fr/en/actualites/rehabilitating-limpopo-national-park>

and ostrich. The NP is currently under joint management by ANAC and Peace Parks Foundation (PPF), a Government-Private sector partnership arrangement through a Memorandum of Understanding (MoU). The main challenges and threats to biodiversity include illegal logging/deforestation; poaching and human-wildlife conflicts. The Park was neglected for a long time until 2010²²² when formal management was strengthened. Most of the large mammals were decimated by illegal hunting. Species that are locally extinct or close to extinct include black rhinoceros, Cape buffalo, cheetah, reedbuck, eland, elephant, giraffe, Lichtenstein's hartebeest, roan antelope, sable antelope, spotted hyena, wildebeest, and Selous' zebra²²³.

The Republic of Congo

The country has a land area of 342,000 square kilometers; is bounded to the northwest by Cameroon, to the north by the Central African Republic, to the east and south by the Democratic Republic of the Congo, to the southwest by the Angolan exclave of Cabinda, and to the west by Gabon. South of its border with Gabon is 161 kilometers of coastline along the Atlantic Ocean. The four major topographic regions are a coastal plain, a fertile valley in the south-central area, a central plateau between the Congo and Ogooué rivers, and the northern Congo Basin. Most of the country is covered by dense tropical forests. The Congo River forms the eastern and southern borders and the local people depend on it for fish, transportation, and electricity.

Much of the country is covered with tropical rainforest consisting of African oak, red cedar, walnut, softwood *okoumé*, or gaboon mahogany, and hardwood limba (*Terminalia superba*). Coconut palms, mangrove forests, and tall grasses and reeds grow in the coastal regions and eastern swamps. The plateaus and the Niari valley are covered with grasses and scattered broad-leaved trees²²⁴.

Several species of monkeys, chimpanzees, gorillas, elephants, okapis, wild boars, and buffaloes live in the forests. Wildlife in the savanna regions includes antelopes, jackals, wild dogs, hyenas, and cheetahs. On the plateaus, rhinoceroses and giraffes are numerous, but lions are scarce. Birds include predatory eagles, hawks, and owls, scavenging vultures, and wading herons. One-sixth of Congolese territory is protected²²⁵.

Nouabalé-Ndoki National Park was established in 1993 and is part of the contiguous lowland rainforest in the northern Republic of Congo. The forest is part of the larger Sangha Tri-National Forest Landscape and a stronghold for populations of large mammals including forest elephants, western lowland gorillas, and chimpanzees. There is a range of different land uses across the larger Ndoki landscape that extends outside the national park. These include biodiversity conservation. The Park also contains forest clearings that offer a window into the lives of shy forest wildlife, creating fantastic opportunities for tourism development and conservation science²²⁶. The management of the NP is the responsibility of the Wildlife and Protected Areas Agency, Ministry of Tourism and Environment, in partnership with Wildlife Conservation Society - Congo, (WCS). The main challenges and threats to biodiversity include poaching of endangered species, industrial logging, and Artisanal and industrial mining. Logging operations often inadvertently facilitate illegal activities such as the commercial exploitation of ivory and bushmeat and constructing a road network that opens up previously inaccessible areas to poachers. The large logging settlements that are constructed to house the logging company employees increase the demand for bushmeat and other wildlife products. In 1999, WCS, the Government of Congo, the timber company CIB (Congolaise Industrielle du Bois), and the local community agreed to collaborate and created the *Projet Gestion des Ecosystèmes Périphériques au Parc*

²²²https://www.researchgate.net/publication/47296568_Plant_communities_and_landscapes_of_the_Parque_Nacional_de_Zinave_Mozambique/citation/download

²²³ Marc Stalmans, M and Peel, M. 2011. [Plant communities and landscapes of the Parque Nacional de Zinave, Mozambique](https://doi.org/10.4102/koedoe.v52i1.703). *Koedoe* 52 (1). doi:10.4102/koedoe.v52i1.703.

²²⁴ Cordell, D.D. 2021. Republic of the Congo. Encyclopedia Britannica Inc. Accessed from website <https://www.britannica.com/place/Republic-of-the-Congo>

²²⁵ Cordell, D.D. 2021. Republic of the Congo. Encyclopedia Britannica Inc. Accessed from website <https://www.britannica.com/place/Republic-of-the-Congo>.

²²⁶ Eric Arnhem 2020. Wild places: Nouabalé-Ndoki National Park. WCS Congo Programme, Brazzaville, Republic of Congo.

National Nouabalé-Ndoki (Project for the Management of Ecosystems Adjacent to the Nouabalé-Ndoki National Park), or PROGEPP to protect endangered species such as elephants and great apes, as well as managing the sustainable hunting of other species such as duikers and wild pigs, which are important as food for the local population. Project staff also advise the logging company on reducing the negative impacts of logging on wildlife through the creation of hunting zones, the provision of alternative sources of protein such as beef and chicken, and the development of community conservation education programs. PROGEPP is a successful example of integrating conservation into logging concessions to the mutual benefit of both wildlife and the local community.

Odzala-Kokoua- is one of Africa's oldest national parks, designated in 1935 and received the Biosphere Reserve status in 1977. It covers an area of 1,354,600 ha. The National Park is one of the most biologically diverse and species-rich areas on the planet. In 2010, African Parks entered into a 25-year-long agreement with the Republic of the Congo's Ministry of Forest Economy, Sustainable Development and Environment to protect this globally significant park. Around 12,000 people live in the periphery of the park and survive off the natural resources the area provides. Because of limited opportunities in the region, bushmeat poaching remains a major threat, where 14,500 snares and more than 50 tonnes of bushmeat were seized in 2019. This is a major concern for the park's wildlife. The management of this protected area focuses on a multi-pronged strategy to protect the park from poaching, including an enhanced eco-guard team and other law enforcement techniques, such as the application of satellite collars to monitor forest elephants and the engagement of communities around the park. In particular, community projects have been implemented to address human-wildlife conflict, sustainable livelihoods opportunities with farming projects, and community capacity-building activities.

Conkouati-Douli National Park – is one of the largest biodiversity reserves in Congo, with very dense flora, typical of equatorial vegetation. Its lush forests provide a living environment for more than 8,000 chimpanzees and 2,000 western lowland gorillas. The Conkouati-Douli National Park is also home to more than 1,000 forest elephants. These pachyderms coexist with many species of migratory birds that come to squat in the numerous wetlands of the park. The main challenges and threats to the park include logging, mining, oil exploitation, and commercial fishing by Chinese trawlers. The problem of poaching is also common in Conkouati-Douli, where roads bordering and crossing the reserve facilitate the movement of poachers. The inhabitants of the villages adjacent to the park regularly complain about crop-raiding by elephants, and hence causing human-wildlife conflicts. The Ministry of Forest Economy responsible for the management of the protected areas has entered a partnership with Noé, an NGO, for the management of the park.

c) Existing cultural heritage resources or sites²²⁷

Cultural heritage sites and resources are found in Africa's landscapes and integrating them in the environment and natural resources management plan helps to promote community-based conservation of biodiversity. However, natural resources management approaches are often addressed within a narrow approach that isolates cultural and heritage resources as well as cultural landscapes. The environment is often perceived as exclusively consisting of the natural or biophysical components with little regard for cultural heritage resources thus neglecting the human-environment interaction component within indigenous knowledge systems of protected areas²²⁸.

²²⁷ **Detailed Information has not been possible to collate owing to the level of interactions being limited and further consultations should be undertaken at PA level.**

²²⁸ Keitumetse, S. O. (2009). The eco-tourism of cultural heritage management (ECT-CHM): Linking heritage and 'Environment' in the Okavango Delta regions of Botswana. *International Journal of Heritage Studies*, 15(2-3), 223-244.

Cultural resources are material (tangible) and non-material (intangible) remains of societies' past activities on the environment, which comprise archaeological remains; monuments, and sites; cultural landscapes superimposed on the natural environment; local indigenous knowledge systems; folk-life and folklore; and traditional practices and rituals attached to the biophysical environment²²⁹. Cultural heritage resources do not have direct economic benefits. However, if properly managed it can stimulate social cohesions, improve the environment and generate economic spin-offs for the local communities. This ESIA Plan conforms to the Agenda 21 principles which also apply to the management of cultural heritage resources. The principles advocate for harmony between local communities and the biophysical environment at cultural, social, economic, and conservation levels²³⁰. This ESIA Plan links cultural heritage resources management to improved protected areas management using the EarthRanger technology. The EISA shall incorporate cultural heritage resources as one of the parameters in the assessment.

In Botswana, resident communities are the primary custodians of cultural heritage and cultural landscapes²³¹. The country is renowned for its abundance of cultural heritage and appeal to tourists. The Department of Museums and Art Galleries are linked to the Ministry of Sports Youth and Culture, Ministry of Environment, Wildlife and Tourism, and the Botswana National Commission for UNESCO under the Ministry of Education and Skills Development are responsible for the management of cultural and natural heritage resources²³². There are approximately 1660 historical sites that include Tsodilo Hills, Toutswemogala Iron Age site, Matsieng's Foot Prints, Moremi Gorge, Domboshaba Ruins among others²³³. The National Archives Law of 2002 regulates cultural heritage resources in Botswana²³⁴.

In Mozambique, the Ministry of Education and Culture is responsible for safeguarding cultural heritage. Law No. 10/88 of December 22, 1988 (Law on the Protection of Cultural Heritage) provides for the protection of national antiques, historical and cultural heritage of Mozambique²³⁵.

Cultural heritage resources of the Republic of Congo include Vili nail fetishes, Beembe statuettes that are full of expression; the masks of the Punu and Kwele, Kota reliquaries, Teke fetishes, and cemeteries with monumental tombs are examples of this variety. The Lari people also have unique artifacts. In addition, there is colonial architectural heritage being preserved. Architectural works are being restored in Brazzaville, for example, the Basilica of Sainte-Anne du Congo, which was completed in 2011.

d) Conflict management arrangements to secure local stakeholders' involvement in the management of natural and cultural resources

This EarthRanger ESIA is based on the premise that local people are key stakeholders that need to participate in planning and decision-making in projects that affect the environment and natural resources. The success of the EarthRanger project will partly depend on genuine community participation and benefits they get;

²²⁹ Keitumetse, S. O. (2011). Sustainable development and cultural heritage management in Botswana: Towards sustainable communities. *Sustainable development*, 19(1), 49-59.

²³⁰ Keitumetse, S.O. 2011. Sustainable Development and Cultural Heritage Management in Botswana: Towards Sustainable Communities. *Sustainable Development* 19, 49–59.

²³¹ Keitumetse S, Matlapeng G, Monamo L. 2007. Cultural landscapes, communities and world heritage: in pursuit of the local in the Tsodilo Hills, Botswana. In: World Archaeological Congress (WAC) Envisioning Landscape: Situations and Standpoints in Archaeology and Heritage, Hicks D, McAtackney L, Fairclough G (eds). Left Coast: Walnut Creek, CA pp. 101–117.

²³² Olivia Molefe 2017. Cultural heritage management and education in Botswana: Exploring integral management strategies for structural change Africa. Proceedings of the 39th African Studies Association of Australasia and the Pacific (AFSAAP) Annual Conference, 5-7 December 2016, The University of Western Australia.

²³³ Saarinen, J., Moswete, N., & Monare, M. J. (2014). Cultural tourism: new opportunities for diversifying the tourism industry in Botswana. *Bulletin of geography. Socio-economic Series*, (26), 7-18.

²³⁴ UNESCO World Heritage Centre 2021. National Cultural Heritage Laws. [UNESCO/CLT/Natlaws](https://whc.unesco.org/en/statesparties/bw/laws/). Accessed from website <https://whc.unesco.org/en/statesparties/bw/laws/>.

²³⁵ UNESCO 2013. Periodic reporting on the Convention for the Safeguarding of the Intangible Cultural Heritage. UNESCO, Paris.

legitimate authority granted to local community organizations; recognizing the importance of women as project implementers; development of mutual trust between local communities and the project as well as monitoring and evaluation (M&E) of the project.

Natural resource-based conflicts have existed for a long time at all socio-economic levels. Given that land and natural resources are vital to the livelihoods of the local people, conflicts over them demand special attention. If a conflict arises over natural resources in the target protected areas in the project participating countries, alternative dispute resolution, national legal systems, or informal conflict management will be applied²³⁶.

Botswana: literature indicates that local people participate in community-based projects although local government officers are reported to dominate decision-making over natural resources. This makes local communities reluctant to question project interventions for fear of losing benefits. Thus, few choices are available to them even when they are encouraged to support project interventions²³⁷. In spite of this shortcoming, Botswana has also established best practices for community-based natural resources management²³⁸, and conflict resolution is handled through the Kgotla system that involves tribal leaders^{239,240}. Alongside the Kgotla system, Alternative Dispute Resolution (ADR) mechanisms are used to complement court processes²⁴¹.

Mozambique: reports indicate that community-based natural resources management initiatives are provided for in the Mozambique government's policy framework as a crucial dimension in poverty alleviation. Conflict resolution over natural resources management is provided in the Land Law which recognizes customary rights of the local communities and the role of traditional leaders in conflict resolution²⁴².

Despite several laws passed since 1997 dealing with natural resources, the roles of local community institutions remain unclear. Decentralization of authority over natural resources to local communities depends on the discretion of state authorities. In the rural areas, the traditional authorities play only a consultative role, while actual powers are in the hands of state authorities at the district and higher levels. Community-based natural resource management committees, in general, make most of the decisions although they do not have legal status and have been given *de facto* powers without corresponding *de jure* authority^{243,244}.

²³⁶ Castro, A. P. 2005. Developing Local Capacity for Management of Natural Resource Conflicts in Africa: A Review of Key Issues, Approaches, and Outcomes. SANREM-CRSP Report. Department of Anthropology, Maxwell School of Citizenship and Public Affairs, Syracuse University, Syracuse, New York.

²³⁷ Twyman, C. 2000. Participatory conservation? Community-based natural resource management in Botswana. *Geographical Journal*, 166(4), 323-335.

²³⁸ Buzwani, B., Setlhogile, T., Arntzen, J., & Potts, F. (2007). Best practices in Botswana for the management of natural resources by communities. CBNRM Support Programme *Occasional paper*, (17). IUCN Gland (Switzerland) and Cambridge (UK).

²³⁹ Goemeone E. J Mogomotsi, Patricia K Mogomotsi, Reniko Gondo & Tshenolo J Madigele (2018): Community participation in cultural heritage and environmental policy formulation in Botswana. *Chinese Journal of Population Resources and Environment*, DOI:10.1080/10042857.2018.1480684.

²⁴⁰ Moumakwa, P. C. (2011). The Botswana Kgotla system: a mechanism for traditional conflict resolution in modern Botswana: case study of the Kanye Kgotla (Master's thesis, Universitetet i Tromsø).

²⁴¹ Kalabamu, F. T. (2021). Land Conflicts and Alternative Dispute Resolution in Sub-Saharan Africa: The Case of Botswana. In *Land Issues for Urban Governance in Sub-Saharan Africa* (pp. 171-187). Springer, Cham.

²⁴² Ribeiro, A. (2001). Natural resource management policy in Mozambique: An overview. *Marena Research Project, WP, 7*.

²⁴³ Ribeiro, A. (2001). Natural resource management policy in Mozambique: An overview. *Marena Research Project, WP, 7*.

²⁴⁴ Virtanen, P. (2005). Community-based natural resource management in Mozambique: a critical review of the concept's applicability at local level. *Sustainable Development*, 13(1), 1-12.

e) Uses and dependency of local people's livelihoods on the parks' resources

In Botswana, local communities experience restricted-user rights over resources in Chobe national park and this is exacerbated by limited local community participation in park management. Local communities living in the park's enclave and around the park are involved in farming and illegally grazing livestock in the park²⁴⁵ in spite of the livestock predation and crop damage by wildlife and high risk of disease transmission from wild animals to livestock.

In the Republic of Congo, local communities living around Ndoki-Likouala national park are involved in bushmeat hunting while elephants are poached for ivory. Commercial forestry exploitation to the north of the Park, combined with illegal diamond mining and human immigration across the border from the Central African Republic has escalated poaching in the northern and western sectors of the park²⁴⁶.

Local people living around Odzala-Kokoua national park have restricted access to resources but poaching persists and has resulted in a decline in populations of okapi (*Okapia johnstoni*) and Congo peafowl (*Afpavo congensis*), and the African darter (*Anhinga rufa*). Local people bear the brunt of anti-poaching measures, even though they are proximate agents.

Around Conkouati-Douli National Park Conkouati-Douli National Park, local forest resources for their livelihoods. An eco-development zone has been created to allow sustainable exploitation of natural resources for subsistence. Industrial exploitation of minerals and petroleum is allowed with a license from the government. Poachers use the coastal and southeast forest roads traversing the park to gain access to the animals. The local human population in the nearby city of Pointe-Noire engages in illegal hunting and logging to meet the growing demands for bushmeat and timber²⁴⁷.

In Mozambique, Limpopo National Park has an enclave of 44 villages. The park was established in 2001, and by 2003, conservation authorities targeted nine villages within the Park for resettlement as means to ensure wildlife conservation. Since then, anti-poaching measures – initiated in response to rhino poaching – have also been directed against subsistence-based practices. The residents' customary rights and roles in conservation have not been recognized. Increased securitization and intimidation have created resentment, anger, and fear of arrests and imprisonment. The local people continue to live in the park under challenging conditions such as food and water insecurity, conflict with wildlife, and the criminalization of their livelihood practices by the state. They remain united in their defiance against conservation and a majority have continued to engage in illegal hunting and strike action against the Park's authority. Within the same arrangement, tourism businesses are promoted in the buffer zone to diversify people's livelihoods and enhance local socio-economic development²⁴⁸. In Zinave national park, hunting, forest exploration, agriculture, mining, and livestock herding are forbidden although 4,500 people depend almost exclusively on the park's resources for their livelihoods²⁴⁹.

²⁴⁵ Israel Blackie (2019). The impact of wildlife hunting prohibition on the rural livelihoods of local communities in Ngamiland and Chobe District Areas, Botswana, *Cogent Social Sciences*, 5:1, 1558716.

²⁴⁶ Nsonsi, F., Heymans, J. C., Diamouangana, J., & Breuer, T. (2017). Attitudes towards forest elephant conservation around a protected area in northern Congo. *Conservation and Society*, 15(1), 59-73.

²⁴⁷ Conkouati-Douli National Park 2021. Accessed from website <https://placeandsee.com/wiki/conkouati-douli-national-park>.

²⁴⁸ Bush meat hunting is still common although wild-meat consumption is illegal²⁴⁸.

²⁴⁹ Belotti, S. (2014). Development Cooperation and Sustainable Tourism in Mozambique: Territorial Systems and Cultural Heritage in the Zinave National Park. In *III Congresso CUCS-Torino 2013 Immaginare culture della cooperazione: le Università in rete per le nuove sfide dello sviluppo* (No. 1 (2014), pp. 378-385). Università degli Studi di Torino, Politecnico di Torino.

SECTION VI: Environmental and social impacts/risks of the proposed project

For this project, a limited environmental and social impact assessment of activities related to the direct and indirect areas of influence of the project was required. In particular, the project proposes activities to construct or refurbish the control room infrastructure in the protected areas that have the potential to cause adverse environmental and social impacts on human populations or environmentally and/or socially important areas. These impacts are site-specific, few if any of them are irreversible; and in most cases, mitigation measures can readily be designed. The limited ESIA is also to ensure that the following safeguards are in place to avoid adverse environmental and social risks and/or negative impacts from project activities:

- **Protection of Natural Habitats and Biodiversity Conservation** - Assess direct and indirect project-related impacts on biodiversity and ecosystems services and identify any significant cumulative and/or residual impacts. Consider relevant threats to biodiversity and ecosystem services, especially focusing on habitat loss, degradation and fragmentation, alien invasive species, overexploitation, hydrological changes, nutrient loading, and pollution. The project does not have the potential to destroy natural habitats in any irreversible manner.
- **Indigenous Peoples** - The project does not plan to work in lands or territories traditionally owned, customarily used, or occupied by indigenous peoples. However, it will be necessary to confirm at the site level whether indigenous peoples are included within the selected protected areas and, where applicable, ensure their effective participation in environmental and social impact assessments. Their participation is to be based on the principle of free, prior, and informed consent (FPIC) to ensure adequate representation, effective information disclosure full identification of their views, and a proper feedback system during decision-making processes. However, due to limitations related to COVID-19, it was not possible to identify and involve the Indigenous Peoples communities during the PPG, and this is deferred to the project implementation phase, where an in-depth assessment will be possible.
- **Cultural Heritage** - The project does not plan to work in areas where cultural heritage, both tangible and intangible, exists. Therefore, it will be necessary to ensure that any cultural resources present in the selected protected areas are identified, and the feasible project alternatives, including site selection and project design and the mitigation measures, are put in place to avoid adverse effects.
- **Gender Mainstreaming Plan (GMP)** – The project has developed a GMP that includes a gender analysis providing information on the role of men and women in decision-making, and appropriate interventions with gender-related outcomes to ensure that men and women have equal opportunities to participate and benefit from the project.
- **Accountability and Grievance Mechanisms** – The Accountability and Grievance Mechanism plan has been prepared. Specific needs of project stakeholders and affected communities were assessed against the planned project activities to provide for a framework for addressing any grievances. The project thus provides for a culturally appropriate and accessible project-level grievance mechanism.

SECTION VII: Potential Environment and Social Impacts and prediction of significance on people's livelihoods and biodiversity

This section assesses the environmental and social impacts of the proposed project activities and a prediction of possible significance on people's livelihoods and biodiversity. It draws from the project description, baseline environmental and social information and trends, as well as policy and the experience of similar models to predict the likely outcomes of the intervention measures proposed. Projects that are implemented in natural ecosystems such as national parks, around which local communities live, often have spatial and temporal environmental and social impacts which need to be evaluated and mitigated. The EarthRanger project will not have significant adverse impacts on the parks' resources and the livelihoods of the adjacent communities.

It is the responsibility of the EarthRanger project to identify relevant issues and likely impacts of the proposed activities on the target protected areas in the participating countries and propose mitigation measures at the inception stage. Generally, environmental impacts of a project may be transient (acute), temporary (only during operational activities), or chronic (long-term)²⁵⁰. Given this background, and view of the magnitude of construction works planned in the national parks, the environmental impact of the EarthRanger project will be temporary because the vegetation that will be minimally removed will re-grow and the affected part of the ecosystem naturally restored.

a) Impact matrix for predicting the impact of the project on the environment and people's livelihoods

The impact of project activities is closely linked to the size of the project and to the sensitivity of the area where the project is to be implemented. The impact matrix method is used to make predictions about the environmental and social impacts and their significance on the environment/biodiversity and people's livelihoods. It is a useful tool that provides decision-makers and the population with all the necessary analytical data, for their information and awareness. The impact matrix is used to assess (i) the status of the impact, (i.e., whether it is positive or negative impact); (ii) the consequence of the impact; (iii) the impact significance rating; and (iv) the probability of the impact to occur.

Table 22 lays out the system for considering impact status and confidence (in assessment). The positive impacts are detailed in Table 26, while the negative impacts have been identified and described in Table 27.

The determination of impact consequence follows the criteria that include the extent of the project, intensity, and duration, as described in Table 23. The combined score of these three criteria corresponds to a Consequence Rating as illustrated in Table 24, which indicates the different levels of significance. The overall significance is determined by considering consequence and probability using the rating system prescribed in Table 25. Finally, Table 28 is an assessment to predict the significance and probability of the identified impacts on the PAs and people's livelihoods.

²⁵⁰ Singh, P. K., Singh, R. S., & Singh, S. (2016, September). Environmental and social impacts of mining and their mitigation. In *Kolkata (India): National Seminar ESIMM-2016*.

Table 22. Impact status and confidence classification.

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a ‘benefit’)
	– ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, consultant’s judgment, and/or specialist knowledge.	Low
	Medium
	High

Table 23. Criteria used to determine the consequence of the impact.

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
Inter(national)	Nationally or beyond	2
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None		0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3
		TOTAL (A+B+C) 17
		AVERAGE SCORE 1.4

Table 24. Method used to determine the Consequence Score.

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Insignificant	Very low	low	medium	High	Very high

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development.
- **High:** the potential impact will affect the decision regarding the proposed activity/development.
- **Very High:** The proposed activity should only be approved under special circumstances.

Table 25. Probability Classification.

Probability – The likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall rating for this project’s positive impacts occurring: Probable meaning > 70% - 90% chance of occurring

The overall rating for this project’s negative impacts occurring: Possible meaning 40% - 70% chance of occurring

CONCLUSION:

The average score is 1.4 (Not significant): the potential impact is negligible and will not influence the decision regarding the proposed activity/development.

b) Prediction of positive impacts and their description

As described above, one of the key elements of the impact matrix as a tool is to assess the status of the impact, (i.e., whether it is positive or negative impact). In Table 26, the anticipated positive impacts are identified and described.

Table 26: Anticipated positive impacts and their description

Project Component	Potential positive impact	Description	Assumptions
Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness.	Enhanced technology for park management	The EarthRanger technology introduces a new dimension for real-time and speedy detection of wildlife crime and wildfires in the national park	Quick adoption and deployment of the technology minimizes decimation of wildlife and other park’s resources
	Enhanced human resource capacity to manage national parks	The ability to use the technology enhances management, coordination, and response to incidences that threaten wildlife and the park’s ecosystem	Continuous skilling, application of the technology, and paying attention to detail are elements of best practices envisaged in park management.
	Real-time detection and control of wildlife crimes and fires	A timely and effective response to incidences of wildlife crimes and fires that have been detected and reported and preservation of the park’s ecosystem health.	Regular surveillance, monitoring, and communication amongst park managers and rangers to prevent escalation of wildlife crimes and fires.
	Stable wildlife populations	Stable wildlife populations achieved through reduced	Regular monitoring of wildlife populations and

Project Component	Potential positive impact	Description	Assumptions
		wildlife crime such as poaching for sale of trophies or sporadic bush meat hunting	application of interventions to maintain stable wildlife populations that live in harmony with the park's ecosystem
Component 2: Learning, knowledge sharing, and scaling the EarthRanger technology across Africa	Sustainable wildlife-based tourism	More bookings, greater tourist flow and more revenue as populations of flagship species are stable	Maintaining the positive image of the parks' wildlife-based tourism as a product niche and innovative destination marketing.
	Increased benefits of tourism to the surrounding local communities	Reduced wildlife crime, mindset change, positive attitudes towards wildlife, and the park contribute to sustainable tourism with positive socio-economic ripple effects to the frontline communities.	Community-based tourism enterprises started with capital from tourism revenue sharing will reduce wildlife crime and degradation of the park's resources
	Increased benefit of tourism to the national economy	Sustainable wildlife-based tourism in the parks ensures a continuous flow of revenue that benefits the national economy.	Enhanced destination image is marketed at national, regional, and global levels.

c) Assessment of negative impacts and their description

Table 27 gives a detailed assessment of the negative of the project activities. In general, these negative impacts are anticipated from, (i) the construction of control room that would involve clearing site, construction, and installation of utilities (electricity, water, and waste disposal), and (ii) installation of the two-way Digital Radio network (or other communication network equipment) in each selected protected area.

Table 27: Prediction of the negative impacts of the project activities

Output	Project activity	Potential environmental and social impact	Description of the environmental/social impacts and their significance on biodiversity and people's livelihoods	Mitigation measures
<p>Output 1.1.1 A dedicated, secure and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each protected area in the target countries</p> <p>Output 1.1.2: A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each PA in the target countries.</p>	Selection of site for construction of the Control Rooms	Destroying sites of cultural heritage	<p>Loss of the local, national and international values and benefits from the sites of cultural heritage.</p> <p>The construction or refurbishment of the control rooms will be located on existing office premises within the PAs, and hence the activities are not likely to have a significant impact on people's livelihoods and biodiversity.</p>	Avoid selection of any known sites of cultural heritage for constructing the Control rooms
	Construction (where required) or refurbishment of control room infrastructure.	<p>Loss of vegetation</p> <p>Soil compaction by heavy machinery transporting materials</p>	<p>Construction involves clearance of vegetation around the control room infrastructure site, which may promote soil erosion</p> <p>Site clearance is expected to cover a small area of not more than 10 X 10 meters and use of light vehicles for transportation of materials on already established infrastructure. The loss of vegetation and soil compaction is likely to be minimal. It is expected that the construction of the control room (an associated facility) will be in an area that already has offices and the vegetation is regularly maintained as part of compound management through the use of light and handheld equipment such as motorized mowers, slashers, and hoes.</p> <p>Environmental and social impacts that are predicted to occur are not of significant</p>	<p>Avoid selecting sites that have heavy vegetation</p> <p>Minimize cutting of the vegetation</p> <p>Undertake necessary restoration of the vegetation cover at the sites</p>

Output	Project activity	Potential environmental and social impact	Description of the environmental/social impacts and their significance on biodiversity and people's livelihoods	Mitigation measures
			magnitude and can easily be mitigated.	
<p>Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.</p> <p>Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries</p> <p>Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries</p> <p>Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite</p>	Selection of construction sites	Destroying sites of cultural heritage	<p>Loss of the local, national and international values and benefits from the sites of cultural heritage</p> <p>The constructions or refurbishment of the control rooms will be located on existing office premises within the PAs, and hence the activity is not likely to have a significant impact on people's livelihoods and biodiversity. In some PAs such as Chobe, this is already agreed that it may be a refurbishment of existing premises.</p>	Avoid any known sites of cultural heritage for constructing the Control rooms
	Construction of masts at repeater stations	<p>Loss of vegetation around the sites where the masts are constructed</p> <p>Soil compaction resulting from the use of heavy machinery in transporting construction materials</p> <p>Waste generated from the activities of workers, including human and used materials</p>	<p>Construction of the masts involves the clearance of vegetation around the sites. Masts will be in constructed at two-to-four sites widely spaced (minimum of six Km apart). Site clearance is expected to cover a small area of not more than 10 X 10 meters. Light vehicles will be for transportation of materials on already established infrastructure.</p> <p>Therefore, the loss of vegetation and the associated biological diversity, and soil compaction are likely to be minimal.</p> <p>Waste is likely to be from Waste accumulation,</p>	<p>Avoid selecting sites that have heavy vegetation</p> <p>Minimize cutting of the vegetation</p> <p>Undertake necessary restoration of the vegetation cover at the sites</p> <p>Develop Waste management strategies for effective disposal of all waste generated</p>
	Installation of a digital radio	Harmful effects of Radiofrequency	Scientific evidence suggests that radiofrequency waves in	Regulating the duration and method of use of

Output	Project activity	Potential environmental and social impact	Description of the environmental/social impacts and their significance on biodiversity and people's livelihoods	Mitigation measures
collars, and other data transmitters).	communication or other communication systems suitable for the environment of the target protected area	(RF) radiation	the range of up 300 MHz to 3 GHz can be harmful to human health. Exposure to very high levels of RF radiation can be harmful due to the ability of RF energy to rapidly heat biological tissue. Tissue damage in humans could occur during prolonged exposure to high RF levels because of the body's inability to cope with or dissipate the excessive heat that could be generated. The eyes and the testes are particularly vulnerable to RF heating because of the relative lack of available blood flow to dissipate the excessive heat load ²⁵¹	equipment that transmits RF. -Provide guidelines to regulate the duration and method of use, to reduce the possible effects of radiation ²⁵² . Train the users in the use of the radio communication systems and software Develop duty roster Design approaches that reduce exposure of users to radiation
		Interference with other radio frequencies during use of the EarthRanger technology	There may likely be interference with other radio frequencies during the use of the EarthRanger technology in the national parks. Effects of interference can range from mild disruption or delays in data transmission throughput to a complete loss of service. All devices that use RF are potentially vulnerable to interference, including radio, cellular, radar, satellite, Wi-Fi, Global Positioning System (GPS), and other technologies.	The Agencies responsible for PA management should work together with the agency responsible for regulating communication to mitigate the problem of radio frequency (RF) interference. Train PA field teams on RF interference identification, mitigation tactics, and reporting procedures. Monitor events with spectrum analyzers and direction-finding equipment to locate interfering signals.

²⁵¹ Kelly, C. 2021. Radiofrequency (RF) Radiation. Health Physics Society, 950 Herndon Parkway, Herndon, VA 20170. Accessed from website <https://hps.org/hpspublications/articles/rfradiation.html>.

²⁵² Ahlbom A, Green A, Kheifets L, Savitz D, Swerdlow A. 2004. Epidemiology of health effects of radiofrequency exposure. Environ Health Perspec. 2004;112(17):1741–54. doi: 10.1289/ehp.7306.

Output	Project activity	Potential environmental and social impact	Description of the environmental/social impacts and their significance on biodiversity and people's livelihoods	Mitigation measures
				Ensure that each participating stakeholder has communications systems in multiple bands, and a communications plan to direct back-up procedures (e.g., a Primary, Alternate, Contingency, and Emergency (PACE) plan.
	Effective monitoring of the protected areas through real-time availability of data on wildlife, the rangers protecting them, spatial information, and threats among others, and immediate proactive actions to prevent and mitigate threat incidents	Negative attitudes and hostility towards conservation and wildlife management authorities.	The Project is likely to enhance surveillance through monitoring and law enforcement and increase restriction of access to the protected areas, reduced use, and benefits flowing to the communities who normally depend on the wildlife resources for their livelihoods. This will trigger greater conflict with those involved in poaching and illegal trade in wildlife products for their livelihood	Development and implementation of the Accountability and Grievance Mechanism to address any issues emerging from the communities. Information sharing with organizations that promote community-based conservation awareness and education on livelihoods e.g. community-based ecotourism enterprises
Increased human-wildlife conflicts		improved conservation of wildlife may increase human-wildlife conflicts with the farming communities as a result of increasing populations of the target animals like elephants, rhinos, buffaloes, etc.		

Table 28: Predictions of the probability and significance of impacts on people’s livelihoods and biodiversity.

Identified Impact	Consequence			Consequence Score (a)+(b)+(c)	Significance	Probability
	Extent (spatial scale) (a)	Intensity (Magnitude) (b)	Duration (c)			
Destroying sites of cultural heritage	1	1	1	3	Very low	Possible
Loss of vegetation	1	1	1	3	Very low	Possible
Soil compaction by heavy machinery transporting materials	1	1	1	3	Very low	Improbable
Harmful effects of Radiofrequency (RF) radiation	1	1	1	3	Very low	Improbable
Interference with other radio frequencies during use of the EarthRanger technology	1	1	2	4	Very low	Improbable
Negative attitudes and hostility towards conservation and wildlife management authorities.	1	3	2	6	Medium	Probable
Increased human-wildlife conflicts	1	3	3	7	High	Probable

SECTION VIII: Analysis of alternatives to identify other options

The Project will entail limited site clearing for construction or refurbishment of the control room and other sites for the repeater stations. The impacts are described in Section VI (b). In addition, radio waves will be emitted by the EarthRanger technology, and mitigation measures have been stated in this ESIA Plan. Given the above, for this EarthRanger project, no major potential adverse impacts are anticipated on the physical, biological, socio-economic, and cultural heritage, transboundary resources, human health, as well as safety and security.

No condition would warrant a proposal for alternative interventions. Therefore, the project should proceed as designed and the mitigation action recommended.

SECTION IX: Environment management & Monitoring and Reporting

Environmental Management and Monitoring Plan for the Anticipated Impacts

Impact issues	Mitigation measures	Indicators	Frequency	Responsibility	Budget
Assessment of Environment and social risks (ESS) was not done at the actual sites within the PAs, which are likely to affect the detailed mitigation measures required for the project	Carry out Environmental and Social assessments within each target protected area	Number of environmental and social assessments conducted	During the inception phase of the project	Safeguard Compliance Expert	Staff time
Destroying sites of cultural heritage	Avoid selection of any known sites of cultural heritage for constructing the Control rooms	Number and location of sites of cultural importance (as applicable), avoided during the selection of construction sites	During the site selection phase	PA Project focal person (PA staff)	Staff time
Loss of vegetation cover	<p>Create awareness with the contractors</p> <p>Avoid selecting sites that have heavy vegetation</p> <p>Minimize cutting of the vegetation</p> <p>Undertake necessary restoration of the vegetation</p>	<p>ESIA concerns included in the Bills of Quantities</p> <p>Number and area (ha)</p>	<p>During the development of the Bills of Quantities/negotiations for the construction work and follow-up during the site selection, construction, and after construction</p> <p>Inspection three (3) months after construction</p>	<p>Contractor</p> <p>PA Project Focal person (PA staff)</p> <p>Safeguard Compliance Expert</p>	Staff time

Impact issues	Mitigation measures	Indicators	Frequency	Responsibility	Budget
	cover at the sites	restored as appropriate			
Soil compaction	Use light vehicles in transporting materials Use established tracks	Size of vehicles used to transport materials	During construction phase	Contractor Project Counterpart staff (Park manager)	Staff time
Waste generation	Develop waste management strategies for effective disposal of all waste generated	Number of waste management strategies developed and being used to manage waste	Throughout the project life	Protected Area Manager Safeguard Compliance Expert	Staff time
Harmful effects of Radiofrequency (RF) radiation	Regulating the duration and method of use of equipment that transmits RF. Provide guidelines to regulate the duration and method of use, in order to reduce the possible effects of radiation ²⁵³ . Train the users in the use of the radio communication systems and software Develop duty roster Design	Number of persons suspected ill health due to RF	A daily log of ill health cases	Project Counterpart staff (Park manager) Safeguard Compliance Expert	Staff time

²⁵³ Ahlbom A, Green A, Kheifets L, Savitz D, Swerdlow A. 2004. Epidemiology of health effects of radiofrequency exposure. Environ Health Perspective. 2004; 112(17):1741–54. doi: 10.1289/ehp.7306.

Impact issues	Mitigation measures	Indicators	Frequency	Responsibility	Budget
	<p>approaches that reduce exposure of users to radiation</p>				
<p>Interference with other radio frequencies during use of the EarthRanger technology</p>	<p>The Agencies responsible for PA management should work together with the agency responsible for regulating communication to mitigate the problem of radio frequency (RF) interference.</p> <p>Train security teams on RF interference identification, mitigation tactics, and reporting procedures.</p> <p>Monitor events with spectrum analyzers and direction-finding equipment to locate interfering signals.</p> <p>Ensure that each participating stakeholder has communications systems in multiple bands, and a communications plan to direct</p>	<p>Number of incidences of disruption or delays in data transmission or complete loss of service</p>	<p>A daily log of signals distortion, disruption, loss, or delays in data transmission.</p>	<p>Park managers, A12</p> <p>Safeguard Compliance Expert</p>	<p>Staff time</p>

Impact issues	Mitigation measures	Indicators	Frequency	Responsibility	Budget
	back-up procedures (e.g., a Primary, Alternate, Contingency, and Emergency (PACE) plan.				
Negative attitudes and hostility towards conservation and wildlife management authorities.	<p>Development and implementation of the Accountability and Grievance Mechanism to address any issues emerging from the communities.</p> <p>Information sharing with organizations that promote community-based conservation awareness and education on livelihoods e.g. community-based ecotourism enterprises</p>	<p>Number of cases successfully addressed</p> <p>Number of cases not yet concluded</p>	Quarterly	<p>PA Project Focal Person (staff of the PA)</p> <p>Safeguard Compliance Expert</p>	Staff-time

C. The Accountability and Grievance Mechanism (AGM)

The CI-GEF/GCF Project Agency requires all projects to have an Accountability and Grievance Mechanism in place so that project-affected communities and other stakeholders may raise a grievance at all times to the Executing Agency/Entity, CI, the GEF, or GCF on non-compliance with the ESMF. Affected communities should be informed about this possibility and contact information of the respective organizations at relevant levels should be made available publicly. Affected communities should also be assured that their grievances will be addressed in a timely manner, they will not face retaliation for submitting a grievance, and they have the option to request confidentiality.

SECTION I: Project Information

PROJECT TITLE:	The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks.		
GEF/GCF PROJECT ID:	10551	PROJECT DURATION:	44 months
EXECUTING AGENCY/ENTITY:	The Allen Institute for Artificial Intelligence (AI2)		
PROJECT START DATE:	July 2022	PROJECT END DATE:	March 2026
AGM PREPARED BY:	Green Approaches Limited		
DATE OF (RE)SUBMISSION TO CI-GEF/GCF:	November 2021		
AGM APPROVED BY:	Ian Kissoon, Director of ESMS, CI-GCF/GEF Agency		
DATE OF CI-GEF/GCF APPROVAL:	November 19, 2021		

SECTION II: Introduction

SUMMARY OF THE PROJECT

The Project is considered under this AGM is “*The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks*”. The project’s objective is to strengthen the management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies. The Project comprises three components described below.

Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness.

Component 1 will support technical and institutional capacity-building, focusing on site-specific infrastructure installations and training of protected area management staff on the use of the EarthRanger software. In consultation with the respective governments of the project participating countries, regional institutions, and experts, needs assessments were carried out for each PA during the PPG Phase to determine site-specific infrastructure and human resource requirements. However, follow-up detailed site assessments will be undertaken in the project inception period during implementation phase to ascertain if the infrastructure and other requirements identified at PPG phase are up-to-date and also to respond to emerging gaps and needs. The Component has one outcome described below:

Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage

protected areas. This outcome will be delivered through six outputs namely:

- **Output 1.1.1:** EarthRanger software incorporated in the existing protected area management structure in the project countries.
- **Output 1.1.2:** A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through deployment of EarthRanger technology in each protected area in the target countries.
- **Output 1.1.3:** Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.
- **Output 1.1.4:** Digital radio or other appropriate communications network, (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.
- **Output 1.1.5:** EarthRanger software installed and functional in the selected PAs in the target countries
- **Output 1.1.6:** Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).

Component 2: Learning, knowledge sharing and scaling the EarthRanger technology across Africa

Component 2 seeks to increase awareness about the benefits of using conservation technologies specifically the Earth Ranger technology in protected area management and promote uptake in other PAs in African countries. It is anticipated that the interest of other African countries will be stimulated through the dissemination of success stories and best practices related to the EarthRanger technology, and demand for installation and application of this and other conservation technologies to manage their protected areas. The main activities under this component include sharing of the project's lessons, success stories, and best practices through visits (EarthRanger User Conference) and dissemination of information through appropriate modes of communication. Success stories, lessons learnt, and best practices from this project will be disseminated through the Earth Ranger Website (<https://earthranger.com/About-Us.aspx>). The project will also share lessons with ongoing project such as the GEF-World Bank Global Wildlife Program (GWP) and any other available media outlets and social media platforms. This component targets to achieve one outcome stated below.

Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install EarthRanger technology. This outcome will be achieved through three outputs namely:

- **Output 2.1.1:** Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA
- **Output 2.1.2:** Information sharing events undertaken to enhance learning and promote scaling up
- **Output 2.1.3:** Success stories, lessons learnt and best practices published and shared on blogs, websites and other digital platforms (*where the Earth Ranger software informed decisions in the management of protected areas*).

Component 3: Monitoring and Evaluation

Component 3 will focus on monitoring project activities as well as making suggestions for any improvements that ensure the success of the project. The component will ensure the monitoring and evaluation activities during the implementation of this project is on track. The component has one outcome namely:

Outcome 3.1: An integrated monitoring and evaluation framework for the project. This outcome will be achieved through two outputs namely:

- **Output 3.1.1:** Periodic M&E reports submitted to CIGEF Agency.
- **Output 3.1.2:** Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

OVERVIEW OF THE AGM

People affected by a development project may raise their grievances and dissatisfactions about actual or perceived impacts in order to find a satisfactory solution. Grievance refers to any discontent or dissatisfaction arising when a person (or a group of persons) thinks, believes, or even feels to be unfair, unjust, or inequitable leading to a feeling of

discontent or dissatisfaction²⁵⁴. Any form of grievance in general bears a negative influence on the participation, cooperation, and collaboration of stakeholders to support project implementation. It is important that affected persons (APs) are enabled to raise their grievances, given an adequate hearing and satisfactory solutions are found. The Accountability and Grievance Mechanism (AGM) aims at anticipating the emergence of different grievances that are likely to affect project implementation and thus providing a legitimate, reliable and transparent institutional mechanism to respond to stakeholder complaints. The AGM is an opportunity for stakeholders to make inquiries, raise their complaints or seek clarifications. It also gives the opportunity to the Project to receive and respond appropriately to mitigate, manage, resolve potential negative impacts and create positive relationships between the Project and the stakeholders. More than that, it also provides an opportunity to apply rights-based approaches to address grievances in accordance with the requirements of the United Nations Declaration of Human Rights²⁵⁵.

ANTICIPATED GRIEVANCES

The anticipated conflicts and grievances may arise from individuals, stakeholder groups, executing institutions (e.g., Government Ministries, Department and Agencies (MDAs), Peace Parks Foundation, Wildlife Conservation Society (WCS), African Parks, Noé among others), beneficiary sectors (e.g., protected area staff), Local Communities residing around the PAs and policymakers (i.e., the country MDAs responsible for wildlife conservation). The specific potential areas of dissatisfaction, conflicts, friction, or risks during Project formulation and implementation are highlighted below.

a) Grievances related to the execution of project activities and tasks

- (i) Limited involvement of stakeholders e.g., some stakeholders may feel that they have been denied or given limited opportunity to participate in consultations during the PPG phase, project awareness activities, and project implementation in general.
- (ii) Unbalanced and gender insensitive composition and selection of the National Project Steering Committee, the virtual regional EarthRanger working group, and Project management team.
- (iii) Unbalanced and gender insensitive selection of project beneficiaries, especially the trainees in the application of the EarthRanger management system and associated technologies.
- (iv) Inefficient and ineffective project implementation.
- (v) Unsatisfactory project transport reimbursement and per diem rates (the project rates may not tally with each institution's rates).

b) Grievances related to Institutional policies, mandates, and coordination

- i) Unclear roles and responsibilities of local and central government agencies, non-government organizations, civil society organizations, and the private sector in the project implementation framework causing conflicts and confusion. The roles and institutional mandates should thus be clearly defined and communicated to avoid conflicts within institutions.
- ii) Unsatisfactory mitigation of Project implementation risks such as lack of cooperation by some stakeholders or inadequate acceptance of some project approaches.
- iii) Inconsistencies and gaps in national laws and policies related to protected area management and social-economic development – e.g., involvement of the arm in wildlife conservation or inadequate handling of wildlife crimes such as illegal hunting.

c) Human-Wildlife conflicts within communities living in proximity to wildlife conservation areas

- i) Negative attitudes and hostility towards conservation and wildlife management authorities.

HOW YOU WILL ENSURE THAT STAKEHOLDERS ARE AWARE OF THE MECHANISM, AND WHAT SYSTEM WILL BE PUT IN PLACE TO ENSURE THAT THE MECHANISM IS WORKING EFFECTIVELY AND EFFICIENTLY?

²⁵⁴ Keerthi, D. 2021. Grievance. Article accessed from website <https://www.economicdiscussion.net/human-resource-management/grievance/grievance/32442>

²⁵⁵ United Nations 1949. United Nations Universal Declaration of Human Rights, 1948. <https://www.jus.uio.no/lm/en/pdf/un.universal.declaration.of.human.rights.1948.portrait.letter.pdf> accessed 3rd Dec 2019 12:53 Hrs.

The AGM provides avenues to increase stakeholder awareness about the AGM and to promote its utilization by various stakeholders so as to present their complaints and grievances. This AGM will be disclosed at the start of the project during the inception meeting to explain the project details, possible grievances, and available avenues for reporting complaints and handling them. The stakeholders may present their grievances through the following channels:

- (i) Each Protected Area site will have an AGM contact person (provided in Section IV). The telephone number, physical address of the AGM contact person will be disclosed at inception phase.
- (ii) There will be a dedicated e-mail address for each protected area where grievances can be sent.
- (iii) Grievances can also be sent to a Postal address in which a designated contact person is clearly outlined) where grievances can be sent. Alternatively, since this is old-fashioned in this IT era, a social media platform such as the WhatsApp group will be created to ease communication of grievances.
- (iv) Face-to-face meetings with stakeholders to voice their grievance to any PMU staff and then it is forwarded to the designated office for recording and follow-up.
- (v) Grievance to be reported either in English or local language and the responsible staff to translate it accordingly.
- (vi) A simple standard form for reporting or filing grievances is made available.
- (vii) Grievances will be expeditiously handled within 3 days to avoid discontent, fueling anger and bitterness.

SECTION III: Scope

• WHAT GRIEVANCES ARE ELIGIBLE AND WOULD BE RECEIVED?

The Project is likely to receive a wide range of complaints from the affected stakeholders. The Accountability and Grievance Mechanism (AGM) applies to a grievance that is categorized as eligible by the Project staff and stakeholders during a joint meeting at the start of the project. **The eligible grievances are those that are largely related to the EarthRanger Project activities, as well as those which are related to affected stakeholders that are external to the project executing agencies and beneficiaries.** Grievances will be screened for eligibility at both the PA level and Project Management Unit level as described in the sections below.

The following criteria will be applied to determine eligible grievances:

- a. the grievance relates only to the EarthRanger project.
- b. the grievance is received in writing (letter or email, which can be written on behalf of the grievant if they are unable to do so themselves) or verbally (in person or through another method such as on an audio recording device).
- c. the grievance is submitted by, or on behalf of, a person or people affected by the project. This included people who might be involved with activities that are restricted by more effective PA management/law enforcement in the 6 PAs.
- d. the grievance raises potential issues relating to compliance with the GEF's Minimum Standards on Environmental and Social Safeguards and Gender Mainstreaming Policy.

The safeguards Compliance officer will also undertake a risk screening of grievances and rank them as either High, Medium, or Low. For instance, if a grievance is a high risk (threat of violence, GBV/SEAH, fraud, or corruption), it will be treated differently than low/medium risk grievances and the CI Global Grievance Committee will be notified.

Based on the screening done, the safeguards compliance expert and the PA project focal person will follow up on the grievance by conducting a thorough and objective review of the grievance. This review can include field inspections, interviews with the affected person/people, and comprehensive information gathering to generate a factual and reliable basis for any recommendations made. A status report will then be shared with all stakeholders involved.

Examples of eligible grievances include:

- a. grievances related to Institutional and regulatory aspects — for example, institutions have varying structures in place that guide their operations. These institutional structures may not align across stakeholders involved in

- b. grievances pertaining to project transport reimbursement and per diem rates (the project rates may not tally with each institution's rates).
- c. grievances related to gender-based violence resulting from project activities
- d. grievances related to the execution of project activities and tasks, e.g., criteria used for selecting the construction site for control rooms.
- e. grievances regarding project efficiency, effectiveness, and accountability of funds.
- f. grievances regarding involvement of stakeholders, e.g., some stakeholders may raise complaints that they are either not engaged or inadequately engaged in project implementation.
- g. grievances related to operational aspects, e.g., delays in disbursing funds and payment of service providers.
- h. grievances regarding procurement processes, e.g., choice of goods and service providers
- i. grievances related to health and safety of the people and wildlife because of the COVID-19 pandemic, e.g., concerns about health and safety of stakeholders' involvement in project activities during the COVID-19 pandemic and how the project 'interacts' with wildlife.

- **GRIEVANCES THAT ARE INELIGIBLE AND HOW THEY WILL BE HANDLED**

The project team anticipates that some complaints received through the AGM will be expressions of opinions, requests for support, or specific issues relating to operations that are not technically grievances related to the project itself. The project team will attempt to respond to all these ineligible complaints by directing them to the appropriate organisations, authorities, or other institutions that are better able to respond, but no further action will be taken under the AGM. Such concerns are likely to include:

- a. operational issues over how communities are involved in the management of the protected areas generally (but not specifically related to the Earth Ranger project).
- b. requests for support on livelihood development projects (either related to the project activities or outside the project scope)
- c. requests for more control over natural resources.
- d. concerns about personal safety regarding human-wildlife conflict and measures to counteract poaching; and
- e. complaints about behaviour of project staff and respect of local traditions. Such complaints can range in severity and will be carefully examined to determine if they refer to issues covered under the safeguards plans or are issues that can be resolved through discussions with the staff concerned or simple changes to the way that work is planned.
- f. complaints with respect to actions or omissions which are the responsibility of parties other than the project implementing persons and PA agencies, CI and the other executing partners involved in the project; and
- g. complaints filed after the date of official closure of the project.

To facilitate local discussions about complaints and to facilitate the transmission of grievances to the EA, the PA project focal person will be the local contact for grievances. Contact details of the PA project focal persons will be provided at the project's inception meeting and during disclosure/awareness-raising of the AGM (including postal address, telephone number, and email address).

- **WILL THE GRIEVANCE BE SCREENED TO ENSURE IT IS RELATED TO THE GEF/GCF PROJECT?**

Upon receipt of the complaints, the responsible Project persons will screen the complaints to sort out those grievances that are related to the Project, and those that are not, and in this way identify the eligible grievances that will be the responsibility of the Project Management. The grievances will be screened objectively to determine their merits, based on the design of the project and its expected outcomes. In particular, the screening will consider whether the claims are relevant to the EarthRanger Project or not.

- **HOW WILL THE MECHANISM ENSURE TRANSPARENCY AND FAIRNESS?**

The AGM provides a transparent system that enables any dissatisfied person or complainant to freely communicate a grievance and ensures that any issues raised are attended to or, where they are not, a clear explanation is given to the complainant. In line with the principles of good practice in grievance management, the AGM ensures that all grievances

are resolved in the shortest time possible by the responsible persons at the office where they are received and registered. But where there is no conclusive resolution, the PA project focal person shall refer the matter to the next level of management – the AfFD, for resolution.

The AGM is also built on the core principles of good practice that ensure transparency and fairness. These principles include the following:

- 1 **Fairness:** Grievances are treated confidentially, assessed impartially, and handled transparently.
- 2 **Objectivity and independence:** The grievance resolution mechanism will operate independently of all interested parties to guarantee fair, objective, and impartial treatment to each case. PMU staff have adequate means and powers to investigate grievances and their decisions will be receiving the support of senior officials.
- 3 **Simplicity and accessibility:** Procedures to file grievances and seek remedy will be simple and easy for project stakeholders and beneficiaries to understand based on the following:
 - Responsiveness and efficiency:* The Project will develop specified timelines for responding to grievances received. These timelines may form part of the monitoring and evaluation performance of the project.
 - Speed and proportionality:* All grievances will be resolved as quickly as possible while ensuring that the process is decisive and constructive.
 - Participatory and social inclusion:* The Project will encourage all stakeholders including the non-state actors and those with special needs, can access the AGM.
 - Competence of Grievance Management staff:* The project will designate a staff member, with conflict resolution skills, to be responsible for addressing the grievances. He/she may be given in-house training in receiving and analyzing grievances, gathering information, providing feedback, and others.
- 4 **Processes:** Grievance redress processes will be transparent and short as justice delayed is justice denied. A measured approach will be applied keeping in mind the intent to confirm if the grievance is valid or not.
- 5 **Analysis:** the grievances will be analyzed based on information and facts gathered or provided in order to gain insight into its nature, scope, and gravity so as to guide the decision to be made within a reasonable time frame.
- 6 **Simplicity and accessibility.** Procedures to file grievances and seek action will be kept simple enough for project stakeholders and beneficiaries to easily understand them. The following means for filing a grievance will be followed.
 - a. Dedicated telephone number (preferably toll-free) to which stakeholders can call.
 - b. Dedicated e-mail address where grievances can be sent.
 - c. Postal address (with contact person-outlined) where grievances can be sent.
 - d. Face to face - stakeholders can voice their grievances to any PMU staff that will then forward to the correct office for recording and follow-up.
 - e. Grievance to be reported either in English or local language and the responsible staff to translate accordingly.
 - f. A simple standard form for reporting or filing a grievance.
7. **Non-retaliation:** Conservation International’s Code of Ethics Prohibits Retaliation against any person who has submitted a claim in good faith and is subject to disciplinary action up to and including termination. All reported integrity-related grievances will be investigated and addressed in accordance with CI’s Code of ethics²⁵⁶. All grievances will be handled to ensure there is no retaliation relating to the complaints. Stakeholders will also be able to submit grievances/complaints anonymously through any of the platforms shared and an anonymous system of addressing the grievances or complaints will be followed
8. **Participatory and social inclusion:** The project will encourage people and all stakeholders to provide their feedback on the project. Special attention is given to ensure that stakeholders, including the non-state actors and those with special needs, can access the AGM.
 - a. *People:* The project will train specific staff who will be tasked with addressing the grievances so that they can effectively carry out their roles. The training will cover receiving grievances, gathering information, offering feedback at reporting, analyzing the nature of grievances, discussing them with management, and providing feedback.
 - b. *Processes:* Grievance redress processes play an important role in the project activities and following it,

²⁵⁶ CI’s Prohibited Practices: https://www.conservation.org/docs/default-source/gef-documents/prohibited-practices.pdf?sfvrsn=f1e1d9f3_0

it will help in smoothening out the grievances being addressed.

- c. *Analysis:* Project management will regularly analyze reports and other monitoring and evaluation data on grievances generated by the GRM teams. The management will then make appropriate project decisions based on data received

- **WILL THE MECHANISM RECEIVE ANONYMOUS GRIEVANCE?**

The AGM will provide stakeholders with anonymous channels to report their grievances. These will include, among others, a suggestion box, telephone, postal address, as well as face-to-face verbal communication on request for anonymity. These channels encourage affected stakeholders to express themselves freely and without fear of reprisal or denial of justice and fairness.

The findings of the investigation into anonymous complaints will be made publicly available to ensure transparency. Due to their nature, anonymous complaints can be difficult to investigate so those without sufficient information may not be investigated. The project team will attempt to investigate and address any anonymous complaints to the best ability.

- **HOW WILL THE MECHANISM DEAL WITH CONFIDENTIALITY?**

The detailed information on grievances will be documented and kept in strict confidence by an officer/staff who will swear an oath of confidentiality. However, where the information is to be shared with the public, e.g., through publication, the personal details shall not be disclosed.

- **HOW WILL THE PROJECT PROTECT A GRIEVANT FROM RETALIATION FOR SUBMITTING A GRIEVANCE?**

As the Co-Executing agency and Executing agency respectively, Conservation Africa Field Division and AI2 will ensure implementation of a policy of no discrimination and no retaliation against any grievant because of the latter's expressing, filing, or following up on a complaint or grievance. This policy will be shared by all implementing partners and stakeholders during appropriate forums such as awareness meetings or media communication. It will be emphasized that retaliation against complainants or grievants, at any level of resolve or thereafter, is strictly prohibited under this AGM. **In the event of any retaliation, the affected person shall immediately notify or appeal to the higher level of project management for redress.**

- **HOW WILL THE MECHANISM ENSURE THAT BOTH WOMEN AND MEN FEEL COMFORTABLE ACCESSING IT?**

The following mechanism will be put in place to ensure both men and women feel comfortable accessing the AGM.

1. Assurance about confidentiality
2. Assurance about anonymity
3. Assurance about no discrimination and no retaliation policy and describe the measures will be put in place to protect them against retaliation
4. Assurance about respecting the privacy of the grievant
5. Accommodate and respect the beliefs, religion, and cultures of the grievant e.g., in some cultures, men only speak business matters to other men hence in this situation, a male PMU staff would handle the matter.
6. In a face to face physical or virtual meeting/telephone conversation, the PMU staff will also do the following:
 - a. inquire if the grievant would feel more comfortable if a person of similar sex handled the matter
 - b. inquire if the grievant would prefer a person of similar sex to be present in the meeting room or virtual meeting.
 - c. ensure the phone call or meeting is scheduled at a day, time, location, venue, or a virtual platform that is convenient to the grievant

- **HOW DOES THE PROJECT CATER TO OTHER VULNERABLE GROUPS, SUCH AS YOUTH OR ELDERLY, OR THOSE WHO SPEAK A MINORITY LANGUAGE?**

The vulnerable groups (e.g. people with disabilities, women, youth, or elderly) will not be deterred from lodging a grievance. The following mechanism will be put in place:

An interpreter will be available to translate the language verbally and written if needed, interpret sign language, etc. The interpreters will be encouraged to exercise impartiality.

SECTION IV: Awareness and Accessibility

<p><i>How and when will the project disseminate²⁵⁷ the AGM to stakeholders? How would it be communicated to stakeholders that speak a different language, might be illiterate or are in hard-to-reach places or other vulnerable groups such as women?</i></p>	<p>The AGM will be communicated to all stakeholders in each project participating country during the Project Inception workshops and the planned stakeholder awareness workshops. The project will inform AGM users about their right to lodge their complaints/grievances, and how to appeal if they are dissatisfied with the decision. The contacts of Project Focal persons at Protected Area levels and the PMU members will be communicated to stakeholders in the respective countries. The contact points are captured in Section IV of the AGM.</p> <p>Relevant print materials will be disseminated to all stakeholders during the workshops, and the entire project implementation phase, through appropriate means preferred by the stakeholders e.g. social media platforms such as WhatsApp, emailed, or posted via regular mail. Each sectoral focal person will also have soft copy and hard copies of the AGM, short messages, posters, brochures, etc. that he will be routinely shared with stakeholders in his/her sector.</p> <p>The Project will also utilize national structures such as local government administrative centers and community organizations to disseminate print materials to ensure that the hard-to-reach places or vulnerable groups (women, youth, elderly, and physically challenged persons) receive the information in the most easily understood language and in a timely manner.</p> <p>The project staff may also use local FM Radio stations to talk in the local language for the benefit of the illiterate about the AGM and other related issues.</p>
<p>Name and designation of person(s) where grievances can be addressed to:</p>	<p>Conservation International (Africa Field Division) Attention: Ms. Jessica Baillie, Technical Lead/Wildlife Conservation Technology Expert jbaillie@conservation.org</p>
<p>Name and designation of person(s) where grievances can be addressed to:</p>	<p>Conservation International (Africa Field Division) Attention: Deputy Regional Program Manager (to be recruited during the project implementation phase).</p>
<p>Name and designation of person(s) where grievances can be addressed to:</p>	<p>Conservation International (Africa Field Division) Attention: The Safeguards Compliance Officer (to be recruited during the project implementation phase).</p>
<p>Name and designation of person(s) where grievances can be addressed to:</p>	<p>National Project Focal Person (Project counterpart) – Botswana (TBD)</p>
<p><i>Physical address of person(s) above or location of grievance collection box:</i></p>	
<p><i>Telephone/Fax:</i></p>	

²⁵⁷ Approved safeguard plans are to be disclosed to stakeholders in a manner and form that they will understand and that is culturally appropriate. This may require translation of the document.

<i>Email:</i>	
<i>Website/software application:</i>	
<i>Radio Frequency, if applicable:</i>	
Name and designation of person(s) where grievances can be addressed to:	National Project Focal Person (Project Counterpart) – Mozambique (TBD)
<i>Physical address of person(s) above or location of grievance collection box:</i>	
<i>Telephone/Fax:</i>	
<i>Email:</i>	
<i>Website/software application:</i>	
<i>Radio Frequency, if applicable:</i>	
Name and designation of person(s) where grievances can be addressed to:	National Project Focal Person (Project Counterpart) – The Republic of Congo (TBD)
<i>Telephone/Fax:</i>	
<i>Email:</i>	
<i>Website/software application:</i>	
<i>Radio Frequency, if applicable:</i>	

SECTION V: Acknowledgment and Follow-up

- HOW WILL YOUR MECHANISM ACKNOWLEDGE RECEIPT OF THE GRIEVANCE? HOW LONG WILL IT TAKE FOR THIS RECEIPT TO BE GIVEN TO THE GRIEVANT?**

Receipt of grievances by email will be acknowledged within 24 hours to the sender’s email address or through a contact point to be delivered verbally to the grievant, in the case of a verbal grievant submission, along with information on the follow-up process.

For grievances received by letter, acknowledgment of receipt along with follow-up information will be sent by letter within 15 days. The acknowledgment will outline the grievance process; provide contact details and, if possible, the name of the contact person who is responsible for handling the grievance; and how long it will take to resolve the grievance.

- DO YOU PLAN TO PROVIDE PERIODIC UPDATES THROUGHOUT THE PROCESS TO THE GRIEVANT?**

As described above, grievants will receive an initial response outlining how the grievance will be processed and, if extensive follow-up is required, the grievant will receive written advice providing an update and a decision on the resolution within 8 weeks. All grievances will be managed as quickly as possible, with the goal to provide resolution in 3 weeks. In exceptional cases that require more time, further updates will be provided as progress is made, following a timetable to be agreed upon with the grievant. Stakeholders affected by the conflict/complaint will have access to this information from the communication channels preferred by the stakeholders.

SECTION VI: Processing

Describe how your mechanism will process the grievance.

- **HOW WILL THE GRIEVANCE BE VERIFIED? WILL THERE BE SITE VISITS, FACE-TO-FACE MEETINGS, ETC?**

All grievances will be properly and comprehensively recorded to enable verification of facts and validity of each case. The process of receiving, recording, and acknowledging the complaints will entail interrogating the complainant to ensure that the information provided is clear, adequate, and accurate. Any additional information that may be required to verify or determine the root causes and validity of the grievance may be obtained from the complainants through subsequent discussions by telephone or, where need be, through face-to-face meetings. A record of each discussion will be kept. The merit of grievances will be judged objectively based on the facts adduced. Some of the grievances may be expeditiously resolved by providing facts straightforward explanations. These can be resolved instantly and if the person raising the grievance is satisfied, the grievance is documented, and the matter closed. However, some cases may require further investigation and verification involving site visits to get the truth on the ground, consulting staff, contacting external stakeholders, etc.

- **HOW WILL THE MECHANISM DEAL WITH GRIEVANCES THAT ARE INELIGIBLE?**

A catalog of eligible grievances will be participatory developed and categorized based on the nature and gravity of the grievance at the start of the project with stakeholders. Where the grievances are not eligible, Project Management Team will explain to the complainant, clarify why such a complaint is not eligible, and advise on alternative grievance redress mechanisms that may be available e.g., the Government justice systems.

- **WILL THERE BE A CATEGORIZATION/PRIORITIZATION SYSTEM BASED ON THE NATURE OF THE GRIEVANCE? HOW WILL HIGH-PRIORITY OR SENSITIVE GRIEVANCES BE DEALT WITH?**

All grievances will be handled by category, priority, and gravity. As such, the grievances received will be registered, processed, categorized, assigned priority, and routed to the appropriate entity for handling. There will be a standardized system for grievances logging. All grievances will be filed systematically in hard copy with a soft copy file accompanying it. Each grievance will be screened to categorize those which are related to the Project, and those which are not. Management at all levels of Project implementation will be familiar with grievances that are related to the Project and will handle them in that regard.

To guide decision-making when addressing grievances, an evidence-based approach will be applied. Relevant information and facts will be gathered and analyzed through a fair and objective investigation process to assist the determination of the validity, relevance, gravity, truthfulness, and the appropriate steps to be applied to resolve the grievance. The merit of grievances will be judged objectively based on the design of the project and its expected output. Grievances that require time and extensive investigations will be reassigned to officers/actors at higher levels of management, namely Conservation International (Africa Field Division). The investigation may require site visits, consulting staff, contacting external stakeholders, etc. Tracking of the physical location of the source of the grievance (possibly using GPS coordinates), at the country level, whenever possible, is important so that grievance patterns can be analyzed spatially, to help identify root causes, exacerbating factors, and solutions. Records of meetings, discussions, and activities will be kept during the investigation. EarthRanger Project staff will ensure that investigators are neutral and do not have any stake in the outcome of the investigation.

High-priority grievances that may delay or stall the project will be handled expeditiously. Sensitive grievances will be handled with strict confidentiality to keep the affected parties' identities undisclosed, ensure their safety and security as well as trust and professionalism in the entire process of handling the case.

Conservation International (Africa Field Division)/PMU will be responsible for handling the grievances while CI-AfFD will play the oversight role of monitoring the performance of AGM and providing guidance.

- **WHAT'S THE INSTITUTIONAL/ORGANIZATIONAL STRUCTURE TO HANDLE GRIEVANCES? WILL THE GRIEVANCE BE ASSIGNED/DIRECTED TO A SPECIFIC PROJECT STAFF OR COMMITTEE TO DEAL WITH THE GRIEVANCE?**

The main centers for handling the complaints include:

- 1) At the country level, several centers will be designated, including:
 - The Project Focal Person (Project counterpart) at the Protected Area level
 - The National Project Steering Committee
- 2) Conservation International (Africa Field Division) Project Management Unit
- 3) Conservation International GEF Agency

The Project Focal Person will act as a designated staff and first contact/desk officer to receive, register, categorize and handle the grievances at that level, or where necessary forward the cases to the Conservation International (Africa Field Division)/PMU for review and further action.

- **WILL THERE BE A TIERED SYSTEM WHERE GRIEVANCES GET ESCALATED DEPENDING ON THEIR SERIOUSNESS OR UNABLE TO RESOLVE? *A tiered system could be to first address the grievance at the field level; the second level can be at the Project Management Unit; the third level can be at the Project Steering Committee level, and the fourth level can be CI's Ethics Point Hotline.***

The AGM consists of a hierarchical (or tiered) arrangement for the handling of appeals or referrals of cases that are not resolved at a lower level. The lowest level of the hierarchy is at the Protection Area Project sites in each participating country. It is expected that the grievances will most likely occur at this level where there are the largest numbers of stakeholders such as Government Ministries, Departments, and Agencies, civil society organizations, the private sector, academia, local communities, and others. The complaints raised at the PA level will be brought to the attention of the PA Project Focal Point (Project Counterpart) or the Project Implementing partner. It is good practice to ensure that all grievances are resolved in the shortest time possible and at the center where the grievances are registered. But where there is no conclusive resolution, the PA Project focal point (project counterpart) or Project Contractor or the Project Implementing partner will refer the matters to the Project Management Unit (PMU), which consists of the Project Manager and the Grants/Finance Officer and located at CI-AfFD Nairobi. The PMU will be expected to address the grievances expeditiously. However, AfFD as the Co-Executing partner may be engaged to handle unresolved grievances, and where the need arises, the support of AI2 will be sought. There are other project implementing partners at a national level where the complaints may be lodged and later transmitted to the PA management Authority and finally to the PMU/AfFD and AI2. These include:

- Peace Parks Foundation in Limpopo and Zinave National Parks, Mozambique.
- The contractor who will be identified for the case for Chobe National Park in Botswana.
- WCS in Nouabalé-Ndoki National Park, Republic of Congo
- African Parks in Odzala-Kokoua National Park, Republic of Congo, and
- Noé (or Noah) in Conkouati-Douli National Park, Republic of Congo.

CI-AfFD may involve the national level institutions, specifically the Protected Area management and the designated Government Departments and agencies to resolve some of the complex grievances. The National Project Steering Committee, which meets annually, will periodically review any outstanding grievances and provide guidance on how they can be resolved in the shortest time possible. Efforts will be made to ensure that no grievance is delayed as it may adversely impact the project's progress and outcomes.

Beyond the national level, the Virtual EarthRanger Working group that meets periodically to coordinate project activities at the regional level with The Executing Agency (Conservation International (Africa Field Division)/AI2) will bring to the attention of the working group any unresolved/outstanding grievances for discussion and guidance on how to dispose of it.

- **IF THE PROJECT FAILS TO ADDRESS THE GRIEVANCE, WHAT STEPS WOULD BE TAKEN TO ACHIEVE A**

RESOLUTION? Will the project set up an arbitration process? Are there national mechanisms that the project can use? If there are national processes, do the communities and other stakeholders have faith in them, know about them and have easy access to them, and are they likely to use them?

It is envisaged that adequate capacity will exist at the project level to address all the grievances that may arise. Robust justice and law systems exist in the project implementing countries that cascade down to and work hand in hand with the lower-level governance and administrative structures and local community leadership. These institutional and administrative structures will be engaged in resolving grievances that may not be handled within the project. There is no evidence from a review of background documents from the project participating countries to suggest that the local communities and stakeholders do not know, have no faith, or are likely not to use the national and local level administrative systems of justice that manage grievances and other forms of disputes within the local communities. Documents on gender and social systems attest that there are functional gender-inclusive leadership structures in place that can be leveraged in case of need.

In the event that a grievance cannot be resolved at the project or country level, such a grievance will be referred to Conservation International which is at the apex of the Accountability and Grievance Mechanism and the process will start with the African Field Division (CI-AFD) in Nairobi, and then the CI Head Office in USA. If the process does not result in resolution of the grievance, or the grievant prefers, s/he may choose to file a claim through CI's Ethics Point Hotline at <https://secure.ethicspoint.com>, or with the Director of Compliance (DOC) who is responsible for the CI Accountability and Grievance Mechanism and who can be reached at Director of Compliance, Conservation International 2011 Crystal Drive, Suite 600 Arlington, VA 22202, USA.

SECTION VII: Documentation

- **HOW WILL GRIEVANCE BE RECORDED? Will there be a grievant form? Will there be a logbook of the grievances received?**

All grievances received will be documented in each participating country at the Project Protected Area level by a designated Project Focal Person and channelled to relevant persons as appropriate. The Safeguards Compliance Officer will follow up on the issues related to the AGM. The grievances received and any follow-up actions will be recorded in a grievant form. The form will keep track of the nature of the grievance, the nature of the investigation, and the remediation steps followed. Standard and quality documentation with full confidentiality is crucial as it minimizes omission of information and facts, leakage of information/evidence, the risks of prolonged handling of grievances, and its re-occurrence as a result of dissatisfaction with the resolution²⁵⁸. Up to date records of grievances received and addressed will therefore be maintained in strict confidence and highlight the chronology of events related to grievance management. Records of regular Project Management meetings to review the grievances and trends will be maintained and stored by the PMU.

The main focus of comprehensive documentation includes the following:

- a) Grievances received are recorded in an appropriate format (Grievance Log Form / Grievance Registry Form). The grievance is entered in the database using a Grievance Registry Form and a relevant management body is notified to handle it.
- b) Confirmation to the complainant that his or her grievance has been received and registered and a reference number is given.
- c) Steps taken to resolve grievances are recorded. The records include investigation notes, interviews, minutes of meetings held by the AGM committees or other bodies, and signed agreement to any resolution to a grievance. These will be securely filed by the responsible person to ensure that privacy and confidentiality is maintained for all the parties involved.

²⁵⁸ UNCTAD–World Bank Knowledge Into Action Note Series.RAI.KN 19: Grievance Redress Mechanism.

<http://documents.worldbank.org/curated/en/145491521090890782/pdf/124294-BRI-PUBLIC-KN19.pdf> accessed.22nd Dec 2019 11:43 Hrs.

- d) Outcomes of all efforts of resolving the grievances are documented and communicated
- e) In the case of unresolved grievances, the reasons they are not resolved and how they will be resolved are clearly documented
- f) Evidence of informing those who raised the complaint and the public about the issues which were brought up, results of their investigations, and the actions taken. This process will ensure trust in the AGM. The feedback can be provided by contacting the complainant directly (if his or her identity is known) and/or posting the results of cases in internal memos or leaflets which are sent to stakeholders.

• HOW AND WHERE WOULD THESE RECORDS BE STORED? AND FOR HOW LONG WILL THEY BE KEPT?

As a Co-Executing Agency and hosting the PMU, Conservation International (Africa Field Division) will play a vital role in Project administration and will therefore keep the records of grievances handled. The PMU will handle day-to-day AGM functions. All grievance records, including grievance forms, investigation notes, interviews and minutes of meetings will be securely filed, both in soft and hard copies, by PMU and stored by Conservation International (Africa Field Division) to ensure privacy and confidentiality. The records will be kept for 3 years after the project expiration date as per CI-GEF Project Agency guidelines.

• HOW WILL THE PERSONAL IDENTIFIABLE INFORMATION OF THE GRIEVANT BE KEPT SECURE, AND WHO WITHIN THE TEAM WILL HAVE ACCESS TO IT?

As a good practice, the personal information of any grievant shall not be disclosed to the public. Where grievances are to be published, all personal information and other important details will be kept confidential. The information that can be available from Conservation International (Africa Field Division)/PMU upon request may include the date the complaint was lodged and registered, grievance description (in general terms), investigation and relevant compliance measures put in place, the decision made, and the grievance closeout date.

SECTION VIII: Monitoring and Reporting

Describe how will you track and ensure that the mechanism is working. It is important to recognize that lack of grievances does not mean that there are none, it may indicate that the mechanism is not working properly. Describe how you will account for this possibility.

In order to ensure that the AGM is working, the following will be applied to track it. First, the project is expected to report on a quarterly basis (using the CI-GEF Quarterly Reporting template), progress made towards the implementation of the grievance mechanism, including the number of grievances received and the outcome of the grievance process. If no grievance is reported, efforts will be made to find out why it is so through the regular monitoring and evaluation of project activities. The AGM tracking questions will be embedded in the M&E tool.

On an annual basis and using the CI-GEF Project Implementation Report (PIR) template, the following CI-GEF’s minimum indicators are expected to be reported. The project can include other appropriate accountability and grievance indicators in addition to the CI-GEF’s indicators.

Indicator	Baseline	Target
1. Number of conflict and complaint cases reported to the project’s Accountability and Grievance Mechanism	0	6
2. Percentage of conflict and complaint cases reported to the project’s Accountability and Grievance Mechanism that has been resolved	0	6

Person responsible for implementing and monitoring the AGM:	Safeguards Compliance Officer
Budget/Resources required:	Project staff time, translation services

D. The Gender Mainstreaming Plan (GMP)

The **Gender Mainstreaming Plan** provides information, analysis, and specific actions to ensure that gender dimensions are fully integrated into the project. It consists of two parts: (1) a **Gender Analysis/Assessment**, and (2) a **Gender Action Plan**. The Gender Analysis/Assessment identifies and describes relevant gender differences, gender-differentiated impacts and risks, and opportunities to address gender gaps and promote the empowerment of men and women within the project context. The Gender Action Plan details gender-responsive measures to address the differences, impacts, and risks, and opportunities arising from Gender Analysis/Assessment.

SECTION I: Project Information

PROJECT TITLE:	The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks.		
GEF/GCF PROJECT ID:	10551	PROJECT DURATION:	44 months
EXECUTING AGENCY/ENTITY:	The Allen Institute for Artificial Intelligence (AI2)		
PROJECT ANTICIPATED START DATE:	07/2022	PROJECT END DATE:	03/2026
GMP PREPARED BY:	Green Approaches Limited		
DATE OF (RE)SUBMISSION TO CI-GEF/GCF:	November 2021		
GMP APPROVED BY:	Ian Kissoon, Director of ESS, CI-GCF/GEF Agency		
DATE OF CI-GEF/GCF APPROVAL:	November 19, 2021		
PERSON RESPONSIBLE FOR IMPLEMENTING AND MONITORING THE GMP:	A Safeguards Compliance Officer (<i>to be recruited during implementation phase</i>)		
HOW/WHERE WILL THE APPROVED GMP BE DISCLOSED²⁵⁹:	At the inception meeting with stakeholders, printed and translated in language the stakeholders can easily understand		
WHEN WILL THE APPROVED GMP BE DISCLOSED:	At the start of the implementation phase.		

SECTION II: Gender Analysis/Assessment

THE GENERAL STATE OF GENDER IN BOTSWANA, MOZAMBIQUE, REP OF CONGO

The general state of gender in the project countries is summarized below:

Gender norms influence women's and men's roles and responsibilities Women remain responsible for undertaking household tasks, including caring for children and the elderly while men work outside the home to earn income for their households, and this is particularly the case in the three project participating countries. In some cases, such as in Botswana and Mozambique, women take part in income-generating activities as a way of reducing poverty, implying that they need to have access to natural resources (e.g. plant materials and fibers for making handcrafts such as traditional baskets, winnowers, mats, bags, and others).

Women have limited access to resources and decision-making power, which increases the need for

²⁵⁹ Approved Safeguard plans are to be disclosed to stakeholders in a manner and form that they will understand and that is culturally appropriate. This may require translation of the document.

their participation in a site-based program such as the EarthRanger project to strengthen community collaboration. The majority of women in rural areas spend much time gathering wild foods, collecting firewood, fetching water, ensuring food and nutrition security, and contributing to general household livelihoods. Consequently, women are usually not available to take part in decision-making on major issues that affect them such as sustainable development, socio-economic growth, and environmental conservation including protected area management. All these factors simultaneously impede the ability of women to contribute to meeting their unique development needs, as well as provide valuable knowledge, skills, and expertise for effective protected area management.

Women in rural areas remain profoundly affected by regulated use of natural resources in various ways including increased workloads and traveling greater distances to harvest materials and fetch water for household needs. Social roles and responsibilities of women and men lead to different degrees of dependency on the natural environment for resources used to sustain their livelihoods. Women and men's needs, knowledge, skills, preferences, experiences, and priorities differ, thus making it critical to identify gender-sensitive strategies for the involvement of local communities in natural resources management²⁶⁰.

Women play a crucial role in society and lack of awareness and involvement in PA management would diminish the effectiveness and sustainability of biodiversity conservation. Therefore, PA management should encompass a gender perspective as it impacts livelihoods.

PROJECT-LEVEL GENDER CONSIDERATIONS

Women have increasingly participated in protected areas' decision-making on policy and management at national, protected areas, and individual sites²⁶¹. Women's participation in protected area management as rangers and wardens at middle and senior levels is yet to be fully understood in this project. There are some ongoing efforts in the project countries: In Mozambique, Carr Foundation is building the capacity of young females in park management²⁶², while in Botswana's Chobe national park, 20 females work as ranger guides²⁶³. Information is however inadequate on women's participation in protected area management more broadly. **This project provides a clear opportunity to provide focused support and training to existing women rangers in the project's protected areas.**

The number/status of women and men employed in institutions that are responsible for managing PAs in the three countries will be obtained at project start-up (limitations on PA level consultations imposed by the COVID-19 restrictions impeded detailed information collection). This project will be training rangers and other government staff responsible for managing the PAs and therefore further assessments on who the intended trainees are necessary. What is known from the national level engagements that have been undertaken is that **there are fewer women in the PA institutions and measures have been proposed under section III in this plan on how gender mainstreaming can be addressed.**

²⁶⁰ Chapter 11 Gender, climate change and sustainable development, http://genderlinks.org.za/wp-content/uploads/imported/articles/attachments/19388_chap11baro2014_climatefin.pdf 3.12.20191551hrs.

²⁶¹ Angela Martin 2007. Gender in the conservation of protected areas. Accessed from website <https://www.cbd.int/doc/pa/tools/Gender%20in%20the%20conservation%20of%20protected%20areas.pdf>

²⁶² Spera, C & Baque, I. 2021. Women in the charge to heal scars of war in Mozambique wildlife park. Accessed from website <https://www.theguardian.com/global-development/ng-interactive/2018/sep/07/women-gorongosa-national-park-healing-scars-of-war-mozambique>

²⁶³ Chobe Game Lodge 2021. Chobe Angels Stand in Support of the Female Ranger Warriors in Africa. Accessed from website <https://www.chobegamelodge.com/chobe-angels-support-female-ranger-warriors-in-africa/>

1. *How do women and men currently utilize the natural resources that this project impacts? How might that change during and after the project?*

Botswana

What is currently known from the level of engagements undertaken is that some of the communities living around the protected areas are involved in Community-based Natural Resource Management (CBNRM) programmes that are generating income from wildlife and tourism. Government community-based strategy for rural development has given impetus to such activities linking the communities to national development strategies, providing extension and other services and this is not likely to change during and after the project. Although wildlife and tourism still form the basis of resource use in protected areas, there are efforts to diversify incomes sources and focus on veld products and forest products as a strategy to promote sustainable resource management.

This project will impact mainly on wildlife resources in Chobe national park. At the time of preparing this GMP, there is limited information on the types of resources and the way men and women utilize resources from Chobe national park that will implement the EarthRanger technology project. **It is also not known how resource utilization by men and women will change during and after the project.**

Mozambique

Wildlife resources in the target national parks are attractions that currently support tourism. However, there is no information on the types of natural resources in the parks that men and women are currently using. Similarly, **there is inadequate information on how the wildlife resources might change during and after the project and how this will impact tourism.**

Republic of Congo

Most of the people in the Republic of Congo are urban-based and live mostly in the southwestern region of the country. The rural-based communities living around the protected areas depend, as part of their livelihoods on the use of resources from the PAs such as hunting for bushmeat. However, it is not known how men and women are hunting the wildlife. It is also unknown how bushmeat hunting will change during and after the project. **The installation of the Earth-Ranger Technology will contribute towards strengthening PA management which is important for better protection of biodiversity and may thus lead to restricted access to bushmeat by the communities.**

2. *How will women and men be impacted (positively or negatively) by project activities including their livelihoods, workload, control over resources, etc.?*

Botswana

There is no information on how men and women will be impacted positively or negatively by the project activities. In terms of livelihoods,²⁶⁴. It is also unknown how the project activities will impact the workload and the extent to which men and women will have control over wildlife resources in the target protected areas. What is known is that hunting is prohibited, and the local community no longer gets bush meat. The project will reduce such illegal activities and illegal bushmeat supply will be limited. However, prohibition on wildlife hunting prevents the men from transferring their tracking and hunting skills to their sons²⁶⁵.

Training of management and control room staff will strengthen women's and men's capacity in PA management. Improved PA monitoring and management system through the installation of the Earth Ranger Technology will enhance the participation of both women and men in natural resource management. The Earth Ranger Technology will promote the long-term conservation and sustainable use of natural resources which is key for the growth of the tourism sector and improved livelihood activities in other sectors such as agriculture, livestock, and fisheries²⁶⁶. the project will prohibit wildlife hunting thus stopping men from transferring their tracking and hunting skills to their sons

Mozambique

The positive influence is through training of management and control room staff that will strengthen women's and men's capacity in PA management. Improved PA monitoring and management system through the installation of the Earth Ranger Technology will enhance the long-term conservation and sustainable use of natural resources and thus reduce unregulated access to natural resources by the communities.

Republic of Congo

While the positive impact of training of management and control room staff will be to strengthen women's and men's capacity in PA management, the negative impact will be further protection and thus restricted access to the natural resources in the PAs. Improved PA monitoring and management system through the installation of the Earth Ranger Technology will promote the long-term conservation and sustainable use of natural resources.

3. *To what extent do women and men participate in decision-making processes about those natural resources and is that likely to carry over into project decision-making? What are the constraints (social, cultural, economic, political) that restrict women's active participation in household, community, and project-level decision-making processes?*

Botswana

There is limited information on the extent to which women and men participate in decision-making processes about the wildlife resources in the target protected areas. The social, cultural, economic, and political constraints that limit women's active participation in household, community, and project-level decision-making processes are not documented. Grassroots involvement in natural resource management has been initiated through the establishment of CBNRM Trusts under the CBNRM policy²⁶⁷ but needs to be properly documented at PA level.

Constraints to women's active participation in community and project-level decision-making processes: when compared to men, women in Botswana have for a long time been disadvantaged in decision-making due to traditional roles and perceptions. As a result, women suffered various forms of discrimination, inequality, and sometimes exclusion. However, these constraints have been addressed by constitutional and policy changes to empower and include women in decision-making as well as political and economic processes.

The representation of women in decision-making positions, including political office, senior management in both the public and the private sector, and traditionally male domains such as chieftainship and priesthood, has risen in Botswana²⁶⁸. Despite these accomplishments, there are still important features of gender inequality, especially among rural women in rural regions, many women spend a lot of time collecting firewood, fetching water, ensuring agricultural production, and managing household livelihoods. Consequently, women, are underrepresented in decision-making processes at all levels, including those affecting them such as sustainable development, socio-economic growth, and natural resource management. Civil society and NGOs play a critical role in the implementation of natural resource management policies and mainstreaming environmental concerns into national development and poverty reduction framework as well as empowering women participation in decision-making²⁶⁹. The project will ensure full engagement of Civil Societies and NGOs to ensure full participation of women in the project decision-making. A range of indicators will also be used to monitor and ensure equality in participation and representation of men and women in the project decision-making during the project implementation phase.

²⁶⁴ Blackie, I., 2019. The impact of wildlife hunting prohibition on the rural livelihoods of local communities in Ngamiland and Chobe District Areas, Botswana. *Cogent Social Sciences*.

²⁶⁵ Blackie, I., 2019. The impact of wildlife hunting prohibition on the rural livelihoods of local communities in Ngamiland and Chobe District Areas, Botswana. *Cogent Social Sciences*.

²⁶⁶ OKACOM: Support to the Cubango-Okavango River Basin Strategic Action Programme Implementation (Angola, Botswana and Namibia).

²⁶⁷ Bothepha, B.T.M 2012. The Influence of Chobe National Park on People's Livelihoods and Conservation Behaviors. PhD thesis, University of Florida, USA.

²⁶⁸ Gender Equality and Empowerment

²⁶⁹ Improved Management Effectiveness of the Chobe-Kwando-Linyanti Matrix of Protected Area

Mozambique

There is gradual progress in gender inclusiveness in management activities in Mozambique. Women's representation in decision-making positions, including political office, senior management in both the public and the private sector is progressively rising²⁷⁰. Despite the progress, however, there are still important features of gender inequality, especially among rural women in rural regions, many women spend a lot of time collecting firewood, fetching water, ensuring agricultural production, and managing household livelihoods. Consequently, women, are underrepresented in decision-making processes at all levels, including those affecting them such as sustainable development, socio-economic growth, and natural resource management. The EarthRanger project provides a further avenue towards gender inclusiveness particularly with the engagement of Civil Society and NGOs that have hitherto been promoting the participation of women in PA management.

Republic of Congo

Women's representation in decision-making positions, including political office, senior management in both the public and the private sector is gradually increasing. There are however still important features of gender inequality, especially among rural women in the rural areas. Many women spend a lot of time collecting firewood, fetching water, ensuring agricultural production, and managing household livelihoods. Women are underrepresented in decision-making processes at all levels, including those affecting them such as sustainable development, socio-economic growth, and natural resource management. The EarthRanger project, which is partnering civil society and NGOs in the three focus sites in the Republic of Congo will contribute to the participation of women in the project decision-making.

4. *Do women and men have equal access to information and opportunities necessary to participate and benefit fully from the activities of the project? How do gender-related barriers/challenges potentially limit women's ability to fully participate, make decisions, and benefit from the project? How will the project overcome them?*

Botswana

Participation of Women and men in stakeholder consultations during the PPG phase provided information and opportunities necessary to participate and benefit fully from the activities of the project. However, the **participation and the full benefit of women from the project activities might be impeded by the underrepresented women during the PPG Phase**. To overcome barriers to women's participation, decision-making, and benefit from the project, Chobe District, Government Agencies, Non-government organizations, local community organizations, traditional leaders, and Private sectors dealing with PAs management will be fully involved in the project activities. Gender equality will be considered during project implementation.

Deliberate efforts will thus be made to ensure men and women have equitable access to information and opportunities to participate and benefit from the project fully through representation in institutional structures that guide the governance of the park such as the Local Advisory Committees (LACOMs) CBNRM Trusts (ibid). Gender-related barriers that would limit women's ability to participate fully in the project have been addressed through legal and policy reforms on gender.

Mozambique

The PPG phase consultations provided information on the level of opportunities available for participation of both women and men to enable them to benefit from the activities of the project. The participation and the full benefit of women from the project activities might be impeded by the underrepresentation of women during the PPG Phase. To overcome barriers to women's participation, decision-making, and benefit from the project, the Private sector and the PA management authorities will be encouraged to involve them in the project activities. Gender equality will be considered upon constituting Steering Committee members.

Republic of Congo

²⁷⁰ Gender Equality and Empowerment.

There was limited participation of Women and Men in stakeholder consultations during the PPG phase and this provided information on the level of possible gender inclusive opportunities available in the Republic of Congo. Accordingly, to ensure benefits of gender inclusiveness, there are deliberate efforts to encourage project partners otherwise the participation and the full benefit of women from the project activities might be impeded as noted from the underrepresentation of women during the PPG Phase. To overcome barriers to women's participation, decision-making, and benefit from the project, the NGO partners, private sector dealing with PAs management, and the PA management authorities for the three selected sites in the Republic of Congo will be fully involved in encouraging gender inclusiveness. Gender-inclusive considerations will be considered starting with constituting the Steering Committee.

5. *What are the different interests, needs, and priorities of men and women within the project context? How will the project be able to address their respective needs and priorities?*

Botswana

The interests of women and men in the project areas can be viewed in terms of access to (use and benefits from) resources through CBNRM. The activities that directly involve women are collecting of veld products and the making of crafts and curios. These activities are particularly attractive to women because collecting veld products and making crafts, such as beadwork or basketry are familiar to them and easy to get involved in. Although the project will not restrict the movement of wildlife, improved monitoring and management of PA will contribute toward reducing conflicts between the community (women and men) and wildlife²⁷¹. The Earth Ranger Technology will provide real-time information which is among the key needs for local tour operators (women and men). Training in the use of EarthRanger Technology will be provided to both men and women.

Mozambique

The key interest and priority of women and men in Zinave and Limpopo are improved management of wildlife to reduce the damage caused by wildlife on Agriculture, especially by elephants. Although the project will not restrict the movement of wildlife, improved monitoring and management of PA will contribute toward reducing conflicts between the community (women and men) and wildlife. However, the specific needs and priorities of men and women in the context of the project and how the project will address those needs and priorities will have to be documented during project implementation. The community would also need to have continued access to resources and if the Earth Ranger Technology provision of real-time information can enhance this to the needs of local tour operators (women and men), there will enhance collaboration.

Republic of Congo

The key interest and priority of women and men in the three selected projects sites in the Republic of Congo is continued access to natural resources as well as the improved management of wildlife that could reduce the damage caused by wildlife on Agriculture. It is hoped that improved monitoring and management of the PA will contribute toward reducing conflicts between the community (women and men) and wildlife.

6. *How might project activities create new opportunities (economic, leadership, etc.) for women?*

Botswana

The project capacity-building activities will enhance the capacity of both women and men and possibly ensure the participation of women. This will empower women through knowledge sharing and create new leadership opportunities for women. Improved monitoring and management of Chobe as a result of the installation of Earth Ranger Technology will support the socio-economic development of the Chobe district community through reduced conflicts. However, a broad range of economic, leadership, and other opportunities that the project will create should be documented during the project implementation.

Mozambique

²⁷¹ Improved Management Effectiveness of the Chobe-Kwando-Linyanti Matrix of Protected Area

The project activities in Zinave and Limpopo may create employment opportunities for both women and men and could lead to greater participation of women when gender inclusiveness is deliberately encouraged. This will empower women through knowledge and create new leadership opportunities for women particularly if there is increased confidence built in the women and deliberately recruited as part of the staff.

Republic of Congo

It is anticipated that the project activities implemented in the three selected protected areas in the Republic of Congo will include having more women involved particularly in capacity building for women and men and ensure full participation of women. This will enhance the confidence of women through knowledge sharing and thus create new leadership opportunities for women.

7. *Is there a possibility that project activities may perpetuate/increase inequalities, including gender-based violence? (why or why not)*

Botswana

Not envisaged: A gender strategy guiding the project implementation will ensure that measures to safeguard and promote women will be maintained even after the project is completed. Gender mainstreaming is a feature of all project activities, and women will be equipped with skills, knowledge, and resources in ways that are both accessible and tailored to their specific needs in the project areas.

Mozambique

While there has been limited participation of women in PA management, it is hoped that the experience gained during the project implementation will lead to gender mainstreaming becoming a feature of all subsequent activities as women will be equipped with skills and knowledge.

Republic of Congo

There have been efforts in the Republic of Congo to provide for improving gender inclusiveness in leadership and the country's activities. The project implementation will build on that process and ensure that measures to safeguard and promote women will be maintained even after the project is completed.

8. *What is the level of gender awareness and capacity to address gender issues amongst local authorities, project partners, and project staff?*

Botswana

The Botswana National Policy on Gender and Development serves as a springboard for achieving the 2030 Agenda for Sustainable Development's gender equality target, as well as all other goals aimed at improving women's dignity and position²⁷². Government employees and local authorities are constantly involved in gender equality awareness-raising and training activities to ensure that women and men receive equitable benefits from government programs and livelihood initiatives.

In spite of having the Botswana National Policy on Gender and Development, information on the level of gender awareness and capacity to address gender-based issues amongst the local authorities, project partners and project staff is missing.

Mozambique

Government amended and replaced discriminatory provisions in laws incorporating provisions of CEDAW to mitigate discrimination against women, according to Article 1 of the Convention. The government, through the National Assembly, approved, among others, the legal instruments that protect women's rights (Law n. ° 12/2009 on Anti-Discrimination against People Living with HIV and AIDS; Law n° 14/2009 which protects women in public service and Revision of the Commercial Code, which establishes women's autonomy in

²⁷² Minister of Labour and Home Affairs

business)²⁷³. The government of Mozambique is thus committed to eliminating all inequalities based on gender, through the implementation of national instruments such as Gender Sectoral Strategies, the 2010-2014 Gender National Action Plan for the Advancement of Women, and the 2008-2012 National Action Plan for the Prevention and Fight of Violence against Women. Government employees, local authorities are therefore constantly involved in gender equality awareness-raising and training activities to ensure that women and men receive equitable benefits from government programs and livelihood initiatives.

Republic of Congo

There are various laws and regulations: the Penal Code of 1810, the Family Code of 1918, and the Child Protection Act of 2010 which protect women and girls in general. However, access to justice for women and girls is still low as the laws and regulations are often rarely implemented²⁷⁴. While the legal tools available to protect women against discrimination in the Republic of the Congo are the Penal Code (Code pénal) and the Family Code (Code de la Famille)²⁷⁵ their implementation is still progressing. There is a national gender plan under the Ministry for the Promotion and Integration of Women that guides gender issues²⁷⁶. The Government, therefore, has put some effort into women's empowerment. Government employees, local authorities are accordingly involved in gender equality awareness-raising and training activities to ensure that women and men receive equitable benefits from government programs and livelihood initiatives. This is gradually improving.

Although at the national level there are laws to mitigate discrimination against women and policies to eliminate gender inequalities, information is scanty. It is thus necessary that, during project implementation, information should be collected on the level of gender awareness and capacity to address gender issues amongst local authorities, project partners, and project staff.

9. *Describe the methods (interviews, desktop research, focus groups, surveys, etc.) were used to collect information for the Gender Analysis/Assessment.*

Botswana

It is hard to get information on decision-making, access to information, resource use, needs, and priorities that are specific to men and women. The information for the Gender Analysis was mainly collected using desktop research. Additional information was collected using online interviews.

Mozambique

The information for the Gender Analysis in Mozambique was mainly collected using desktop research particularly seeking out literature online as well as other documents. Additional information was collected using online discussions.

Republic of Congo

The information for the Gender Analysis in the Republic of Congo was mainly collected using desktop research and access to some hardcopy literature when available. Additional information was collected using online interviews. It is however hard to find information at site-specific levels.

10. *Describe lessons learnt during the development of the GMP during the PPG/PPF Phase. E.g. Did you have to hold meetings separately for women? Did the location/time of meetings affect women's participation?*

Botswana

²⁷³ Government of Mozambique 2014. Combined third to fifth periodic reports submitted by Mozambique under article 18 of CEDAW. Maputo, Mozambique.

²⁷⁴ <https://www.apc.org/en/news/gender-based-violence-congo-brazzaville-apc-news-interviews-sylvie-niombo> website accessed on 19th July 2021 at 1135hours.

²⁷⁵ <https://www.refworld.org/docid/5568271d4.html> website accessed on 19th July 2021 at 1100hours.

²⁷⁶ <https://www.apc.org/en/news/gender-based-violence-congo-brazzaville-apc-news-interviews-sylvie-niombo>. Website accessed on 19th July 2021 at 1150 hours

Steps and measures implemented by the Government of Botswana to prevent the spread of COVID-19 limited the number of stakeholders consulted during the PPG Phase. This consequently limited the physical interaction and subsequent participation of women in the PPG Phase. Most discussions were held virtually.

Mozambique

Most interactions were held virtually to conform to the country’s SOPs to prevent the spread of COVID-19. While this limited the number of stakeholders consulted during the PPG Phase it also affected the efforts in the deliberate targeting of women and thus limiting the participation of stakeholders, including women in the consultative meetings during the PPG Phase.

Republic of Congo

Measures implemented during stakeholder consultations in the Republic of Congo took into consideration Standard Operating procedures (SOPs) to prevent the spread of COVID-19 and thus limited the number of stakeholders consulted during the PPG Phase. Consequently, limiting the participation of stakeholders, including women in the PPG Phase.

SECTION III: Gender Action Plan

Using the results of the Gender Analysis, and considering the project context, scope, and components, the Gender Action Plan details how the project will ensure the active and meaningful participation of both women and men, equal access to opportunities, resources, and benefits from the project, and avoid perpetuating social inequalities.

Component 1: Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness.				
Outputs	Activities to Mainstream Gender into Output	Target	Resources Required	Budget²⁷⁷
Output 1.1.1: Earth Ranger software incorporated in the existing PA management structure in the target countries	Establish the National Project Steering Committee in each of the participating countries - encourage partners to take care of gender inclusiveness.	Encourage nomination of at least 15% women as members of the National project steering committee	<ul style="list-style-type: none"> Meetings and the available partner staff Safeguard Compliance Officer 	Included in the project budget as part of costed activities under Component 1
	Establish and support the functioning of a Virtual Regional EarthRanger Working Group (Coordination Committee) – encourage partners to take care of gender inclusiveness.	Encourage nomination of at least 15% women as members of the working group	<ul style="list-style-type: none"> Meetings and the available partner staff Safeguard Compliance Officer 	
Output 1.1.2: A dedicated, secure, and functional control room	The control room has safe, secure features for women and men (e.g., good lighting, bathroom(s))	N/A		

²⁷⁷ Included in the project budget as part of costed activities under outcomes 1.1, 2.1 and 3.1 respectively.

facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each PA in the target countries	with locks)			
Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.	N/A	N/A	N/A	
Output 1.1.4: Digital radio or other appropriate communications network (e.g., LORA) installed and functional in the selected protected areas in the target countries.	N/A	N/A	N/A	
Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries	N/A	N/A	N/A	
Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).	Conduct baseline gender assessment among rangers in project sites (see additional info below)	At least 15% of direct beneficiaries that are skilled to utilize EarthRanger Protected Area (PA) Management system and related technologies are women.	<ul style="list-style-type: none"> • Meetings • Safeguard Compliance Officer • Funding for 3 focus groups + 10 KIIs 	
	Training of management and control room staff on all technologies that are deployed in a particular protected area - encourage gender inclusiveness during the trainings.			
	Conduct demonstrative training of PA field staff - encourage gender inclusiveness in the demonstrative training programmes.			

Component 2: Learning, knowledge sharing, and scaling the EarthRanger technology across Africa				
Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA	Conduct field exposure training programmes - invite other African countries for exposure trip(s) to the target PAs: encourage gender inclusiveness during nominations of staff to the field exposure learning visits.	Encourage nomination of at least 15% women among the key staff for exposure visits	<ul style="list-style-type: none"> • Meeting • Translation • Training materials • Stories • Blogs 	Included in the project budget as part of costed activities under 2.1
Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up.	Regional women's ranger learning/knowledge exchange	One learning exchange dedicated to women rangers		
	Hold annual national and regional events on Earth Ranger experience - encourage gender inclusiveness during nominations of staff to attend the events.	Encourage nomination of at least 15% women among the key staff for the annual national and regional events on Earth Ranger experience		
	Undertaking peer exchange visits to enhance learning: encourage gender inclusiveness during nominations of staff that participate in the peer exchange visits.	Encourage nomination of at least 15% women among the key staff for peer exchange visits		
	Attending Annual EarthRanger User Conference: encourage gender inclusiveness during nominations of staff that participate in the annual user conference.	Encourage nomination of at least 30% women to attend the annual EarthRanger User Conference		
Output 2.1.3: Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (<i>where the EarthRanger software informed decisions in the</i>	Prepare and disseminate an article that highlights 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field).	At-least 3 publications highlighting 1-2 women who have benefitted from the project (and the targeted efforts of the project to support women in this field).	<ul style="list-style-type: none"> • Stories • Blogs • Translation 	

<i>management of PAs).</i>				
Component 3: Monitoring and Evaluation - Not Applicable				
Output 3.1.1: Periodic M&E reports submitted to CIGEF Agency	Reporting on gender mainstreaming plan progress	N/A	N/A	N/A
Output 3.1.2: Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF	Evaluation of gender mainstreaming plan implementation	N/A	N/A	N/A

SECTION IV: Monitoring and Reporting

The GEF/GCF Gender Mainstreaming Policy requires the collection and analysis of sex-disaggregated data and gender information to inform gender-responsive monitoring and evaluation. The project is expected to report quarterly (using the CI-GEF/GCF Quarterly Reporting template), progress made towards the achievement of gender mainstreaming activities identified in the Gender Action Plan above. The project is also expected to report on an annual basis and using the CI-GEF/GCF Project Implementation Report (PIR) or Annual Performance Report (APR) template, the following CI-GEF/GCF minimum indicators:

Indicator	Baseline		Target ²⁷⁸	
	Men	Women	Men	Women
1. Number of men and women who participated in project activities (e.g., meetings, workshops, consultations).	46 ²⁷⁹	4	138 (85%)	24 (15%)
2. Number of men and women who received benefits (e.g., employment, income-generating activities, training, access to natural resources, land tenure or resource rights, equipment, leadership roles)	0	0	138 (85%)	24 (15%)
3. Number of strategies, plans (e.g., management plans and land use plans), and policies derived from the project that include gender considerations (this indicator applies to relevant projects)	N/A		N/A	

INDICATOR #1: Number of people (sex-disaggregated): *Explanation:*

Baseline: Botswana (7 men+4 Women); Mozambique (21men+ 0Women); Republic of Congo (18men+ 0Women) = 50 (46 men and 4 women): These are the number of people that participated in the stakeholder consultation meetings (section IV a-c of the SEP).

Target: Botswana (30men+ 5 Women); Mozambique (50men+ 5Women); Republic of Congo (60men+ 12Women) = 162 (138 men and 24 women)

²⁷⁸ Targets should be ambitious yet realistic. Please be prepared to explain how the targets were determined.

²⁷⁹ Aggregated number from section IV c of the stakeholder engagement plan

INDICATOR #2: Number of men and women who received benefits: *Explanation:*

Baseline: Botswana (0 men+0 Women); Mozambique (0men+ 0Women); Republic of Congo (0men+ 0Women):

Target: under output 1.1.6.1: *At least 24 management staff and 18 control room staff are trained on EarthRanger and associated technologies (sensors, radios, satellite collars, and other data transmitters) (4 management staff and 3 control room staff per PA): - 24 management staff for the 3 countries); and - 18 control room staff for the 6 selected PAs: Total is 42.*

Under output 1.1.6.2: *At least 120 field staff with reliable voice communications and real-time SOS capability (At-least 20 in each PA per country) and they are thus 120 for the six selected PAs. (Total is 120)*

RECOMMENDATIONS

It was difficult to consult protected area managers, rangers, and executing partners based at the protected areas during PPG Phase due to movement restrictions resulting from the effects of the Corona Virus pandemic. As a result, the Gender Analysis, Gender Action Plan, and targets were drafted based on desktop research, access to some hardcopy literature shared by the Government partners, and a few online interviews. **During project set-up, this GMP should be updated, and gaps filled by the Safeguards Compliance Officer using primary data.**

(Related to output 1.1.6) Within the first 3 months of the project, a gender assessment should be done to capture the following information. Hold separate conversations with women rangers, a mixed focus group with all rangers at that site, and an email/conversation with the partner. The report should be shared with all sites and presented to the PSC. Within the first 3 months of project implementation, the Safeguards officer, in conjunction with the country project executing partners, should gather the following baseline information:

1. # Of men/women rangers currently employed and who will be trained on EarthRanger
2. Specific feedback from women rangers about their particular interests/needs/priorities with respect to this new technology & construction of new space.
3. General feedback from women (and men) about the challenges/constraints and opportunities with respect to women in PA ranger positions, and specific solutions they have for encouraging more women into the field and supporting them in successfully gaining leadership positions.
4. Previous efforts (if any) that have been made by the partner to encourage and support women rangers.

SECTION V: Considerations for the Implementation of the GMP

1. Alignment + integration

The activities, budget, and staffing outlined in this action plan have been integrated into the project's overall Project Document + Results Framework. Please confirm that:

- a. The activities identified in this Action Plan have been integrated into the project's proposal document including the results framework: **YES**
- b. The necessary budget for activities identified in this Action Plan have been integrated into the project's overall budget: **YES**

The activities outlined in the gender action plan have been integrated into the project document and specifically explained in section 4 of the ProDoc and indicated in the Project results framework provided in the ProDoc as Appendix I.

2. Staffing capacities

Describe the project's capacities to implement this Gender Mainstreaming Plan. Who will be responsible for overseeing the implementation of the actions?

- The Safeguard Compliance Officer will be responsible for finalizing the GMP (including the baseline assessment in 1.1.6), implementing, monitoring, and reporting on the gender indicators to CIGEF. The Safeguard Compliance Officer will be supported by the Deputy Regional Program Manager and the in-country executing partners.

Will that person need to be hired or is s/he already on staff?

- The Safeguard Compliance Officer will be hired during the implementation phase on a part-time basis and will be guided by the Safeguards team at Conservation International.

Does that person have the technical background and skills appropriate for the level of complexity of this GMP? If not, how will this be addressed? What percentage of that person's time will be focused on the implementation of this GMP?

- The Terms of Reference for recruiting the Safeguard Compliance Officer will capture the technical background and skills required appropriate for the level of complexity of this GMP.
- The Safeguard Compliance Officer's role will be solely focused on setting up the safeguards plans, implementing, monitoring, and reporting the gender indicators to CIGEF.

E. The Stakeholder Engagement Plan (SEP)

The Stakeholder Engagement Plan (SEP) outlines the differentiated measures that the Executing Agency/Entity will implement to ensure effective participation of key project stakeholders, including men and women, disadvantaged or vulnerable stakeholders. The level of detail in the SEP will vary and should be scaled to conform to the scope of the project, the number of stakeholders involved, potential risks, and impacts present.

The SEP includes a **Stakeholder Analysis** (Section III) to identify all actors who directly or indirectly may affect or be affected by the project and their varying interests. The SEP also outlines stakeholder engagement throughout the project lifecycle, including **Stakeholder Engagement in PPG/PPF Phase** (Section IV), **Stakeholder Engagement in Implementation Phase** (Section V), and **Monitoring and Reporting** (Section VI). These sections outline the appropriate methods for engagement, including through neutral/third-party facilitators, when necessary. The sections also give details of the required public disclosure of information on project scope and impacts, grievance redress mechanism, the budget to complete stakeholder engagement, indicators, and learning opportunities throughout the project cycle.

Each revision of the SEP requires further disclosure to stakeholders.

SECTION I: Project Information

PROJECT TITLE:	The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks		
GEF/GCF PROJECT ID:	10551	PROJECT DURATION:	44 months
EXECUTING AGENCY/ENTITY:	The Allen Institute for Artificial Intelligence (AI2)		
PROJECT START DATE:	July 2022	PROJECT END DATE:	March 2026
SEP PREPARED BY:	Green Approaches Limited		
DATE OF (RE)SUBMISSION TO CI-GEF/GCF:	November 2021		
SEP APPROVED BY:	Ian Kissoon, Director of ESMS, CI-GCF/GEF Agency		
DATE OF CI-GEF/GCF APPROVAL:	November 19, 2021		

SECTION II: Introduction

Context of the project and its stakeholders²⁸⁰

The project titled, *“The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks”* was approved at the June 2020 GEF Council Meeting. The objective of the project is to strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through deployment of the EarthRanger Protected Area Management system and related technologies. This regional project is to be implemented in Botswana (Chobe National Park), Mozambique (Limpopo and Zinave National Parks), Republic of Congo (Nouabalé-Ndoki, Odzala-Kokoua, and Conkouati-Douli National Parks). The Project comprises three components described below.

Component 1: Installation of Earth Ranger software together with other required technologies and infrastructure to achieve Earth Ranger readiness.

Component 1 will support technical and institutional capacity-building, focusing on site-specific infrastructure installations and training of protected area management staff on the use of the EarthRanger software. In consultation with the respective governments of the project participating countries, regional institutions, and experts, needs assessments were carried out for each PA during the PPG Phase to determine site-specific infrastructure and human resource requirements. However, follow-up detailed site assessments will be undertaken in the project inception period during implementation phase to ascertain if the infrastructure and other requirements identified at PPG phase are up-to-date and also to respond to emerging gaps and needs. The Component has one outcome described below:

Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas. This outcome will be delivered through six outputs namely:

- **Output 1.1.1:** EarthRanger software incorporated in the existing protected area management structure in the project countries.

²⁸⁰ Stakeholder refers to individuals or groups who: (a) are affected or likely to be affected by the project (project-affected parties); and (b) may have an interest in the project (other interested parties).

- **Output 1.1.2:** A dedicated, secure, and functional control room facility established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each protected area in the target countries.
- **Output 1.1.3:** Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries.
- **Output 1.1.4:** Digital radio or other appropriate communications network, (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries.
- **Output 1.1.5:** EarthRanger software installed and functional in the selected PAs in the target countries
- **Output 1.1.6:** Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters).

Component 2: Learning, knowledge sharing, and scaling the EarthRanger technology across Africa

Component 2 seeks to increase awareness about the benefits of using conservation technologies specifically the Earth Ranger technology in protected area management and promote uptake in other PAs in African countries. It is anticipated that the interest of other African countries will be stimulated through the dissemination of success stories and best practices related to the EarthRanger technology, and demand for installation and application of this and other conservation technologies to manage their protected areas. The main activities under this component include sharing of the project's lessons, success stories, and best practices through visits (EarthRanger User Conference) and dissemination of information through appropriate modes of communication. Success stories, lessons learnt, and best practices from this project will be disseminated through the Earth Ranger Website (<https://earthranger.com/About-Us.aspx>). The project will also share lessons with ongoing projects such as the GEF-World Bank Global Wildlife Program (GWP) and any other available media outlets and social media platforms. This component targets to achieve one outcome stated below.

Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install EarthRanger technology. This outcome will be achieved through three outputs namely:

- **Output 2.1.1:** Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA
- **Output 2.1.2:** Information sharing events undertaken to enhance learning and promote scaling up
- **Output 2.1.3:** Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms (*where the Earth Ranger software informed decisions in the management of protected areas*).

Component 3: Monitoring and Evaluation

Component 3 will focus on monitoring project activities as well as making suggestions for any improvements that ensure the success of the project. The component will ensure the monitoring and evaluation activities during the implementation of this project is on track. The component has one outcome namely:

Outcome 3.1: An integrated monitoring and evaluation framework for the project. This outcome will be achieved through two outputs namely:

- **Output 3.1.1:** Periodic M&E reports submitted to CIGEF Agency.
- **Output 3.1.2:** Mid-term Evaluation and Terminal Evaluation conducted by CIGEF

Overview of the Stakeholder Engagement Plan

The Stakeholder Engagement Plan (SEP) was prepared in consultation with key stakeholders and is in line with the CI-GEF Environment and Social Management Framework (ESMF). During stakeholder consultation processes, the main stakeholders for each of the participating countries were mapped and their potential roles in the project identified. The objective of this SEP is to provide a roadmap that ensures that stakeholders are adequately mobilized and facilitated to participate in project development, implementation, and monitoring.

The introduction of the EarthRanger technology in protected area management is likely to impact differently on the stakeholders. The key stakeholders in this project vary from the protected area level to the regional level and include Government agencies, Civil Society Organizations, the private sector, academia, and local communities. The key direct stakeholder institutions are categorized under stakeholder groups e.g., Government, CSOs, Private sector, and local communities. These categories of stakeholders impact the project differently. The local communities who have been involved in wildlife crime such as poaching and illegal trade in wildlife products are likely to loath the technology's effectiveness in monitoring; some decision-makers may complain of limited involvement or non-inclusion on the Steering Committee and some discontentment may arise from the selection of the beneficiaries for the training program. Such issues cause conflicts, and the SEP suggests continuous application of engagement strategies, including the holding of face-to-face meetings, focused group discussion meetings, dialogue platforms/workshops, and virtual communications at successive stages of the project development and implementation. However, due to the COVID-19 pandemic, virtual interactions may be utilized more than physical meetings depending on the prevailing situation in each project country.

SECTION III: Stakeholder Analysis

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
BOTSWANA				
Government and Local Authorities				
Ministry of Environment, Natural Resource Conservation, and Tourism (Department of Wildlife and National Parks) <i>(The institution responsible for the management of wildlife and national parks)</i>	Relevance of the Project to the national policy and strategic priorities for conservation of protected areas Increased investment in protected area management and conservation Enhancing the benefits from sustainable management of protected areas, including promotion of tourism Promoting stakeholder participation and	Improved management of the target protected area through: <ul style="list-style-type: none"> Built technical and institutional capacity for effective and efficient management of the Protected Areas in the country Improved performance through training and acquisition of EarthRanger system and related technologies for the 	Influencing sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff <i>(positively or even negatively)</i> Influencing project design and implementation (positively or even negatively) Providing co-finance (in-kind) for project implementation Promoting collaboration and partnerships for the implementation of the project Supporting knowledge	High – because they can influence the delivery of this project and sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
	private-public partnerships in conservation Contribution of the project to climate change mitigation	management of protected areas <ul style="list-style-type: none"> Improved institutional linkages through learning and knowledge sharing on the EarthRanger technology 	management and information sharing. Sustainability of the benefits from and scaling up of the EarthRanger systems and technologies	related to this project
Department of Environmental Affairs (DEA) <i>(Department responsible for all matters related to environmental management)</i>	Sustainable management of biodiversity at ecosystem, species, and genetic levels Balancing conservation and development actions in protected areas	Improved institutional linkages through learning and knowledge sharing on the EarthRanger technology	Influencing project design and implementation (positively or negatively) Promoting collaboration and partnerships for the implementation of the project Supporting knowledge management and information sharing	Low
Department of Tourism <i>(Department responsible for tourism development)</i>	Protection of wildlife resources against poaching and illegal trade in wildlife products Management and promotion of sustainable tourism development	Increased wildlife conservation and tourism attraction resulting from strengthened management of protected areas Information sharing	Information sharing and dissemination	Low
Botswana Defense Force <i>(Government agency responsible for patrol and monitoring of illegal activities in the National Parks)</i>	Security and health of the National Parks	Improved knowledge and information management Improved performance through training and acquisition of Earthanger and related technologies for the management of protected areas	Cooperation for effective application of the EarthRanger and related technologies for protected area management	Medium <i>And how would you manage medium/high-risk stakeholders)</i> <ul style="list-style-type: none"> Sensitization is needed and more interaction
Department of Forestry and Range Resources	Sustainable management of forest resources at ecosystem, species,	Improved institutional linkages through learning and knowledge sharing on the	Influencing project design and implementation (positively or negatively)	Sustainable management of forest resources at ecosystem, species,

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
	and genetic levels Balancing conservation and development actions in Forestry	EarthRanger technology	Promoting collaboration and partnerships for the implementation of the project Supporting knowledge management and information sharing	and genetic levels Balancing conservation and development actions in Forestry
Regional Wildlife Officer for Chobe National Park	Providing policy and strategic guidance for sustainable management of wildlife and protected areas Decentralized service delivery in wildlife conservation	Improved knowledge and information management Improved performance through training and acquisition of EarthRanger and related technologies for improved management of protected areas	Partnership in project implementation Information sharing and dissemination	High – because they can influence the delivery of this project and sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> • Ensure their participation in decision making and involvement in all aspects related to this project
Local Advisory Committees (LACOMs) <i>consisting of members from DWNP, relevant government departments (e.g., Department of Tourism and District Council), private sector, NGOs, tribal authorities, and local communities</i>	Collaborate with DWNP in the management of the national park Participation of public or stakeholder involvement in park governance	The improved advisory capacity of the Committees for effective protected area management	Partnership in project implementation Information sharing and dissemination	Medium And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> • Sensitization is needed and more interaction
Chobe Park Manager	Developing and	Built infrastructure and	Influencing decision-	High – because they

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
	<p>implementing policies and strategic plans for Chobe NP</p> <p>Effective monitoring and protection of wildlife resources in Chobe National Park</p> <p>Technical knowledge and skills in the application of EarthRanger and related technologies</p> <p>Management of human-wildlife conflicts using the EarthRanger technology</p>	<p>functional EarthRanger and related technologies for effective management of the protected areas</p> <p>Technical knowledge and skills in the application of EarthRanger and related technologies through hands-on training</p> <p>Wildlife monitoring, data gathering, and real-time response to curb poaching, illicit trade in wildlife products, and crop-raiding</p>	<p>making at project formulation and implementation</p> <p>Guidance on the location of the site for the control room and other operational posts</p> <p>influencing human resource deployment and monitoring for implementation of the project</p> <p>Coordination and management of information generated from the EarthRanger and related technologies</p>	<p>can influence the delivery of this project and sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff</p> <p>And how would you manage medium/high-risk stakeholders)</p> <ul style="list-style-type: none"> • Ensure their participation in decision making and involvement in all aspects related to this project
<p>Botswana Tourism Organisation (BTO) – a parastatal corporate body responsible for coordinating tourism development and promotion</p>	<p>Tourism marketing and promotion strategies for Botswana</p> <p>Providing advice on policies related to tourism</p> <p>Promoting and improving tourism industry standards</p>	<p>The project will introduce a technology that enhances the protection of wildlife and boosts the tourism potential</p> <p>Providing real-time information to support tourism</p>	<p>Information sharing</p> <p>Awareness campaigns in and outside the country about the effectiveness of EarthRanger technology</p>	<p>Low</p>
<p>CSOs/NGOs</p>				
<p>Conservation International</p>	<p>Support countries to develop decision-making conservation tools, information sharing, and leveraging financial resources</p>	<p>Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of data;</p>	<p>Support the design and implementation of the Project, including baseline surveys, co-financing, and information management Monitoring of project implementation to ensure</p>	<p>High – because CI is a GEF implementing Agency and Executing Agency Support partner</p> <p>And how would</p>

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
	for environments and natural resources management		timely delivery of project outputs. Maintaining oversight of all technical and financial management aspects	you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Rhino Conservation Botswana (RCB)	Effective monitoring and protection of wild black and white rhino in Botswana and safeguarding the vast ecosystems in which they live. Technical knowledge and skills in the application of EarthRanger technology	The project introduces a technology that enhances the protection of endangered wildlife species, including rhinos. Collar tracking and monitoring will help to ensure the health and well-being of these species. Information sharing and training on data collection, processing, and transmission	Collaboration in project implementation Co-financing the Project Information sharing and management with national and international stakeholders	Low
Kalahari Conservation Society	Knowledge and exposure in the application of the EarthRanger technology and how it contributes to protecting Botswana's biodiversity and community wellbeing	Provision of information on EarthRanger technology to support the Society's effort in environmental education, advocacy on the protection of wildlife, and demonstration of the value of wildlife and natural resources to the adjacent local communities	Collaboration in environmental education and information sharing on the application of the EarthRanger technology and advocacy for scaling it up to other protected areas for effective wildlife and natural resources conservation and enhanced benefits to adjacent local communities	Low
Local communities				
Community Trust CBOs and their associated Boards of Trustees as supreme governing	Lease of the protected areas for sustainable participation of the	Improved management of the protected areas will enhance tourism potential within the	Mobilizing the local community to participate and collaborate in project implementation	Medium And how would you manage

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bodies; <i>(Communities organized at village level to participate in the management of protected areas through community-based natural resource management (CBNRM) arrangements)</i>	communities in CBNRM Benefit from the protected area to the communities, mostly through tourism development, in collaboration with safari companies.	areas under CBNRM arrangement and increase earnings for the communities Improved community livelihoods However, improved conservation of wildlife may increase human-wildlife conflicts with the farming communities and those involved in poaching and illegal trade in wildlife products	Information and knowledge sharing Community actions may increase human-wildlife conflicts	medium/high-risk stakeholders) Development and implementation of the Accountability and Grievance Mechanism to address any issues emerging from the communities
Private Sector				
The Allen Institute for Artificial Intelligence (AI2)	Addressing challenges facing biodiversity conservation and communities. In particular, preserving biodiversity by developing technology, data, policy, and awareness to safeguard wildlife	Distribution of the EarthRanger technologies required for building infrastructure in the protected areas Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of data from various protected areas Increased awareness about and potential to adopt Earth Ranger Technologies in other African countries and beyond.	Owner of the Earth Ranger Technology Co-financing the Project Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(positively or even negatively)</i>	High – because they own the Earth Ranger technology, they have committed cash co-financing that complements the GEF's grant and the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Wilderness Safaris	Tour operator leasing concessions	Improved tourism potential through	Proactive contribution to the conservation of	Low

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	from the community Promoting the conservation of endangered species	increased protection of wildlife	threatened species Collaboration in project implementation Co-financing of the Project	
MOZAMBIQUE				
Government and Local Authorities				
FNDS (National Fund for Sustainable Development)	Creating an enabling environment for conservation in Mozambique, including awareness-raising; Dissemination of biodiversity knowledge and establishment of dialogue and partnership with the private sector, as well as attracting and retaining young professionals in the conservation sector	Collaboration and networking Information sharing and training on data collection, processing, and transmission	Influencing project design and implementation (positively or even negatively) Influencing sustainability of project results since they are directly responsible for coordinating the World Bank's GEF funded MozBio project and the CI Earth Ranger project to deploy the Earth Ranger technology in the target parks Stakeholder collaboration and partnership Possible co-funding Information sharing and management with national and international stakeholders	High – because they are directly responsible for coordinating the World Bank's GEF funded MozBio project and the CI Earth Ranger project to deploy the Earth Ranger technology in the target parks And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Ministry of Land, Environment and Rural Development (MITADER). <i>(Overall leadership and policy guidance, planning, and coordination for the protection and conservation of wildlife resources).</i>	Improved performance through training and acquisition of EarthRanger and related technologies for improved protected area management. Promoting tourism	Built technical and institutional capacity for effective and efficient management of the protected areas in the country Improved institutional linkages through learning and knowledge sharing on the EarthRanger technology	Project promoters at the national level Key decision-makers on wildlife conservation and management and knowledge management Sustainability of the benefits from and scaling up of the EarthRanger and related technologies	Medium And how would you manage medium/high-risk stakeholders) Sensitization is needed and more interaction

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	potential			
National Directorate of Forest and Wildlife (DNFFB) <i>(Department responsible for wildlife management)</i>	Sound policies and technology advancement for effective conservation and management of protected areas The sustainable flow of benefits from sustainable conservation of wildlife	Improved performance through training and acquisition of EarthRanger and related technologies for wildlife management Improved institutional linkages through learning and knowledge sharing on the EarthRanger technology	Influencing project design and implementation (positively or negatively) Promoting collaboration and partnerships for the implementation of the project Supporting knowledge management and information sharing	Low
ANAC (Administração Nacional Das Áreas De Conservação)	Sound policies and technology advancement for effective conservation and management of wildlife resources and their habitats in consultation with local, regional and international stakeholders The sustainable flow of benefits from sustainable conservation of wildlife Improved monitoring and real-time response for wildlife management	Improved performance through training and acquisition of EarthRanger system and related technologies for wildlife management Improved institutional linkages through learning and knowledge sharing on the EarthRanger technology	Influencing project design and implementation (positively or negatively) Promoting collaboration and partnerships for the implementation of the project Supporting knowledge management and information sharing	Medium <i>And how would you manage medium/high-risk stakeholders)</i> <ul style="list-style-type: none"> Sensitization is needed and more interaction
CSOs/NGOs				
Conservation International (CI)	Support countries to develop decision-making conservation tools, information sharing, and leveraging financial resources for environments	Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of data;	Support the design and implementation of the Project, including baseline surveys, co-financing, and information management Monitoring of project implementation to ensure timely delivery of project	High – because CI is a GEF implementing Agency and Executing Agency Support partner <i>And how would you manage</i>

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	and natural resources management		outputs. Maintaining oversight of all technical and financial management aspects	medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Peace Parks Foundation (PPF)	Sustainable natural resources management and conservation, especially wildlife in Limpopo and Zinave National Parks	Collaboration and networking Information sharing and training on data collection, processing, and transmission	Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i> Collaboration in project implementation Co-financing the Project Promoting capacity building for improved performance, including the provision of training and acquisition of required equipment and tools Information sharing and management with national and international stakeholders	High – because PPF has a partnership agreement with the Mozambique Government to manage both the Limpopo and Zinave National Parks. On this basis, PPF can influence the delivery of this project and the sustainability of project results And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Environmental Management Conservation Trust (EMCT)	Sustainable natural resources management and conservation, especially wildlife in Limpopo National	Collaboration and networking Information sharing and training on data collection, processing,	Collaboration, networking, and information sharing	Low

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	Park	and transmission		
World Bank/IDA	Providing financial support for development, including conservation of biodiversity initiatives	Collaboration, networking, and information sharing	Stakeholder collaboration and networking Information sharing and management with national and international stakeholders	Low
National Coordinator of MozBio <i>(Has been providing support to Marromeu; Chimanimani and Elephant coast landscapes)</i>	Improving the management of conservation areas and improving the living conditions of resident communities	Collaboration, networking, and information sharing	Collaboration, networking, and information sharing	Low
USAID Mozambique	Supporting sustainable management of protected areas; promoting social and economic improvements for communities in and around the conservation areas; capacity building for effective climate risk response; strengthening policy and legal reforms to protect natural resources	Collaboration, networking, and information sharing	Collaboration, networking, and information sharing	Low
SPEED (Support Program for Economic and Enterprise Development- A USAID-funded project)	Improving the business environment through better trade and investment policies, aimed at reducing the cost of doing business; enhancing Mozambique's competitiveness; creating local opportunities for	Collaboration, networking, and information sharing	Collaboration, networking, and information sharing	Low

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	job and income growth and improving the business environment in trade and investment			
Private Sector				
The Allen Institute for Artificial Intelligence (AI2)	Addressing challenges facing biodiversity conservation and communities. In particular, preserving biodiversity by developing technology, data, policy, and awareness to safeguard wildlife	Distribution of the EarthRanger technologies required for building infrastructure in the protected areas Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of data from various protected areas Increased awareness about and potential to adopt Earth Ranger Technologies in other African countries and beyond.	Owner of the Earth Ranger Technology Co-financing the Project Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i>	High – because they own the Earth Ranger technology, they have committed cash co-financing that complements the GEF's grant and the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
BIOFUND (Foundation for Financing of Protected Areas) <i>A private financial institution with the aim of financing the conservation of biodiversity in Mozambique</i>	Support conservation of biodiversity and sustainable use of natural resources	Collaboration, networking, and information sharing	Collaboration, networking, and information sharing	Low
The Republic of Congo				

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Government and Local Authorities				
Ministry of Tourism and Environment (Ministère Tourisme et Environnement) <i>(Ministry responsible for environment and tourism)</i>	<p>Sustainable environment management and development</p> <p>Dialogue on policy, planning, coordination, and regulation of environment and tourism.</p> <p>Developing partnership for environment management and tourism development</p>	<p>Improved management of the target protected area through:</p> <ul style="list-style-type: none"> Data and information sharing will inform the policy and planning of the Ministry. Improved performance through training and acquisition of EarthRanger and related technologies for improved protected area management Improved research and monitoring of key species likely to boost the tourist industry 	<p>Influencing sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff <i>(positively or even negatively)</i></p> <p>Influencing project design and implementation (positively or even negatively)</p> <p>Providing co-finance (in-kind) for project implementation</p> <p>Promoting collaboration and partnerships for the implementation of the project</p> <p>Supporting knowledge management and information sharing.</p> <p>Sustainability of the benefits from and scaling up of the EarthRanger systems and technologies</p>	<p>High – because they can influence the delivery of this project and sustainability of project results since this project's interventions are anchored on government systems and will be utilized by government staff</p> <p>And how would you manage medium/high-risk stakeholders)</p> <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Ministry of Forest Economy (Ministère Economie forestière) <i>(Ministry responsible for PA management, in collaboration with the Congolese Agency for Wildlife and Protected Areas [ACFAP])</i>	<p>Sustainable management of forest resources</p> <p>Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources.</p> <p>Developing partnership for protected area</p>	<ul style="list-style-type: none"> Improved performance through training and acquisition of EarthRanger Protected Area Management system and related technologies Improved research and monitoring of key species will provide tourism opportunities in 	<p>Influencing decision-making processes during project formulation and implementation</p> <p>Participation in project implementation and decision making</p> <p>Co-financing the Project</p> <p>Information sharing</p>	<p>Medium</p> <p>And how would you manage medium/high-risk stakeholders)</p> <p>Will be represented on the Steering Committee to contribute to effective project implementation</p>

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	conservation	the park		
Congolese Agency for Wildlife and Protected Areas (ACFAP) <i>(Agency responsible for PA management)</i>	Sustainable management of forest resources Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources. Developing partnership for protected area conservation	Improved performance through training and acquisition of EarthRanger and related technologies for improved protected area management. Improved research and monitoring of key species will provide tourism opportunities in the park	Influencing decision-making processes during project formulation and implementation Participation in project implementation and decision making Co-financing the Project Information sharing	Medium <i>And how would you manage medium/high-risk stakeholders)</i> Will be represented on the Steering Committee to contribute to effective project implementation
National Center for Inventory and Management of Forest and Wildlife Resources in the Ministry of Forest Economies	Sustainable management of forest resources Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources; Developing partnership for protected area conservation	Improved performance through training and acquisition of EarthRanger and related technologies for the improved protected area management system. Improved research and monitoring of key species will provide tourism opportunities in the park	Influencing decision-making processes during project formulation and implementation Participation in project implementation and decision making Co-financing the Project Information sharing	Medium <i>And how would you manage medium/high-risk stakeholders)</i> Will be represented on the Steering Committee to contribute to effective project implementation
Director of Studies and Planning of the Forest Economy Ministry	Sustainable management of forest resources Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources.	Improved performance through training and acquisition of EarthRanger and related technologies for the improved protected area management system. Improved research and monitoring of key	Influencing decision-making processes during project formulation and implementation Participation in project implementation and decision making Co-financing the Project	Medium <i>And how would you manage medium/high-risk stakeholders)</i> Will be represented on the Steering Committee to contribute to effective project

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	Developing partnership for protected area conservation	species will provide tourism opportunities in the park	Information sharing	implementation
Director of the Project for the Creation of Bais de Loango Marine Protected Area	Sustainable management of forest resources Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources. Developing partnership for protected area conservation	Improved performance through training and acquisition of EarthRanger and related technologies for improved protected area management. Improved research and monitoring of key species will provide future tourism opportunities in the park	Influencing decision-making processes during project formulation and implementation Participation in project implementation and decision making Co-financing the Project Information sharing	Medium And how would you manage medium/high-risk stakeholders) Will be represented on the Steering Committee to contribute to effective project implementation
Department of Wildlife and Protected Areas <i>(Protected Area Level Institutions responsible for wildlife management)</i>	Sustainable management of forest resources Dialogue on policy, planning, coordination, and regulation of protection and conservation of forest resources. Developing partnership for protected area conservation	Improved performance through training and acquisition of EarthRanger and related technologies for the improved protected area management system. Improved research and monitoring of key species will provide tourism opportunities in the park	Influencing decision-making processes during project formulation and implementation Participation in project implementation and decision making Co-financing the Project Information sharing	Medium And how would you manage medium/high-risk stakeholders) Will be represented on the Steering Committee to contribute to effective project implementation
CSOs/NGOs				
Conservation International	Support countries to develop decision-making conservation tools, information sharing,	Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of	Support the design and implementation of the Project, including baseline surveys, co-financing, and information management	High – because CI is a GEF implementing Agency and Executing Agency Support partner

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	and leveraging financial resources for environments and natural resources management	data;	Monitoring of project implementation to ensure timely delivery of project outputs. Maintaining oversight of all technical and financial management aspects	And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Wildlife Conservation Society (WCS)	Sustainable management and conservation of natural resources, especially wildlife Research on wildlife conservation and ecosystem monitoring Strengthening institutional capacity for management efficiency in protected area management	Leveraging opportunity for collaboration and networking Technical capacity to monitor wildlife and ecosystems in protected areas boosted through the application of EarthRanger and related technologies for improved protected area management Shared data from the EarthRanger management system	Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i> Collaboration in project implementation Co-financing the Project Promoting capacity building for improved performance, including the provision of training and acquisition of required equipment and tools Information sharing and management with national and international stakeholders	High – because WCS has a partnership agreement with the Government to manage the <i>Nouabalé-Ndoki National Park</i> . On this basis, WCS can influence the delivery of this project and the sustainability of project results And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project
Worldwide Fund for Nature (WWF)	Sustainable management and	Leveraging opportunity for collaboration and	Cooperation and information sharing to	Low

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	<p>conservation of natural resources, especially wildlife</p> <p>Research on wildlife conservation and ecosystem monitoring</p> <p>strengthening institutional capacity for management efficiency in protected area management</p>	<p>networking</p> <p>Technical capacity to monitor wildlife and ecosystems in protected area boosted through the application of EarthRanger and related technologies for improved protected area management</p> <p>Shared data from the EarthRanger and protected area management system</p>	<p>support project design and implementation</p> <p>Potential co-financing the Project</p> <p>Information sharing and management with national and international stakeholders</p>	
<p>African Parks <i>Management of Odzala-Kokoua National Park in partnership with the Congolese Government under Odzala Foundation</i></p>	<p>Protection of globally significant parks, including Odzala-Kokoua</p> <p>Improving the well-being of communities who live in and around Odzala-Kokoua National Park</p> <p>Promoting tourism</p>	<p>Collaboration and networking</p> <p>Increase the technical capacity to monitor protected areas through the application of EarthRanger and related technologies for improved protected area management</p> <p>Information sharing and dissemination</p>	<p>Influencing decision-making at project formulation and implementation</p> <p>Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i></p> <p>Collaboration in project implementation</p> <p>Co-financing the Project</p> <p>Promoting capacity building for improved performance, including the provision of training and acquisition of required equipment and tools</p> <p>Information sharing and management with national and international stakeholders</p>	<p>High – because African Parks has a partnership agreement with the Government to manage the <i>Odzala-Kokoua National Park</i>. On this basis, African Parks can influence the delivery of this project and the sustainability of project results</p> <p>And how would you manage medium/high-risk stakeholders)</p> <ul style="list-style-type: none"> • Ensure their participation in decision making and involvement in all aspects related to this project

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National Coordination of Civil Society for Sustainable Development (CONADEC)	Advocacy for sustainable natural resource management Information sharing	Awareness creation	Awareness creation and information sharing	Low
Noé Association <i>An international NGO was chosen by the Republic of Congo for the management of the Conkouati-Douli National Park</i>	Supporting the safeguard of biodiversity, including protected area management, biodiversity conservation, and community economic development involving civil society and the private sector	Collaboration and networking Increase the technical capacity to monitor protected areas through the application of EarthRanger and related technologies for improved protected area management Information sharing and dissemination	Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i> Collaboration in project implementation Co-financing the Project Promoting capacity building for improved performance, including provision of training and acquisition of required equipment and tools Information sharing and management with national and international stakeholders	High – because Noé has a partnership agreement with the Government to manage the <i>Conkouati-Douli National Park</i> . On this basis, Noé can influence the delivery of this project and the sustainability of project results And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> • Ensure their participation in decision making and involvement in all aspects related to this project
Local communities				
Local Communities and Indigenous Populations (CLPI)	Community-based management of protected areas Benefit-sharing from protected areas	Increased human-wildlife conflicts due to increased wildlife population Reduced access to the protected areas for bushmeat due to	Community mobilization for meaningful participation in project implementation and human-wildlife management However, poaching for	Medium And how would you manage medium/high-risk stakeholders) Development and implementation of

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	Community wellbeing, including projects that enhance income generation for communities living in the periphery of the protected areas e.g. community-based tourism development	increased monitoring through application of the EarthRanger and associated technologies	bushmeat remains a major threat and maybe a source of conflict	the Accountability and Grievance Mechanism to address any issues emerging from local communities and Indigenous people Information sharing with organizations that promote community-based conservation awareness and education on livelihoods e.g. community-based ecotourism enterprises
Private Sector				
The Allen Institute for Artificial Intelligence (AI2)	Addressing challenges facing biodiversity conservation and communities. In particular, preserving biodiversity by developing technology, data, policy, and awareness to safeguard wildlife	Distribution of the EarthRanger technologies required for building infrastructure in the protected areas Increased field knowledge, experience, exposure, and field skills and improving quality and diversity of data from various protected areas Increased awareness about and potential to adopt Earth Ranger Technologies in other African countries and beyond.	Owner of the Earth Ranger Technology Co-financing the Project Influencing decision-making at project formulation and implementation Influencing sustainability of project results since the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. <i>(Positively or even negatively)</i>	High – because they own the Earth Ranger technology, they have committed cash co-financing that complements the GEF's grant and the beneficiaries and grantees depend on them to build their capacity to deploy, manage and utilize the ER technology. And how would you manage medium/high-risk stakeholders) <ul style="list-style-type: none"> Ensure their participation in decision making and involvement in all aspects related to this project

Stakeholder Name and Function <i>Name of the key stakeholder, and their main purpose/function</i>	Stakeholder's Interest <i>What are the stakeholder's main interests and concerns about the project?</i>	Impact of Project on Stakeholder <i>How will the stakeholder be affected (both positively and negatively) by the project?</i>	Influence of Stakeholder <i>How can the stakeholder affect the project? Can they hinder or contribute to the success of the project?</i>	Risk Management <i>(Is this a low, medium, or high-risk stakeholder? And how would you manage medium/high-risk stakeholders)</i>
Petroleum, mining, and forest dealers	Understanding how the deployment of the EarthRanger technology is likely to affect their business	Improved monitoring and tracking are likely to reveal illegal activities to the dislike of businesspeople.	Opening roads into the forest tends to increase access to the park for poaching and illegal trade in wildlife products The economic interests of the companies leading to extractive use of the natural resources are likely to affect the conservation agenda of the project	Medium Participation in awareness meetings And how would you manage medium/high-risk stakeholders) Sharing and dissemination of information

SECTION IV: Stakeholder Engagement During PPG/PPF Phase

Stakeholder Names	Dates, Locations, and Methods of Engagement²⁸¹	Outcomes
Botswana		
Dr. Senyatso, Director, Directorate of Wildlife and National Parks GEF Focal Point	Face to face consultative meeting was held in November 2020 meeting	Introductory meeting with National Consultant
Dr. Senyatso, Director, Directorate of Wildlife and National Parks; GEF Focal Point	The virtual consultative meeting was held on November 2020,	Initial meetings to introduce the Project, including the objectives, expected outcomes, and the need for stakeholder participation during project preparation and implementation. The meeting also helped in mapping the key stakeholders for the Project. Further meetings were planned to involve AI2 and other decision-making agencies to discuss the selection of target PAs; Chobe, the criteria for PA selection, and the key stakeholders.
Ministry of Environment, Natural Resources Conservation, and Tourism (Four female staff participates)	Face To face meeting was held in November 2020	The meeting was held to brief the Ministry of Environment, Natural Resources Conservation, and Tourism on the project and the start date for the project document development. It was agreed that the project should be discussed with the Director of Wildlife and National Parks before consulting other stakeholders

²⁸¹ Method of engagement can be face-to-face meeting, telephone call, workshop, consultation, survey, etc.

Stakeholder Names	Dates, Locations, and Methods of Engagement ²⁸¹	Outcomes
Mr. Mosinthaka, Department of Environmental Affairs	Face to face meeting was held	The meeting was held to request information on non-GEF funded projects which could be linked to the proposed project. Information on national no-GEF-funded projects was provided.
Department of Environmental Affairs (DEA)	Face to face meeting was held in December 2020	The discussion focused on the GEF funded projects and collection of information on other ongoing or closed GEF/ GEF funded projects
Dr. Senyatso, Directorate of Wildlife and National Parks	Face to face consultative meeting was held in January 2021	The discussion was held to agree on key stakeholders to consult in light of the COVID-19 protocols. Agreed on the mode of the communication channel to be used during consultations as the project document is being developed
Mr. Othusitse, GEF National Focal point	Face to face meeting was held in consultative January 2021 meeting	The discussion focused on the ongoing and recently closed GEF and non-GEF-founded national projects. Information on the projects was provided.
Mr. Ntshebe Regional Officer, Maun Regional office (Department of National Parks)	Face to face meeting was held in January 2021	The purpose of the meeting was to introduce the project and solicit background information on Moremi Game Reserve required for the project document development. The request was sent to the Director of National Game Reserves and National Parks to provide information on Moremi Game Reserve
Dr. Senyatso, Director, Directorate of Wildlife and National Parks	The virtual consultative meeting was held in January 2021	The discussion focused on the selection of project sites for Botswana. The Director proposed that the GEF7 funding should focus on Chobe only, for the following reasons: <ul style="list-style-type: none"> • Chobe is a large, protected area with limited infrastructure. It will require solar power in the eight regional stations to run EarthRanger effectively. It will also require a large LoRa network. He stated that most of the funds will be required in Chobe. • Chobe has a large population of elephants that needs protection from poachers. Human-wildlife conflict is common and escalating and could be managed using EarthRanger. • Moremi has infrastructure donated and installed under a different project but will still feed the EarthRanger.
Dr. Senyatso Directorate of Wildlife and National Parks	Face to face consultative meeting was held in April 2021	The purpose of the meeting was to request background information on Chobe National Park, seek clarification on the current PA management structure and potential partners for the implementation of the project in Botswana. The Director DWNP provided information on the current PA management structure.
Consultations with various stakeholders: Green Approaches, The Botswana National Consultant, and DWNP staff (Mr. Matshelo Makondo – Regional Wildlife Officer)	Virtual discussions and exchanges of filled METT forms in October 2021	METT scores discussed for Chobe National Park; a draft METT prepared and submitted.
Mozambique		

Stakeholder Names	Dates, Locations, and Methods of Engagement ²⁸¹	Outcomes
FNDS (<i>National Fund for Sustainable Development</i>) through the National Coordinator of MozBio	The meeting was held on 2 nd November 2020 in Maputo, through a phone conversation	The discussion was to understand the involvement of FNDS as well as its interest in the EarthRanger Project. The National Coordinator of MozBio revealed that MozBio has been discussing with AI2 for more than 2 years the installation of EarthRanger in the Mozambique National Parks. From the discussion, MozBio decided to allocate USD 500,000 for the installation and establishment of EarthRanger in the three conservation areas that ANAC has been working with and at the central level. MozBio has been working with three conservation areas for the installation of EarthRanger, namely Maputo Special Reserve (Co-managed with Peace Parks Foundation [PPF]), Chimanimani National Reserve (Co-managed with Flora and Fauna International [FFI]) and Marromeu Special Reserve (Co-managed with Greg Carr Foundation). Maputo Special Reserve has established an Office for operations of the EarthRanger while Marromeu Special Reserve and Chimanimani National Reserve have almost nothing. MozBio is more interested to start with small conservation areas, consolidating and expanding after lessons learned. For ANAC, the EarthRanger project in Mozambique will allow a greater impact on the ground.
ANAC, MozBio, AI2, GAL	The meeting was held on 3 rd November 2020 in Maputo, via zoom	The meeting was held to discuss and decide on the project sites for the EarthRanger Project. After assessing the possible conservation areas for GEF funding with a focus on infrastructure, equipment, and budget and the need to invest the funds in a project which can generate lessons that can then be used for replication of the EarthRanger to other protected areas in Mozambique, ANAC and MozBio agreed that the GEF7 funded protected areas will be: 1) Zinave National Park (co-managed with PPF) – 4,121 sq. km and Limpopo National Park (co-managed with PPF) – 11,150 sq km. The key selection criteria included the existence of minimal infrastructure to facilitate installation of EarthRanger system and the associated technologies and willingness of the management team to apply the technology in protected area management
BIOFUND (Foundation for Financing of Protected Areas) through the Programme Manager	The meeting was held on 16 th December 2020 by Face-to-in BIOFUND Office, Maputo	This meeting was held to assess the position of BIOFUND on the EarthRanger. BIOFUND has been supported with financial resources for the management of protected areas in Mozambique (covering fuel, maintenance) and training and capacity building on leadership for ANAC staff. It was noted that BIOFUND faced challenges in monitoring and law enforcement in almost all the protected areas including difficulties in compiling and integrating data in the decision-making process. BOFUND looks at the GEF project and installation of EarthRanger as a great opportunity to enhance law enforcement and

Stakeholder Names	Dates, Locations, and Methods of Engagement ²⁸¹	Outcomes
		data management.
USAID Mozambique	Face to face meeting was held on 16 th December 2020 in Vamili Lodge in Marracuene District, Maputo	This meeting discussed the USAID current and future funding in Mozambique. USAID has been supporting the development of satellite technologies to support law enforcement (anti-poaching) and improve the management of protected areas in Mozambique. USAID has been supporting the development of a management plan and the resilience water program in Zinave National Park. The future USAID support will focus on forest and marine areas conservation. USAID sees EarthRanger fitting very well in the efforts to combat illegal logging and poaching in Mozambique.
SPEED (USAID funded project)	Face to face meeting was held on 16 th December 2020 in Vamili Lodge in Marracuene District, Maputo	This meeting discussed the potential synergies between EarthRanger and SPEED projects. SPEED has been developing training materials, carrying out capacity building of the Attorney General, and linking with the Ministry of Justice. Although this Project is expected to close in early 2021, USAID is willing to continue into the next phase and EarthRanger will generate data to support the work already started.
WWF Mozambique	Face to face meeting was held on 16 th December 2020 in Dona Berta restaurant, Maputo	This meeting explored the potential synergies between the proposed EarthRanger and WWF projects. WWF Mozambique – in collaboration with WWF South Africa – has been implementing a USAID-funded Regional Project named Ketha Project (2019 – 2024) focused on the development of community initiatives to reduce poaching in Limpopo National Park. The project involves 5 private game farms situated in the buffer zones of the Park. WWF's main activities include capacity building of local communities and district authorities on governance, financial management, partnership development, and communication. This project also includes training of the Attorney General and park rangers. It was agreed that EarthRanger can be integrated into the CBNRM activities which can also help to enhance discussions and practices to reduce poaching in and around Limpopo National Park.
Limpopo National Park (Park Warden)	A phone call conversation was held on 20 th December 2020, Maputo,	This discussion focused on the park management (ANAC) portfolio and assessed how best EarthRanger would fit in the overall framework. ANAC has been working on three projects: anti-poaching in collaboration and support from PPF, USAID; Community Based Natural Resources Management in and outside the Park and; Park Restoration Project. EarthRanger fits in very well in the efforts to combat poaching in collaboration with private companies involved in hunting on game farms.
Consultations with various stakeholders: Green Approaches, The Mozambique National Consultant, and PPF staff for	Virtual discussions and exchanges of filled METT forms in October 2021 and review of the preliminary site assessment forms.	METT scores discussed for Limpopo and Zinave National Parks; a draft METT prepared and submitted.

Stakeholder Names	Dates, Locations, and Methods of Engagement ²⁸¹	Outcomes
Limpopo and Zinave National Park		
Republic of Congo		
GEF Operational Focal Point, Ministry of Tourism and Environment	The conversation was held in November 2020. By email and phone call	The conversation focused on the introduction of the National Consultant and the briefs on the assignment and requested for the office to provide the necessary support to facilitate the information gathering process, including stakeholder consultations and access to relevant literature, in order to deliver the project document in time.
Mr. Pascal Locko, Environmental Advisor to the Minister, Ministry of Tourism and Environment	A meeting was held in November 2021	Individual consultations with the stakeholders were held to introduce and discuss the prospects of the EarthRanger Project in the Republic of Congo. It was noted that the EarthRanger Project document had been sent to the Directorate General of the Environment
Mr. Leyono, Director of Pollution Forecasting at the Directorate General of the Environment	Face to face meeting was held in December 2021 between	Discussions focused on: <ul style="list-style-type: none"> • Initiation of formal correspondence on the EarthRanger Project, following the introduction. • The National Consultant to prepare briefing notes on the Project for information of the Minister and other officials • Invitation of the Ministry responsible for wildlife and protected areas to get involved in the PPG process • Noted that there was a lot of institutional reform on the management of natural resources in the Republic of Congo in recent years and the search for information takes a little time.
DG of the Environment	A phone call conversation was held in Jan 2021 between the National Consultant and the DG	Scheduling of the meeting to involve CI, AI2 Green Approaches Ltd, and the national stakeholders to launch the Project and also discuss the selection of the PAs for the Project. The proposed date of the meeting was January 19, 2021, in Brazzaville. However, the meeting was later postponed.
CI, AI2 Green Approaches, National Consultant – Mr. Lembe	A virtual meeting was held on 26, February 2021	The meeting was aimed at having a common understanding of the approach to stakeholder consultations and especially on the selection of the priority PAs for project intervention. It was noted that preliminary stakeholder consultations indicated that five National Parks were proposed for the Project intervention. These are: <ul style="list-style-type: none"> • Nouabalé-Ndoki (WCS Congo) • Conkouati-Douli, (Noé) • Odzala-Kokoua, (African Parks) • Ntokou-Pikounda (WWF Congo), and • Lac télé (WCS Congo) However, due to limited resources, the following were selected. <ul style="list-style-type: none"> • Odzala Kokoua • Ntokou Pikounda • Nouabale Ndoki.

Stakeholder Names	Dates, Locations, and Methods of Engagement ²⁸¹	Outcomes
		Further consultations were to be held to concretize the PAs selection.
Mr. Borel Hermann Leyono, Director General of the Environment	Face to face meeting was held on March 24, 2021	<p>Establishment of the inter-Ministerial Team to supervise the meetings, examine and validate the project document of the GEF7 Project.</p> <ol style="list-style-type: none"> 1. Chairman: Chief of staff of the Minister of Tourism and the Environment or his Representative, 2. First Vice-President: Director General of Wildlife and Protected Areas (DG ACFAP) at the Ministry of Forest Economy. 3. Second - Vice-President: Director-General of the Environment at the Ministry of Tourism and the Environment. 4. Rapporteur: Director of Environmental Education at the Ministry of Tourism and the Environment. 5. Session secretary: National consultant / Conservation International & AI2 group 6. Members: <ul style="list-style-type: none"> • Director of Studies and Projects at the Ministry of Forest Economy. • Director of Wildlife and Protected Areas (DFAP) at the Ministry of Forest Economy • Director of the Marine Protected Area Project of the Bay of Loango (D PAMP) at the Ministry of Forest Economy. • Director of Natural Ecosystems at the Ministry of Tourism and the Environment. • Two (2) Gender Resource Persons from the Tourism and Sustainable Development Departments <p>The inaugural meeting for the stakeholders was scheduled to take place on 27.04.2021</p>
Stakeholder meeting, with the participation of CI, AI2, Green Approaches Limited, and national stakeholders	A Physical-virtual meeting was held on April 27, 2021.	<p>Stakeholder meeting to discuss various aspects of the project, including the selection of priority PAs for project intervention.</p> <p>The final list of selected PAs include:</p> <ul style="list-style-type: none"> • Odzala-Kokoua (1,354,600 ha), • Nouabalé-Ndoki (423,800 ha), and • Conkouati-Douli (504,900 ha)
Stakeholder discussions, with African Parks, Noé, and Wildlife Conservation Society with Green Approaches Limited on Preparation of the METT.	Virtual discussions in a series of meetings and exchange of the METT tool in September 2021.	A METT tool was developed and submitted

b. Project Disclosure

Disclosing project information is essential for meaningful consultation on project design and for stakeholders to understand the potential opportunities of the project, and the risks and impacts of the project.

Confirm that the following information was shared with stakeholders in a timely manner and in an appropriate form and language during the PPG/PPF Phase:

Information	When, How, and Where this was shared?
<input checked="" type="checkbox"/> The purpose, nature, and scale of the project	During the stakeholder consultation meetings through written briefs, emails, face-to-face and virtual meetings
<input checked="" type="checkbox"/> The duration of proposed project activities	During the stakeholder consultation meetings through written briefs, emails, face-to-face and virtual meetings
<input type="checkbox"/> Information from the environmental and social safeguard screening process, regarding potential risks and impacts of the project on stakeholders, including: <ul style="list-style-type: none"> Proposals for mitigating risks and impacts Potential risks and impacts that might disproportionately affect vulnerable and disadvantaged groups Description of differentiated measures to be taken to avoid and minimize disproportionate risks and impacts 	<i>Will be shared during the Project Inception period</i>
<input checked="" type="checkbox"/> The proposed stakeholder engagement process, highlighting ways in which stakeholders can participate and contribute during project design and/or implementation	During the stakeholder consultation meetings through written briefs, emails, face-to-face and virtual meetings
<input checked="" type="checkbox"/> The time and venue of proposed public consultation meetings, and the process by which meetings will be notified, summarized, and reported	During the stakeholder consultation meetings through written briefs, emails, face-to-face and virtual meetings
<input type="checkbox"/> The process and means by which grievances can be raised and addressed	<i>Will be shared during the Project Inception period</i>

c. Reporting of Indicators During PPG/PPF

Botswana					
Number (and name) of stakeholder groups involved in project design and preparation process	<p>2 Stakeholder groups involved</p> <p>A. Government Ministry and Departments (6)</p> <ul style="list-style-type: none"> Ministry of Environment, Natural Resources Conservation and Tourism (MENT) Department of wildlife and National Parks (DWNP) head offices Gaborone Department of Wildlife and National Parks Regional Office Maun Chobe National Park Department of Environmental Affairs (DEA) <p>B. Private Sector</p> <ul style="list-style-type: none"> Botswana Tourism Organization 				
Number of people who have been involved in the project design and preparation process	<table border="1"> <tr> <td><i>Men: 7</i></td> <td><i>Total: 11</i></td> </tr> <tr> <td><i>Women: 4</i></td> <td></td> </tr> </table>	<i>Men: 7</i>	<i>Total: 11</i>	<i>Women: 4</i>	
<i>Men: 7</i>	<i>Total: 11</i>				
<i>Women: 4</i>					
Number of engagements (meetings, workshops, consultations, etc...) with stakeholders during the PPG phase	<p>11 meetings:</p> <ul style="list-style-type: none"> Three face-to-face meetings were held in Gaborone Eight consultations via teams, zoom 				

Mozambique		
Number (and name) of stakeholder groups involved in project design and preparation process	<p>2 Stakeholder groups involved</p> <p>A. Government agencies (3)</p> <ul style="list-style-type: none"> • FNDS (National Fund for Sustainable Development) • ANAC • BIOFUND (Foundation for Financing of Protected Areas) <p>B. Civil Society Organizations (3)</p> <ul style="list-style-type: none"> • USAID Mozambique • WWF Mozambique • Peace Parks Foundation 	
Number of people who have been involved in the project design and preparation process	Men: 21	Total: 21
	Women: 0	
Number of engagements (meetings, workshops, consultations, etc...) with stakeholders during PPG phase	<p>8 Meetings:</p> <ul style="list-style-type: none"> • 5 Face to face physical meetings • 3 Virtual meetings 	

Republic of Congo		
Number (and name) of stakeholder groups involved in project design and preparation process	<p>2 Stakeholder groups involved</p> <p>A. Government Ministries, Departments, and agencies (4)</p> <ul style="list-style-type: none"> • Ministry of Tourism and the Environment. • Wildlife and Protected Areas Agency (MEF) • Marine Protected Area Project of the Bay of Loango (MEF) • Ministry of Forest Economy. <p>B. Civil Society (4)</p> <ul style="list-style-type: none"> • African Parks • Wildlife Conservation Society • Noé • WWF Congo 	
Number of people who have been involved in the project design and preparation process	Men: 18	Total: 18
	Women: 0	
Number of engagements (meetings, workshops, consultations, etc...) with stakeholders during the PPG phase	<p>8 Meetings:</p> <ul style="list-style-type: none"> • 3 face to face meetings • 4 sets of Virtual meetings • 1 Physical/Virtual meeting 	

d. Lessons Learned during PPG/PPF:

- 1. Continuous engagement with stakeholders will be necessary during project implementation** – there were limitations in engaging the stakeholders during the PPG, largely because of the COVID-19 pandemic which restricted physical meetings. Few stakeholders, therefore, participated in each country, targeting mainly key decision-making agencies that were accessible to facilitate Government endorsement of the project and selection of the protected area sites. Further stakeholder engagements will, therefore, be necessary for awareness creation and meaningful participation.
- 2. Local communities, in particular, could not be accessed during the PPG phase because of the COVID-19 pandemic which necessitated compliance with Standard Operating Procedures (SOPs).** In addition,

they lack the technologies to enable them to participate in virtual conference meetings. During implementation, communication efforts and meetings between stakeholders are expected to improve and cause greater interactions.

3. **The degree of commitment of the protected area management team, actors, and stakeholders to the EarthRanger initiative** is high and there is a need to explore ways and means to sustain the commitment during project implementation.
4. **Gender inclusiveness should be promoted during PPG processes and project implementation** – fewer women than men participated in the consultation process. It was noted that there are few women working in the institutions responsible for protected area management. It is, therefore, likely that similar situation will prevail during project implementation. Deliberate efforts should, therefore, be directed to enhancing gender-inclusive participation in PA management.
5. **The need for interpreting documents** – For effective communication with various stakeholders, documents will have to be translated into working language particularly into French (for The Republic of Congo). This challenge was encountered during communications with the national consultant in the Republic of Congo.
6. **Country documents should be uploaded on the Internet for ease of access and information sharing** – whereas web-based country documents are good sources of information to supplement submissions from consultants, it was challenging to find documents particularly in the Republic of Congo. Project partners and agencies need to be encouraged to upload institutional and country documents on websites to ease information access and sharing.
7. **Participation of local communities is valuable to attain sustainable management of protected areas.** There have been initiatives for community-based natural resource management, which should be strengthened during project implementation to reduce human-wildlife conflicts and promote tourism development.
8. **Regional coordination of the project is possible through virtual meetings** – Stakeholder engagement was possible through virtual platforms during the PPG phase and it should, therefore, be possible to use the same platforms during project implementation. There may be no need for face-to-face project implementation meetings where virtual discussions can help to effectively address project-specific issues.

SECTION V: Stakeholder Engagement in the Implementation Phase

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
Botswana				
Ministry of Environment, Natural Resource Conservation and Tourism	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Gaborone	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Department of Wildlife and	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee 	Gaborone	Presentations, Printed project	Staff time in the project's budget

²⁸² The figures are indicative estimates derived from the main budget which cover the specific project activities.

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
National Parks	<ul style="list-style-type: none"> Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 		information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Captured in the project's M&E budget
Department of Tourism	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Gaborone	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Botswana Defense Force	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Gaborone	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Regional Wildlife Officer for Chobe	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Gaborone	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Local Advisory Committees (LACOMs)	<ul style="list-style-type: none"> • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Gaborone	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget
Chobe Park Manager	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone 	Gaborone	Presentations, Printed project information packs Internet connection Websites	Staff time in the project's budget Captured in the project's M&E budget

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
	call discussions <ul style="list-style-type: none"> Virtual meetings Official letters/memos Emails 		Led by Project Staff (PMU) and Project Counterpart staff	
Botswana Tourism Organisation (BTO)	Stakeholder awareness workshop	At Project start, in Gaborone or any other appropriate site to be decided upon	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's KM budget
Rhino Conservation Botswana (RCB)	Stakeholder awareness workshop	At Project start, in Gaborone or any other appropriate site to be decided upon	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's KM budget
Kalahari conservation society	Stakeholder awareness workshop	At Project start, at Gaborone or any other appropriate site to be decided upon	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's KM budget
Community trust CBOs	Stakeholder awareness workshop	At Project start, at Gaborone or any other appropriate site to be decided upon	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's KM budget
Wilderness Safaris	Stakeholder awareness workshop	At Project start, at Gaborone or any other appropriate site to be decided upon	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's KM budget
Mozambique				
Ministry of Land, Environment and	<ul style="list-style-type: none"> Inception Workshop Steering Committee 	Maputo, or any other suitable	Presentations, Printed project	Staff time in the project's budget

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
Rural Development (MITADER).	<ul style="list-style-type: none"> Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	site	information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Captured in the project's M&E budget
National Directorate of Forest and Wildlife (DNFFB)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Maputo, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
ANAC (Administração Nacional Das Áreas De Conservação)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Maputo, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Peace Parks Foundation (PPf)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Maputo, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Environmental Management Conservation Trust (EMCT)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Maputo, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
The Republic of Congo				
Ministry of Forest Economy	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee 	Brazzaville, or any other	Presentations, Printed project	Staff time in the project's budget

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
(Ministère Economie forestière)	<ul style="list-style-type: none"> Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	suitable site	information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Captured in the project's M&E budget
Ministry of Tourism and Environment (Ministère Tourisme et Environnement)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Congolese Agency for Wildlife and Protected Areas (ACFAP)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Department of Wildlife and Protected Areas <i>Protected Area Level Institutions responsible for wildlife management)</i>	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Wildlife Conservation Society (WCS)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone call discussions • Virtual meetings • Official letters/memos • Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Worldwide Fund for Nature (WWF)	<ul style="list-style-type: none"> • Inception Workshop • Steering Committee Meetings • Consultation • Face-to-face / phone 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites	Staff time in the project's budget Captured in the project's M&E budget

Stakeholder Name	Method of Engagement	Location and Frequency	Resources Required	Budget ²⁸²
	<ul style="list-style-type: none"> call discussions Virtual meetings Official letters/memos Emails 		Led by Project Staff (PMU) and Project Counterpart staff	
African Parks	<ul style="list-style-type: none"> Inception Workshop Steering Committee Meetings Consultation Face-to-face / phone call discussions Virtual meetings Official letters/memos Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
National Coordination of Civil Society for Sustainable Development (CONADEC)	<ul style="list-style-type: none"> Inception Workshop Steering Committee Meetings Consultation Face-to-face / phone call discussions Virtual meetings Official letters/memos Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget
Local Communities and Indigenous Populations (CLPI)	<ul style="list-style-type: none"> Inception Workshop Steering Committee Meetings Consultation Face-to-face / phone call discussions Virtual meetings Official letters/memos Emails 	Brazzaville, or any other suitable site	Presentations, Printed project information packs Internet connection Websites Led by Project Staff (PMU) and Project Counterpart staff	Staff time in the project's budget Captured in the project's M&E budget

SECTION VI: Monitoring and Reporting

The project will report on a quarterly basis (using the CI-GEF Quarterly Reporting template), progress made towards the implementation of the SEP.

On an annual basis and using the CI-GEF Project Implementation Report (PIR) template, the following CI-GEF's minimum indicators are to be reported. The project can include other appropriate stakeholder engagement indicators in addition to the CI-GEF's indicators.

Botswana				
Indicator	Baseline		Target	
	Men	Women	Men	Women
1. Number of people (sex-disaggregated) that have been involved in the project implementation phase	46 ²⁸³	4	138	24
2. Number of stakeholder groups (government agencies, civil society organizations, private sector, indigenous peoples, and others) that have been involved in the project implementation phase	3		6	
3. The number of engagements (meetings, workshops, consultations, etc.) with stakeholders during the project implementation phase	27 ²⁸⁴		36	

INDICATOR #1: Number of people (sex-disaggregated): *Explanation*

Baseline: Botswana (7 men+4 Women); Mozambique (21men+ 0Women); Republic of Congo (18men+ 0Women) = 50 (46 Men and 4 Women). These were number of people that participated in the stakeholder consultation meetings (section IV a-c above).

Target: Botswana (30men+ 5 Women); Mozambique (50men+ 5Women); Republic of Congo (60men+ 12Women): 162 (138 Men and 24 Women)

INDICATOR #2: Number of stakeholder groups: *Explanation*

Baseline: Three stakeholder groups (Government MDAs, CSOs/NGOs and the Private sector)

Target: Six stakeholder groups (Government MDAs, CSOs/NGOs, the Private sector, Academia, Local communities, and others).

INDICATOR #3: Number of engagements: *Explanation:*

Baseline: Botswana- 11 engagements (4 face to face + 8 Virtual); Mozambique – 8 engagements (5 face to face + 3 virtual); Republic of Congo – 8 engagements (3 face to face + 4 virtual + 1 physical/virtual).

Target: 36 engagements annually (12 per country: includes 1 NPSC, 4 EarthRanger Virtual working group, 1 ER conference, 2 training sessions, 4 Quarterly work planning, and reporting meetings).

Person responsible for implementing and monitoring the SEP:	A Safeguards Compliance Officer (to be recruited during implementation phase). * The Safeguards Compliance Officer will be supported by the PMU and the executing partners at country level
How/Where will the approved SEP be disclosed²⁸⁵:	During the project inception meeting and the stakeholder awareness workshop, through presentations, discussions, and distribution of printed awareness materials
When will the approved SEP be disclosed:	At the launch of the project – During the first quarter of Project Implementation.

²⁸³ Aggregated number from section IV c

²⁸⁴ Figure derived from Table – Section IV c

²⁸⁵ Approved Safeguard plans are to be disclosed to stakeholders in a manner and form that they will understand and that is culturally appropriate. This may require translation of the document.

RECOMMENDATIONS

It was difficult to consult protected area managers, rangers, and executing partners based at the protected areas during PPG Phase due to movement restrictions resulting from the effects of the Corona Virus pandemic. As a result, the Stakeholder Engagement Plan (SEP) might have some gaps. **During project set-up, this SEP should be updated (including the targets), and gaps filled by the Safeguards Compliance Officer.**

- The safeguards compliance officer should finalize consultations with government staff at the site level (such as PA management staff including game rangers) in-order to get a better understanding of site requirements as well as the aspects of collaboration with the local communities and thus mitigate any potential conflicts.
- More consultations may also be necessary to enable the finalization of the BD Tracking tool (METT assessment). The METT scores were calculated through virtual discussions with stakeholders for all the selected sites during the PPG phase to provide baseline estimates as Covid-19 travel restrictions impeded in-depth consultations at the Protected Areas level. Therefore, further assessments should be undertaken during the project implementation phase as part of the project setup activities.

APPENDIX VIII: Detailed Project Budget

The appendix comprises a detailed Excel budget and is attached separately to this project document.

APPENDIX IX: Co-financing Commitment Letters

This appendix comprises co-financing letters from executing partners and participating countries as listed below and attached to this project document:

- A. Allen Institute for Artificial Intelligence
- B. Conservation International (CI) Africa Field Division
- C. The Botswana Department of Wildlife and National Parks
- D. Peace Parks Foundation (PPF) towards Zinave National Park
- E. Peace Parks Foundation towards Limpopo National Park
- F. Noé towards Conkouati-Douli National Park
- G. Wildlife Conservation Society (WCS) towards Nouabalé-Ndoki National Park
- H. African Parks towards Odzala-Kokoua National Park.

A. Co-financing Commitment: Allen Institute for Artificial Intelligence



November 22, 2020

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

SUBJECT: SUPPORT FOR THE FOLLOWING PROJECT - THE DEPLOYMENT OF EARTH RANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN AFRICA'S NATIONAL PARKS.

Dear Dr. Morales,

On behalf of Vulcan LLC (Vulcan) and The Allen Institute for Artificial Intelligence (AI2), we are pleased to inform you of each of Vulcan's and AI2's contributions to the GEF project titled "*The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks.*"

AI2 will contribute in kind support for the project as described below and Vulcan will, either directly or indirectly through AI2, contribute cash support for the project as described below (the "Contributions")

AI2 and Vulcan intend that the Contributions will be released over a three-year period to support all the project components during the period of performance. Specifically, the commitments in the Contributions include:

- Vulcan will grant to the project **USD \$2,000,000** in cash to support implementation of project activities. This grant will be made either be directly from Vulcan or to AI2 who will then subgrant to CI-GEF for the project. Of this cash support, AI2 intends to subgrant to the project **USD \$575,000** in cash on or before December 31, 2021, such amount to reduce the total **USD \$2,000,000** cash support accordingly.
- AI2 will provide contributions of EarthRanger™ for project sites as in-kind co-financing. This includes the typical FTE effort to set up new EarthRanger sites, support, and training. The estimated value is \$30,000 per site per year for software and \$7,000 per site for training and support per year over the course of the project. For six sites, the total in-kind value would be approximately **USD \$666,000**. Additionally, as part of its in-kind contribution, AI2 will fund up to **USD \$80,000** in travel and related costs for AI2 personnel to support the project.

The Vulcan Contributions described above are intended to qualify as a Vulcan grant or sub-grant should the project proposal be successful.

This letter summarizes the commitments by Vulcan LLC and The Allen Institute for Artificial Intelligence to the GEF Project. The Contributions are non-binding until the terms are formalized in a definitive agreement entered by the applicable parties. Once the definitive agreement is executed, it will supersede the contents of this letter.

We look forward to continued partnership for the implementation of this project.

Sincerely,

Alison Ivey

Alison G. Ivey
Vice President
Vulcan LLC

James Allard

James Allard
Treasurer
The Allen Institute for Artificial Intelligence

Approved - JD

B. Co-financing Commitment: Conservation International

2011 Crystal Drive, Suite 600, Arlington, VA 22202, USA
Tel: +1 703 341.2400
Fax: +1 703 553.4817
www.conservation.org



November 17, 2021

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

Subject: Co-Financing support for “The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa’s National Parks”

Dear Dr. Morales,

On behalf of Conservation International Foundation (CI), I am pleased to inform you that CI plans to contribute **USD 25,000** in co-financing from non-GEF funding in support of the GEF project titled “*Global coordination, knowledge management and outreach*”.

This co-financing will support additional funding for Component 1, Component 2, Component 3, and PMC during the period of performance, currently estimated from July 2022 to March 2026. Specifically, the co-financing will cover organizational costs such as CI’s global finance, communications, human resources, legal, and IT to support the overall effective implementation of project activities.

This contribution as described above is intended to qualify as in-kind co-financing should the project proposal be successful

We look forward to continued partnership for the implementation of this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Barbara DiPietro".

Barbara DiPietro
Chief Financial Officer
Conservation International Foundation

C. Co-financing Commitment: The Botswana Department of Wildlife and National Parks

TELEPHONE: (267) 397 1405

TELEGRAM: GAME CITY

TELEFAX: (267) 391 2354

REFERENCE:

WP NAT 14/I/I XXII (102)



REPUBLIC OF BOTSWANA

DEPARTMENT OF WILDLIFE

AND NATIONAL PARKS

P O BOX 131

GABORONE

ALL CORRESPONDENCE MUST BE ADDRESSED TO THE DIRECTOR

26 October 2021

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

**RE: CO-FINANCING SUPPORT FOR THE PROJECT - DEPLOYMENT OF
EARTHANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO
STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN
AFRICA'S NATIONAL PARKS.**

Dear Dr. Morales,

On behalf of the Department of Wildlife and National Parks (DWNP), I am pleased to inform you that the Department of Wildlife and National Parks plans to contribute USD 350,000 in co-financing from non-GEF funding in support of the GEF project titled "*The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks*".

This co-financing will support project Components, Project Management Costs (PMCs), Monitoring and Evaluation (M&E) for the implementation of the project activities during the period of performance. Specifically, we commit USD 100,000 cash co-financing and USD 250,000 in-kind co-financing to support implementation of project activities. The in-kind co-financing covers office space, staff time, vehicles and operations.

The contribution as described above is intended to qualify as in-kind co-financing should the project proposal be successful.

We look forward to continued partnership for the implementation of this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Senyatso'.

Dr Kabelo J. Senyatso

Director, Department of Wildlife & National Parks, Botswana Government



D. Co-financing commitment: Peace Parks Foundation towards Zinave National Park



Peace Parks Foundation Mozambique | A non-profit organisation | Registered in terms of decree 55/98 | NUIT: 700160912
Country Office | Rua Embodelro, No 609, Triunfo, Maputo, Mozambique
Tel: +258 87 301 1730 | Email: mozambique@peaceparks.org | www.peaceparks.org

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

30 June 2021

SUBJECT: CO-FINANCING SUPPORT FOR THE FOLLOWING PROJECT - THE DEPLOYMENT OF EARTHRANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN AFRICA'S NATIONAL PARKS.

Dear Dr. Morales,

On behalf of Peace Parks Foundation, I am pleased to inform you that Peace Parks Foundation plans to contribute **USD 417,000** in respect to Zinave National Park co-financing from non-GEF funding in support of the GEF project titled "The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks".

This co-financing will support project Components, Project Management Costs (PMCs), Monitoring and Evaluation (M&E) for the implementation of the project activities during the period of performance. Specifically, we commit **USD 117,000 in-kind co-financing** through the provision of an Operations Room controller (USD 27,000) and Counter Poaching Unit Supervisor (USD 90,000) over a 3 year period. In-kind co-financing of over USD 100,000 per annum will be provided in each Protected Area during project life (3 years) including counter poaching office space, vehicles, staff time and operating costs, incentives and use of existing counter poaching assets and technology.

The contribution as described above is intended to qualify as in-kind co-financing should the project proposal be successful. We look forward to continued partnership for the implementation of this project.

Sincerely,

A handwritten signature in blue ink, appearing to read "Antony Alexander".

ANTONY ALEXANDER
SENIOR PROJECT MANAGER – GREAT LIMPOPO AND LUBOMBO TFCA

FOUNDING PARTNERS
HEN Prince Bernhard of the Netherlands
Dr Nelson Mandela
Dr Anton Rupert

HONORARY PARTNERS
President Lazarus Chabane (Malawi)
President Hage Geingob (Namibia)
His Majesty King Letsoie II (Lesotho)
President João Lourenço (Angola)
His Majesty King Mswati II (Swaziland)
President Filipe Nyusi (Mozambique)

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Mr JB Chikano (Vice-Chairman)
Mr W Myburgh (Chief Executive Officer)
Mr TS Boardman
Mr NN de Vries (Member Only)
Mr J Hoffmann (Member Only)
Mr M Usher (Member Only)

Prof A Lennan
Mr JS Luffe-Eaton
Dr JWW Louder (The Netherlands)
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Mr M Shumang
Mr H. Puchamba (Namibia)
Dr W Kamondo

Ms CC Rupert
Mr DP Swinnen (The Netherlands)
Mr JJ Swingers
Mr P van der Post
Senior Chief Inyanga Yeta (Zambia)

E. Co-financing commitment: Peace Parks Foundation towards Limpopo National Park



Peace Parks Foundation Mozambique | A non-profit organisation | Registered in terms of decree 55/98 | NUT: 700160912
 Country Office | Rua Embondeiro, No 609, Triunfo, Maputo, Mozambique
 Tel: +258 87 301 1730 | Email: mozambique@peaceparks.org | www.peaceparks.org

Dr. Miguel Morales,
 Senior Vice President, CI-GEF Project Agency
 2011 Crystal Drive
 Suite 600
 Arlington, Virginia 22202
 USA

30 June 2021

SUBJECT: CO-FINANCING SUPPORT FOR THE FOLLOWING PROJECT - THE DEPLOYMENT OF EARTHANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN AFRICA'S NATIONAL PARKS.

Dear Dr. Morales,

On behalf of Peace Parks Foundation, I am pleased to inform you that Peace Parks Foundation plans to contribute **USD 453,000** in respect to Limpopo National Park co-financing from non-GEF funding in support of the GEF project titled "The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks".

This in kind co-financing will support project Components, Project Management Costs (PMCs), Monitoring and Evaluation (M&E) for the implementation of the project activities during the period of performance. Specifically, we commit **USD 453,000 in kind co-financing** through the provision of an Operations Room controller (USD 18,000), Counter Poaching Unit Supervisor (USD 90,000) and Counter Poaching Unit Administration officer (USD 45,000) over a 3 year period. in-kind co-financing of over USD 100,000 per annum will be provided in each Protected Area during project life (3 years) including counter poaching office space, vehicles, staff time and operating costs, incentives and use of existing counter poaching assets and technology.

The contribution as described above is intended to qualify as In-kind co-financing should the project proposal be successful. We look forward to continued partnership for the implementation of this project.

Sincerely,

ANTONY ALEXANDER
SENIOR PROJECT MANAGER – GREAT LIMPOPO AND LUBOMBO TFCA

FOUNDING PATRONS

HSH Prince Bernhard of the Netherlands
 Dr Nelson Mandela
 Dr Anton Rupert

HONORARY PATRONS

President Lazarus Chabwera (Malawi)
 President Hage Geingob (Namibia)
 His Majesty King Letsoie II (Lesotho)
 President João Lourenço (Angola)
 His Majesty King Mswati II (Swaziland)
 President Filipe Nyusi (Mozambique)

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 Mr TA Barendse
 Mr SW de Villiers (Member Only)
 Mr A Hofmann (Switzerland)
 Mr BN Hall (Ireland)

Prof A Lerman
 Mr JJ Lutter-Bakker
 Dr. HW Louren (The Netherlands)
 Mr LDF Lynch
 Mr M Mwangi
 Mr H. Pokuwaka (Namibia)
 Dr PE Ramanda

Ms CC Rupert

Mr DP Steynman (The Netherlands)
 Mr JS Swergisen
 Mr P van der Pijl
 Senior Chief Nyandiso Yisa (Zambia)

F. Co-financing commitment: Noé towards Conkouati-Douli National Park



July, 8th, 2021

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

SUBJECT: CO-FINANCING SUPPORT FOR THE FOLLOWING PROJECT - THE DEPLOYMENT OF EARTHANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN AFRICA'S NATIONAL PARKS.

Dear Dr. Morales,

On behalf of Noé, I am pleased to inform you that the Conkouati-Douli National Park plans to contribute USD 194,400 in co-financing from non-GEF funding in support of the GEF project titled *"The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks"*.

This co-financing will support project Components, Project Management Costs (PMCs), Monitoring and Evaluation (M&E) for the implementation of the project activities during the period of performance. Specifically, we commit USD 162,000 in-kind co-financing to support the salary of the Law Enforcement Coordinator, responsible for the implementation of Earth Ranger and USD 32,400 in-kind co-financing for the salary of the 3 Operations Room Supervisors ensuring permanent presence, during a period of three years.

The contribution as described above is intended to qualify as in-kind co-financing should the project proposal be successful.

We look forward to continued partnership for the implementation of this project.

Sincerely,

A handwritten signature in blue ink, appearing to be "Bas Verhage".

Bas Verhage
Fundraising Director Parcs de Noé

G. Co-financing commitment: Wildlife Conservation Society towards Nouabalé-Ndoki National Park



Wildlife Conservation Society
Central Africa & Gulf of Guinea Regional Program
House 1, KG 635 St, Kigali, RWANDA
WCS.org

Dr. Miguel Morales,
Senior Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 600
Arlington, Virginia 22202
USA

July 16, 2021

SUBJECT: CO-FINANCING SUPPORT FOR THE FOLLOWING PROJECT - THE DEPLOYMENT OF EARTHANGER, A DATA VISUALIZATION AND ANALYSIS SOFTWARE TO STRENGTHEN PROTECTED AREA MANAGEMENT EFFECTIVENESS IN AFRICA'S NATIONAL PARKS

Dear Dr. Morales,

On behalf of the Wildlife Conservation Society (WCS) I am pleased to inform you that WCS plans to contribute **USD 130,000** in co-financing from non-GEF funding in support of the GEF project titled *"The deployment of EarthRanger, a data visualization and analysis software to strengthen Protected Area Management Effectiveness in Africa's National Parks"*.

This co-financing will support project Components, Project Management Costs (PMCs), Monitoring and Evaluation (M&E) for the implementation of the project activities during the period of performance. Specifically, we commit **USD \$130,000 in grant co-financing** to support implementation of project activities in and around the Nouabalé-Ndoki National Park, in the Republic of Congo. This co-financing covers **salaries and operating costs of rangers engaged in implementing and responding to the EarthRanger system.**

The contribution as described above is intended to qualify as GRANT co-financing should the project proposal be successful.

We look forward to continued partnership for the implementation of this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Emma J. Stokes', written over a light blue horizontal line.

Emma J. Stokes PhD
Regional Director, Central Africa & Gulf of Guinea

H. Co-financing commitment: African Parks towards Odzala-Kokoua National Park



N° / PNOK /MBM/ 2020

Brazzaville, November 19th 2021

Park Manager of Odzala Kokoua National Park
TO
Docteur Miguel Morales, Senior Vice President, CI-
GEF Project Agency

Subject : Support for the co-financing of the project to deploy Earthranger, a data visualisation and analysis software to enhance the effectiveness of protected area management in African national parks.

Dear Doctor Morales,

On behalf of the Odzala-Kokoua Lossi Foundation, I am pleased to inform you that African Parks is planning to contribute USD 486,000 towards the funding of the GEM project entitled "*Deployment of Earthranger, a data visualization and analysis software for enhancing the effectiveness of protected area management in African national parks*". This co-financing will support the project components, management costs (PMCs), and monitoring and evaluation (M&E) for the implementation of activities during its implementation period.

For the years 2022 and 2023 we have received funding from the European Union for an amount of €281,172 or approximately \$330,000 to: support the control room team; provide IT support; provide licenses, software and communication devices in the field; cover the costs associated with the use of Elephant Tracking collars. However, the communication and IT support is not directly related to the control room, but is technological support for the management of the whole Park.

We also benefit from DOB Ecology funding covering the period 2022 to 2024 to the value of €132,924 (\$156,000) for research and intelligence technologies, including the acquisition of monitoring sensors that feed EarthRanger.

The contributions as described above are intended to be considered as co-financing in nature if the project proposal is successful.

We look forward to a continued partnership in the implementation of this project.

Please accept, dear Doctor, the expression of our daily commitment to make Odzala Kokoua National Park a reference in protected area management in the region, and the expression of my highest consideration.

Park Manager

Jonas Eriksson



APPENDIX X: Terms of Reference for project positions charging to both Components and PMCs

STAFF: TECHNICAL LEAD/WILDLIFE CONSERVATION TECHNOLOGY EXPERT| PART-TIME

Project Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies.

The Technical Lead/Wildlife Conservation Technology Expert, based in CI-Africa Field Division, will be the lead CI AfFD technical person for the EarthRanger project responsible for the overall leadership of the project including partner and stakeholder engagement, approvals of reports, and operational approvals. S/he will work closely with AI2 and the Deputy Regional Program Manager to ensure that the project team delivers goals, objectives, and targets to the highest standards in terms of quality, impact, and relevance. S/he will be responsible for approving the day-to-day technical implementation of project activities including preparation of work plans, budgets, and reports. S/he will be responsible for building and maintaining alliances with government authorities, partners, and stakeholders who are critical to the success of this project.

A summary of the overall responsibilities of the Technical Lead/Wildlife Conservation Technology Expert, that will cut across all three project components are listed below:

1. Guide the day-to-day technical and operational functioning of the project
2. Provide onsite technical support during and after the deployment of EarthRanger in the 6 sites.
3. Ensure that project outputs and outcomes are achieved.
4. Support stakeholder engagement during the implementation of project activities
5. In coordination with Finance and Operations team, monitor and guide the PMU’s financial monitoring compliance for all activities implemented by the project.
6. Review and approve all quarterly and annual work plans, budget, progress reports, procurement plans, and other relevant documents prepared by the PMU team before submitting them to AI2 and CIGEF.
7. Work with the Deputy Regional Program Manager to coordinate the project executing partners including ensuring the EarthRanger project coordinates and shares knowledge with relevant stakeholders for effective management of protected areas.
8. Identify potential risks to project activities and work with PMU to put in place mitigation measures.
9. Work with AI2 and the Deputy Regional Program Manager to identify capacity development needs of implementing partners and arrange for necessary training.

The table below further captures the Technical Lead/Wildlife Conservation Technology Expert's technical contribution to the project.

COMPONENT 1:	Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness.
Outcome 1.1: Strengthened institutional and technical capacity of participating	Output 1.1.1: (a) Provide technical assistance during the detailed site-level assessments to determine the Earth Ranger requirements of the 6 National Parks. (b) Ensure Earth Ranger software is incorporated in the existing PA management structure in the target countries. This will be achieved by supporting AI2 and all partners to ensure that Earth Ranger readiness and deployment.

countries to effectively manage protected areas.	Output 1.1.2: (a) Work with the Protected Area Managers to construct (where non-existent) or renovate a dedicated, secure, and functional control room facility to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each PA in the target countries (b) Support the Safeguards Compliance Officer as needed
	Output 1.1.3: (a) Work with partners/contractors to install infrastructure and internet network in the 6 sites; (b) Support the Safeguards Compliance Officer as needed
	Output 1.1.4: Ensure digital radio or other appropriate communications network (as appropriate for the context) is installed and functional in the selected protected areas in the target countries.
	Output 1.1.5: Guide installation of EarthRanger software and equipment in the Operational Rooms
	Output 1.1.6: (a) Provide technical assistance in the design and development of the Standard Operating Procedures (SOPs) which will be used as a training guide and will outline the training methods to be used as well as the tools and materials required; (b) Support AI2 to conduct the trainings; (c) Support the trained staff on hands-on implementation by providing them with the hands-on practical implementation of the technology as they undertake field operations.
COMPONENT 2:	Learning, knowledge sharing and scaling the EarthRanger technology across Africa
Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.	Output 2.1.1: Provide technical support during the Learning visits (EarthRanger User Conference)
	Output 2.1.2: Provide technical input in the knowledge management products that will be prepared by the PMU
	Output 2.1.3: Support the PMU to document, publish and share success stories, lessons learnt, and best practices
COMPONENT 3:	Monitoring and Evaluation
Outcome 3.1: An integrated monitoring and evaluation framework for the project	Output 3.1.1: Throughout the project implementation phase, review the annual Workplans and Budget, Quarterly Technical and Financial Reports; and Annual Progress Implementation Reports (PIRs) before the PMU submits to AI2.
	Output 3.1.2: Support CIGEF to review the draft Mid-Term Evaluation and Terminal Evaluation reports to ensure they are factual.
PMC	<ol style="list-style-type: none"> 1. Technical Lead of the PMU 2. Support Partner and stakeholder engagement 3. Approve quarterly, and annual administrative reports before they are submitted to AI2 and CIGEF 4. Review and approve quarterly, and annual technical and financial reports before they are submitted to AI2 and CIGEF 5. Ensure that the project achieves all of its specified outcomes and targets 6. Review and approve procurement plans, ToRs, and procurement packages before they are submitted to AI2 and CIGEF

PROGRAM MANAGER | FULL-TIME

Project Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies.

Program Manager will be based in the CI-Africa Field Division office. S/he will be responsible for the day-to-day project management, M&E, execution of the project activities per the approved work plan and budget, Management and reporting of consultant and grantee activities, support finance and operational tasks such as procurement, grants management, financial audits, maintenance of records of all project-related documentation and undertake project administrative tasks.

The responsibilities of the Program Manager are listed below.

- Facilitate the day-to-day functioning of the project staff according to ProDoc and according to recommendations of AI2, Project Lead and National PSCs.
- Plan and manage the implementation of all project activities including coordinating the implementation of project activities that will be implemented by executing partners.
- Support the Grants/ Finance officer to ensure financial compliance per the GEF and CI-GEF policies and guidelines.
- Lead the preparation and implementation of annual work plans and budgets, quarterly technical and financial reports, procurement plans, and other relevant documents for project management.
- Monitor materialization and reporting of co-financing.
- Lead the organization of National PSC meetings and provide regular updates on project progress to AI2, the National PSC, PMU and CIGEF.
- Ensure effective coordination between all project executing partners including ensuring the EarthRanger project coordinates and shares knowledge with relevant stakeholders for effective management of protected areas.
- Identify potential risks to project activities and put in place mitigation measures
- Ensure that project technical outputs and outcomes are achieved.
- Support AI2 and the Technical Lead/Wildlife Conservation Technology Expert to identify capacity development needs of executing partners and arrange for necessary training.
- Monitor and evaluate all project activities.
- Support the Safeguards Compliance officer as needed and ensure that environmental and social safeguards are set up, implemented, monitored, and adhered to
- Ensure regular and effective communication between the PMU, Country counterpart staff, protected area authorities, PSC, AI2, and CI.
- Review deliverables of grantees, consultants, and/or contractors.
- Review the deliverables of partner institutions and grantees, consultants, including financial reports.

The table below further captures the project manager's technical contribution to the project.

COMPONENT 1:	Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness.
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<p>Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage protected areas.</p>	<p>Output 1.1.1: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure the Earth Ranger software is incorporated in the existing PA management structure in the target countries. This will be achieved through monitoring and reviewing the deliverables of grantees, consultants, and/or contractors.</p> <p>This will be achieved through the following tasks:</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures
	<p>Output 1.1.2: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure a dedicated, secure, and functional control room facility is established to be used by management to improve real-time situational awareness through the deployment of EarthRanger technology in each PA in the target countries.</p> <p>This will be achieved through the following tasks:</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures
	<p>Output 1.1.3: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure the required built infrastructure and internet network capabilities are installed in the 6 protected areas</p> <p>This will be achieved through the following tasks:</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures

	<p>.</p> <p>Output 1.1.4: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure digital radio or other appropriate communications networks (as appropriate for the context) are installed and functional in the selected protected areas in the target countries.</p> <p>This will be achieved through the following tasks:</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures <hr/> <p>Output 1.1.5: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure that the EarthRanger software is installed and functional in the 6 PA s</p> <p>This will be achieved through the following tasks:</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures <hr/> <p>Output 1.1.6: As needed, support AI2, the Technical Lead/Wildlife Conservation Technology Expert, and the Grantees to ensure Protected area management staff are trained to utilize EarthRanger software (sensors, radios, satellite collars and other data transmitters).</p> <ul style="list-style-type: none"> • Reviewing the deliverables of grantees, consultants, and/or contractors • Ensuring execution of the project activities per the approved work plan and budget • Monitoring project activities and outputs. • Supporting the Safeguards Compliance officer as needed and ensuring that environmental and social safeguards are set up, implemented, monitored, and adhered to • Identifying potential risks to project activities and putting in place mitigation measures
<p>COMPONENT 2:</p>	<p>Learning, knowledge sharing and scaling the EarthRanger technology across Africa</p>

<p>Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.</p>	<p>Output 2.1.1: Provide technical and administrative support during the Learning visits (EarthRanger User Conference)</p>
	<p>Output 2.1.2: Lead the preparation and dissemination of the knowledge management products</p>
	<p>Output 2.1.3: Lead the process of documenting, publishing, and sharing success stories, lessons learnt, and best practices</p>
<p>COMPONENT 3:</p>	<p>Monitoring and Evaluation</p>
<p>Outcome 3.1: An integrated monitoring and evaluation framework for the project</p>	<p>Output 3.1.1: Throughout the project implementation phase, prepare the annual Workplans, Quarterly Technical and Annual Progress Implementation Reports (PIRs) and submit to the Technical Lead and AI2 for review before submitting to CIGEF. Also, support the preparation of Annual budgets and quarterly Financial Reports.</p>
	<p>Output 3.1.1: Support CIGEF to review the draft Mid-Term Evaluation and Terminal Evaluation reports to ensure they are factual.</p>
<p>PMC</p>	<ul style="list-style-type: none"> • Compile monthly, quarterly, and annual administrative reports. • Review monthly, quarterly, and annual financial reports. • Knowledge Management • Monitor materialization and reporting of co-financing. • Provide regular updates on project progress to AI2, NPSCs, the EarthRanger Working group and CI-GEF. • Ensure that the project achieves all its specified outcomes and targets • Give support to external auditors. • Lead preparation of procurement plans, ToRs, and procurement packages • Maintain records of all project's related documentation • As needed, conduct site visits to ensure compliance and provide financial assistance support to project partners. • Provide finance orientation to new contractors/sub-grantees. • Management of consultant activities

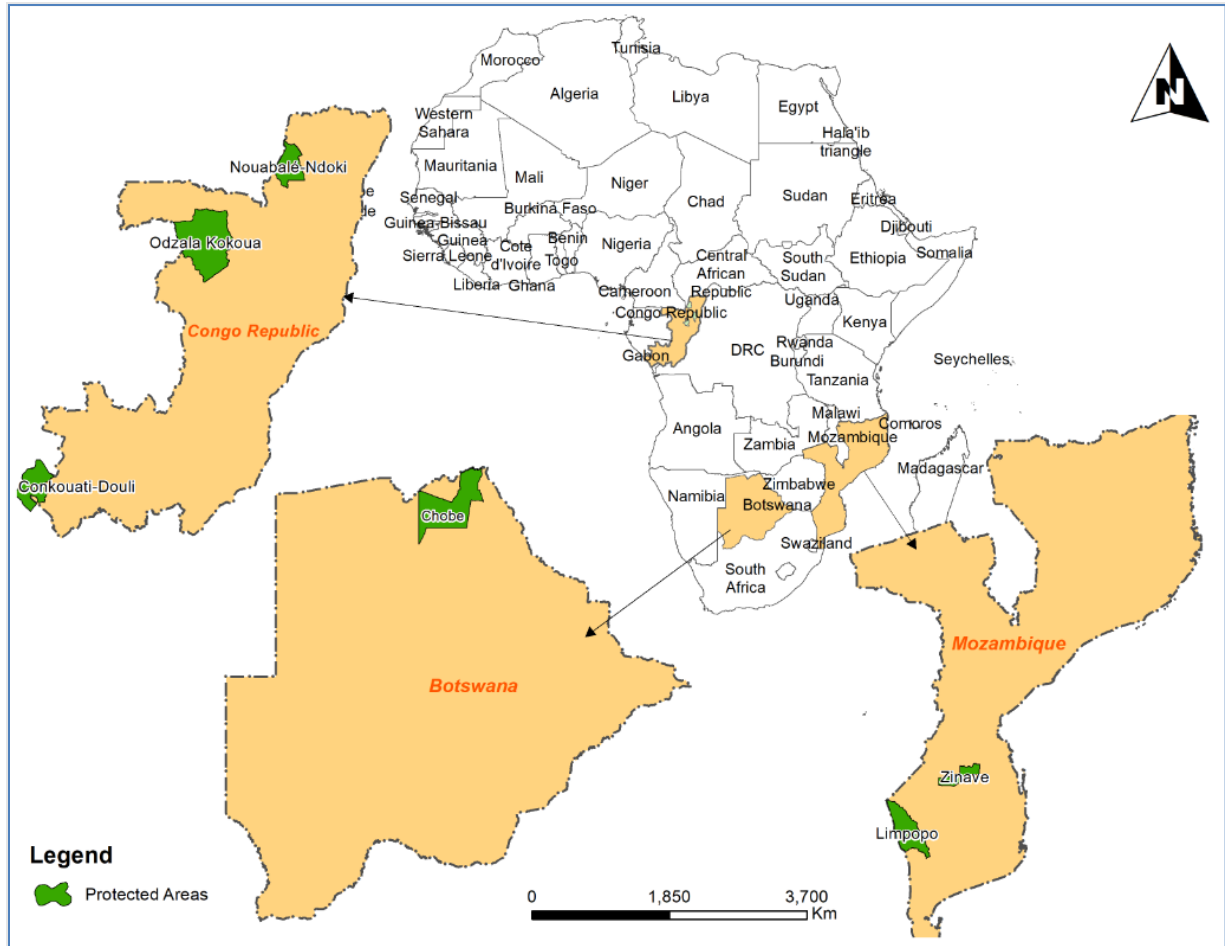
STAFF: GRANTS/FINANCE OFFICER | PART-TIME

Project Objective: To strengthen management effectiveness of priority Protected Areas (PAs) in Africa to deliver Global Environmental Benefits through the deployment of the EarthRanger Protected Area Management system and related technologies.

The Finance and Grants Officer will play a key role in assuring that the capacity of the grantees and partners is adequately built during the project implementation and provide support in monitoring and compliance of finance, grants, and operations management of the project including recruitment and onboarding of new staff personnel, approval of procurement and payments, financial management and donor reporting., contracts and grants management and capacity building of partners. Additionally, the grants/finance officer will be responsible for tracking overall project spending against approved donor approved budget and communicating with relevant stakeholders. Other roles include oversight on Desk reviews and audits of the project, capacity building of sub-grantees on policies and procedures to meet the GEF Minimum Fiduciary Standards.

COMPONENT 1:	Installation of EarthRanger software together with other required technologies and infrastructure to achieve EarthRanger readiness.	
Outcome 1.1: Strengthened institutional and technical capacity of participating countries to effectively manage.	Output 1.1.1 to Output 1.1.6: Overall project operations and finance support and Grants monitoring during start-up, implementation, and close-out of activities related to the capacities and frameworks of participating project partners, and beneficiary's adherence to donor requirements and CI policies.	
COMPONENT 2:	Learning, knowledge sharing and scaling the EarthRanger technology across Africa	
Outcome 2.1: Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology.	Output 2.1.1 to Output 2.1.3: The finance and Grant's officer will provide operational and financial facilitation of capacity building activities of partners	
COMPONENT 3:	Monitoring and Evaluation.	
Outcome 3.1: An integrated monitoring and evaluation framework for the project	Output 3.1.1: Throughout the project implementation phase, prepare the annual Budget and Quarterly Financial Reports and submit to the Technical Lead and AI2 for review before submitting to CIGEF Output 3.1.2: The finance and grants officer will support CIGEF to review the draft Mid-Term Evaluation and Terminal Evaluation reports to ensure the financial sections are factual	
PMC	<ul style="list-style-type: none"> • Approve monthly financial and administrative reports. • Support external auditors in auditing the project account • Conduct site visits to ensure compliance and provide financial assistance support to implementing partners. • Provide finance orientation to new contractors/sub-grantees. • Maintain a spreadsheet of funds transferred to subgrantees and expenses liquidated, review financial liquidations, and endorse the release of the next tranche. 	

APPENDIX XI: Project Map (s) and Coordinates



APPENDIX XII: Response to Project Reviews: STAP

PART	STAP COMMENTS	RESPONSE	SECTION IN THE PRODOC & PARAGRAPH
STAP Overall Assessment and Rating	An explicit theory of change is not provided and many of the important details will be provided during the PPG phase, including the specific protected areas and stakeholders. This is an omission and shortcoming of the proposed project, as it seems to have been developed in haste. However, given the very targeted nature of the intervention and the past success of EarthRanger, STAP feels it is likely that the details can reasonably be worked out during PPG phase	A theory of Change is provided in the ProDoc	Section 2 (part H)
Part 1: Project description. Briefly describe: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)	The threats are well articulated for each of the target countries in general and share some similarities (i.e., habitat destruction, HWC) as well as some unique challenges in each. <i>Underlying drivers are not described in any detail, though population growth and political instability are mentioned. Lack of funding is a chronic problem.</i>	The threats and underlying drivers (root causes) have been elaborated at country level and for the selected protected areas	Section 2 (part D and E)
<i>Are the barriers and threats well described, and substantiated by data and references?</i>	Barriers are not country-specific and don't explicitly say what they are a barrier to, but presumably they are barriers to achieving the overall objective, which is to strengthen Protected Area management effectiveness in Africa's National Parks. <ul style="list-style-type: none"> The link that is missing is between doing this (strengthened management) and reducing the various threats across countries (habitat loss, poaching, fire, climate change, logging, HWC, sustainable agriculture, pollution, IAS). The project would be greatly improved by carefully and explicitly articulating how the incorporation of 	The relevant sections have been revised, with case studies to demonstrate the contribution of Earth Ranger to strengthening management. The examples from the provided case studies demonstrate that the deployment of EarthRanger reduced Human-Wildlife conflict in Malawi, improved park boundary monitoring in Tanzania and thus reducing poaching, improved ecological monitoring in Kenya and thus address issues of fire and habitat loss. The ER will thus build capacity at PA level to enhance ecological monitoring	Section 2 (E), paras 80 - 85

PART	STAP COMMENTS	RESPONSE	SECTION IN THE PRODOC & PARAGRAPH
	EarthRanger into PA management would address these threats.	and information sharing to help address the identified threats across the six selected PAs.	
<i>What is the theory of change?</i>	<p><i>No theory of change is presented. This is a major limitation of the project proposal. It assumes a straight line between technology deployment and results (in this case improved management and with it the additional underlying assumption that improved management will result in decrease in biodiversity loss).</i></p> <p><i>The project does not consider other elements that may be necessary for improved PA management such as those related to governance, policies, etc. Will these be addressed through other projects or other means? Will benefits still be achievable without these other factors being addressed?</i></p>	<ul style="list-style-type: none"> • A text on Theory of Change has been added to show the link between the problem to be addressed, barriers or root causes and the project interventions and the anticipated positive changes. It also identifies key enablers for project success and the assumptions that will influence attainment of the expected outcomes and thus provides a link to governance and the policy frameworks. • A diagrammatic representation of the ToC is provided. 	Section 2 (H)
<i>What is the sequence of events (required or expected) that will lead to the desired outcomes?</i>	Since the PAs have yet to be identified, STAP recommends that as a first step, <i>project proponents outline criteria for selection of parks with the greatest need as well as the highest likelihood of successful uptake over the long term</i> (i.e., where salaries of control operators will continue to be paid after GEF project funding ends).	6 Protected areas have been identified and a criterion for their selection provided. Co-financing and Sustainability are one of the aspects in the selection criteria	Section 3 (D) Paras 154 - 157
	Is there a recognition of what adaptations may be required during project implementation to respond to changing conditions in pursuit of the targeted outcomes?	A risk assessment was undertaken during project development and mitigation of risks proposed. In addition, the multi-stakeholder implementation framework has been designed to assure a consultative approach to project implementation in which key partners including PA managers, Civil society and	Section 3 (F) and Section 5

PART	STAP COMMENTS	RESPONSE	SECTION IN THE PRODOC & PARAGRAPH
		private sector are engaged in the implementation.	
	With regards to durability, the only cost to continuing the project after the initial GEF investment is and the salaries of control room operators. This is of some concern given financial constraints facing many parks	Text provided in the ProDoc on implementation approaches and sustainability	Section 3 (Part G) on Sustainability and Section 5 on implementation.
Project Map and Coordinates. Please provide geo-referenced information and map where the project interventions will take place	Simple map of Africa with three countries highlighted is provided showing the selected PAs. As these are PAs, geo-coordinates can be identified using the WDPA dataset	A detailed map is provided.	Section II & Appendix XI
Stakeholders	<p>Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers?</p> <p><i>To be identified during PPG phase as the PAs have not yet been identified. Stakeholders have been divided by government institutions, CSOs, private sector and other. Presumably local governments and communities and organizations will be included but this has not been made explicit.</i></p>	The Stakeholder Engagement Plan has been developed. The relevant stakeholders for each participating country have been identified, and categorized into Government institutions, CSOs, private sector and community organizations.	Stakeholder Engagement Plan, Appendix VII
Gender Equality and Women's Empowerment: Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences?	<p>Gender mainstreaming plan to be developed during PPG phase.</p> <p>If gender considerations hinder full participation of an important stakeholder group (or groups), how will these obstacles be addressed? >>captured in the GMP</p>	<p>Gender Mainstreaming Plan developed to address the issues raised.</p> <p>Gender analysis has been conducted</p>	Appendix VII– Gender Mainstreaming Plan and relevant updates made in the project results framework
Risks: Are there social and environmental risks which could affect the project?	No climate risk screening but not clear how that would be relevant for this project	A text is available on the relevance of climate to the project context. In addition, a risk assessment was undertaken during the project preparation	Section 1B- Paras 27- 55 provides for the project context

PART	STAP COMMENTS	RESPONSE	SECTION IN THE PRODOC & PARAGRAPH
			In addition, Section 3F on risk assessment provides for risk mitigation
Coordination. Outline the coordination with other relevant GEF-financed and other related initiatives	This project will tap into the Global Wildlife Program, which encompasses Botswana, Mozambique and Congo and the Congo Basin Sustainable Landscapes IP which are ongoing. <i>Other projects are described but it's not clear that there is a connection between this proposed project and these other related GEF projects and how exactly they will relate.</i>	The relevant sections have been reviewed and updated to reflect the various projects at global, regional, and national level, and how these are linked to the EarthRanger Project. The project will also benefit from relevant global and regional platforms for information sharing on success stories and lessons learnt under component 2.	Section 3 (L), on linkages with other GEF Projects and relevant Initiatives; Paras 185; Table 13. Section 3 Paras 121 to 126 provide for approaches to information sharing.
Is there adequate recognition of previous projects and the learning derived from them?	<i>Yes, but mainly GEF projects. There are many other donors and organizations working in this space and in these countries.</i>	The lists have been reviewed and updated	Section 3 (B) on Associated baseline projects, para 133; and 134 Table 4. Section 3 (L), on linkages with other GEF Projects and relevant Initiatives; Paras 185; Table 13

APPENDIX XIII: Response to Project Reviews: GEF Council Members

COMMENTS GEF COUNCIL MEMBERS	RESPONSE	SECTION IN THE PRODOC
Germany		
1. Some chapters of the PIF are incomplete or in a confusing order, such as 1. Project Description. 1 a) short project description is missing B	The sections have been rearranged and content revised to follow the CI-GEF template for preparing the Full-sized projects.	ProDoc Table of Contents
2. Baseline Scenario. It does not describe the baseline in the selected countries and what the status quo of the Monitoring System is. It should also reference to what extent existing forest Monitoring Systems could help create synergies – particularly applied to Mozambique and RoC, where considerable effort has been put into MRV for REDD+ (FCPF Carbon Fund)	Base-line scenario reviewed and updated	Section 2 (F) on Current Baseline (Business-as-Usual Scenario)/Future Scenarios without the Project; paras 86 – 91.
3. Chapter G Sustainability: The section does not explain how continuous operations of the EarthRanger System are ensured beyond the lifetime of the project (quantify operational budget necessary).	Text has been reviewed and updated to provide system maintenance by the countries to ensure sustainability.	Section 3(G) on Sustainability; Para 172-173.
USA		
1. Earth Ranger is often emphasized as a tool to direct real-time ranger effort in response to acute threats – but given that many of the threats to the protected areas described here are also longer term (e.g., climate change, encroachment, fragmentation), we would encourage the implementers to leverage Earth Ranger’s integrated data collection & management capabilities to support longer term applied conservation research and action – to shape PA management beyond responding to immediate threats.	The text has been reviewed and updated with the application of the EarthRanger technology highlighted and linkages with other initiatives. Additionally capacity building under output 1.1.6 on the use of EarthRanger technology and adoption of standard operating procedures as well as collection of data on various aspects of PA management will shape future PA management.	Section 2 (F) - Paragraphs 89– 91 and Section 3 (A) Para 118
2. The “control centers” required to operate an integrated Earth Ranger system seem to require hefty technology infrastructures. What are the baseline levels of functionality/infrastructure that PAs must have in place to use Earth Ranger? How much training does it take to train rangers or other protected area officials in these tools and the hardware maintenance /troubleshooting? Is capacity being built so that park officials can use this platform independently, or will they need sustained assistance from Vulcan/CI?	The basic requirements have been outlined under the criteria for selecting the PAs for project intervention. Further detailed site-level assessments to determine the Earth Ranger requirement of the 6 parks will be undertaken during project inception. The 6 sites will be further assessed by AI2 to confirm the specific infrastructure requirements, staffing levels, and training needs, to enable effective deployment of the EarthRanger technology.	Section 3 (D) Paras 157

APPENDIX XIV: Detailed illustration of the changes from the PIF

The table below summarizes the changes (elaborations) from the PIF that have been included in the CEO endorsement. The sections below were either expanded and/or edited in the Project Document after consultations during the PPG phase.

ITEM	ORIGINAL INFORMATION	SUMMARIZED CHANGES
1) List of targeted protected areas for EarthRanger deployment: Project sites	<ul style="list-style-type: none"> The PIF identified tentative project sites/protected areas in Botswana, the Republic of Congo, and Mozambique respectively. It was noted that the final sites would be identified in the PPG Phase. The total Hectares (Ha) of terrestrial protected areas that would be under improved management for conservation and sustainable use: 2,115,200 Ha 	<ul style="list-style-type: none"> The project will work on six focal Protected Areas (PAs) that were selected in consultation with the participating countries namely: <ul style="list-style-type: none"> -Botswana: Chobe National Park -Mozambique: Zinave and Limpopo National parks -The Republic of Congo: Nouabalé-Ndoki National Park; Odzala-Kokoua National Park as well as Conkouati-Douli Ramsar site The number of hectares with improved management effectiveness that will be achieved by deploying Earth Ranger in the six PAs is 4,901,650 Ha
2) Recurrent costs of the management of the target protected areas	<p>Estimates of the recurrent costs of the management of the PAs were not provided in the PIF. It was indicated that this information would be provided in the PPG Phase.</p>	<p>Indicated in the project work plan (Appendix II) that further detailed site assessments will be undertaken during the project inception period in the first quarter of the project implementation</p>
3) The global environmental and/or adaptation problems, root causes, and barriers that need to be addressed (systems description)	<p>Since the protected areas identified in the PIF were tentative, the focus country profiles in terms of status and trends of biodiversity and threats in the target countries were broad.</p>	<p>This section has been slightly updated to include specific threats to the 6 target PAs in each of the countries such as illegal bush-meat hunting for subsistence by the local communities</p>
4) Case studies: How EarthRanger is addressing selected global environmental problems in Africa	<p>The text outlines case studies where the EarthRanger software was instrumental in addressing global environmental problems, root causes, and barriers in selected African countries that include Malawi, Tanzania, and Kenya.</p>	<p>This section has been updated to include the most recent case studies where EarthRanger has been deployed.</p>
5) The baseline scenario and any associated baseline projects	<p>Some baseline global and national projects were not captured.</p>	<p>The following baseline projects have been added:</p> <ul style="list-style-type: none"> Global Partnership on Wildlife Conservation and Crime Prevention for Sustainable Development Program, and Additional national level baseline projects in the three countries

ITEM	ORIGINAL INFORMATION	SUMMARIZED CHANGES
6) The proposed alternative scenario with a brief description of expected outcomes and components of the project	<ul style="list-style-type: none"> A detailed table is provided below showing the initial titles of the outcomes/outputs/targets that have been modified A Theory of Change was not provided in the PIF. 	<ul style="list-style-type: none"> Some outcomes/outputs/targets/indicators were either rephrased, added, or omitted. An explanation is also provided below detailing why the respective changes were made The Theory of Change has been provided to show the assumptions and causal pathways by which the project interventions are expected to have the desired effect
8) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing	The total co-financing was USD 2,527,500	The incremental cost reasoning text has been updated and the Co-financing amount has increased by over USD 1 million. The new co-financing amount is USD 4,801,400
9) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)	<ul style="list-style-type: none"> At the PIF stage, the target area for improved management was at least 2,115,200 hectares and the number of direct beneficiaries was not provided There was no information about the METT scores 	<ul style="list-style-type: none"> The target area has increased to 4,901,650 ha and the number of direct beneficiaries provided A description of how the number of target beneficiaries was estimated is provided The Global Environment Benefits (GEBs) section for the project has been updated to align with the GEF's targeted Global Environmental Benefits (GEBs)

MINOR CHANGES: THE PROPOSED ALTERNATIVE SCENARIO WITH A BRIEF DESCRIPTION OF EXPECTED OUTCOMES AND COMPONENTS OF THE PROJECT

ORIGINAL TEXT (PIF)	CHANGE
<i>Outcome target 1.1 At least 2,115,200 hectares of protected areas with improved METT scores (hectares, baseline, and target METT scores)</i>	<p>Outcome target 1.1.1. At least 4,901,650 hectares of protected areas with improved METT scores)</p> <ul style="list-style-type: none"> The target has been rephrased to reflect the total area of the selected project sites as the EarthRanger technology will be deployed in all of them Outcome target 1.1.2. All the 6 target protected areas in the participating countries utilizing EarthRanger technology to manage the PAs
<i>Target 1.1.1: At least 2 PAs per country utilizing Earth Ranger technology to manage the PAs</i>	<p>Rephrased as follows: <i>Target 1.1.1: At least 1 PA per country utilizing EarthRanger technology to manage the PAs</i></p> <ul style="list-style-type: none"> The target has been rephrased to provide for the fact that one large Protected Area was selected in Botswana and so it is no longer tenable to have “at least two” PAs in each country. This applies to other targets that are site-specific as well.

ORIGINAL TEXT (PIF)	CHANGE
<i>Target 1.1.2:</i> At least 2 protected areas in each target country with fully equipped control room running EarthRanger software	Rephrased as follows: <i>Target 1.1.2:</i> At least 1 protected area in each target country with a fully equipped control room running EarthRanger software <ul style="list-style-type: none"> The target has been rephrased because only one site was selected in Botswana and so it is no longer tenable to have “at least two” control rooms as there will be one control room per PA
Output 1.1.3: Required built infrastructure and internet backhaul capabilities installed in at least two protected areas in each target country.	Updated as follows: Output 1.1.3: Required built infrastructure and internet network capabilities installed in the selected protected areas in the target countries <ul style="list-style-type: none"> Updated to reflect internet network and software. The indicator and target have been updated accordingly.
Output 1.1.4: Digital radio or other appropriate communications network as appropriate for the context installed and functional in each of the selected protected areas in the target countries	Adjusted Output 1.1.4: Digital radio or other appropriate communications network (as appropriate for the context e.g., LoRa) installed and functional in the selected protected areas in the target countries. <ul style="list-style-type: none"> Output 1.1.5 was considered duplication and so incorporated in output 1.1.4 as LoRa is part of other communication networks.
<i>Target 1.1.4:</i> At least 2 PAs in each target country with digital radio or other appropriate communications installed and functional	Target number adjusted: <i>Target 1.1.4:</i> All the 6 selected PAs in the target countries with digital radio or other appropriate communication (e.g., LoRa network) installed and functional. This is in line with the actual number of selected sites
Output 1.1.5: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters)	New Output 1.1.5: EarthRanger software installed and functional in the selected PAs in the target countries This output is to provide for the installation of the software before the training for the software is undertaken. The output accordingly replaces the initial output 1.1.5 that is now output 1.1.6 New Indicator 1.1.5: <i>Number of PAs with functional EarthRanger software per participating country</i> New Target 1.1.5: All the 6 selected PAs in the target countries with functional EarthRanger software.
Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters)	Output 1.1.6: Protected area management staff trained to utilize EarthRanger software (sensors, radios, satellite collars, and other data transmitters) Same output but some minor adjustments made with respect to the associated indicators and targets as indicated below.
Indicator 1.1.6: Number of field staff in each PA utilizing EarthRanger software for various purposes (sensors, radios, satellite collars, and other data transmitters)	<i>Indicator 1.1.6: Number of field staff in each PA utilizing EarthRanger software for various purposes (sensors, radios, satellite collars, and other data transmitters)</i>
<i>Target 1.1.6:</i> At least 2 management staff and 3 control room staff per protected area are trained on EarthRanger and associated technologies (sensors, radios, satellite collars, and other data transmitters)	<i>Target 1.1.6.1:</i> At least 42 Protected Area management staff trained to utilize EarthRanger software (Men = 36; Female = 6) (4 management staff and 3 control room staff per PA)

ORIGINAL TEXT (PIF)	CHANGE
-Number of field staff in each PA with reliable voice communications and real-time SOS capability Target 1.1.6.1	<i>Target 1.1.6.2: At least 120 field staff in each PA, (Male=102; Female = 18), with reliable voice communications and real-time SOS capability (At-least 20 in each PA per country).</i>
Component 2 Learning and knowledge sharing on the Earth Ranger technology	The Title of the Component was adjusted to read, “ Learning, knowledge sharing and scaling the EarthRanger technology across Africa ” The outcome, outputs, indicators and target have been rephrased
Outcome 2.1: Additional countries interested and committed to install EarthRanger technology	Outcome 2.1 Additional PAs in Africa are identified and the respective Countries commit to install the EarthRanger technology
Outcome Indicator 2.1: Number of additional countries committed (GEF9, LoEs, co-financing pledges) to install the EarthRanger project. Target: At least three additional countries committed to install EarthRanger technology	Outcome Indicator 2.2.2: <i>Number of additional PAs identified, and number of African countries committed to install the EarthRanger software and other technologies (GEF8 LoEs, Co-financing pledges)</i> <i>Outcome Target 2.1.1: At least 6 new PAs identified, and 3 African countries committed to install Earth Ranger Technology in GEF8.</i> Changed to provide for the existing countries to also scale up to other PAs
Output 2.1.1: Learning site visit (exposure trip) undertaken by other African countries to at least 1 PA	Updated as follows: Output 2.1.1: Annual learning and knowledge sharing event (EarthRanger User Conference) undertaken by each PA <ul style="list-style-type: none"> The update was made to reflect the learning through exposure from EarthRanger Annual User Conference
Output Indicator 2.1.1: Number of learning site visits undertaken by other countries to a PA	Output Indicator 2.1.1.: Number of Learning visits (EarthRanger User Conference) undertaken by each PA. <ul style="list-style-type: none"> Indicator adjusted based on the output
<i>Target 2.1.1: At least 1 learning visit undertaken by other African countries to at least 1 PA</i>	<i>Target 2.1.1: At least 1 learning visit (EarthRanger User Conference) undertaken by each PA once during the duration of the project</i> <ul style="list-style-type: none"> Adjusted based on the updated indicator to match the output
Output 2.1.2: Success stories published on blogs, websites, etc... <i>(Where the Earth Ranger software informed decisions in the management of PAs)</i>	New Output 2.1.2: Information sharing events undertaken to enhance learning and promote scaling up <ul style="list-style-type: none"> New output to provide for information sharing to enhance appreciation of the application of EarthRanger technology. This output replaces the initial output 2.1.2 that is now renumbered as 2.1.3
<i>Indicator 2.1.2: Number of success stories published via social media, blogs, websites, shared in presentations (where the Earth Ranger software informed decisions in the management of PAs)</i>	<i>Indicator 2.1.2: Number of information sharing events</i> <ul style="list-style-type: none"> New Indicator for the new output
<i>Target: At least 2 success stories shared annually</i>	<i>Target 2.1.2: At least 1 information-sharing event held per target country per year.</i> <ul style="list-style-type: none"> New target in conformity with the new output and the corresponding indicator
Output 2.1.2: Success stories published on blogs, websites, etc... <i>(Where the Earth Ranger software informed decisions in the management of PAs)</i>	Output 2.1.3: Success stories, lessons learnt and best practices published and shared on blogs, websites, and other digital platforms <i>(where the EarthRanger software has informed decisions in the management of PAs)</i> <ul style="list-style-type: none"> Initially, this was output 2.1.2

ORIGINAL TEXT (PIF)	CHANGE
<i>Indicator 2.1.2: Number of success stories published on blogs, websites (where the Earth Ranger software informed decisions in the management of PAs)</i>	<i>Indicator 2.1.3: Number of success stories, lessons learnt and best practices published and shared on blogs, websites (where the Earth Ranger software informed decisions in the management of PAs)</i>
<i>Target: At least 2 success stories shared annually</i>	<i>Target 2.1.3: At least 6 success stories, lessons learnt, and best practices shared by the project team during the project's lifetime (At least 2 success stories, lessons learnt, and best practices shared by the project annually)</i>
Component 3 was not in the PIF (Without Outcomes, Outputs, and Targets).	<p><u>New Outcomes, Outputs, indicators, Targets provided under Component 3: Monitoring and Evaluation</u> To clearly monitor the M&E Component and justify the budget under this Component, there is a need to have clearly defined Outcomes, Outputs, and Targets.</p> <p><u>New Outcome 3.1:</u> An integrated monitoring and evaluation framework for the project</p> <ul style="list-style-type: none"> • This outcome is aligned to the new component
Output 3.1.1 was not in the PIF	<p><u>Output 3.1.1:</u> Periodic M&E reports submitted to CIGEF Agency</p> <p><i>Indicator 3.1.1: Number of Annual and Quarterly M&E Reports submitted to CIGEF for review and approval.</i></p> <p>Target 3.1.1: At least 3 Annual Work plans and Budget, 12 Quarterly Technical and Financial Reports; and 3 Annual Progress Implementation Reports (PIRs) submitted to CIGEF for review and approval</p>
Output 3.1.2 was not in the PIF	<p><u>New Output 3.1.2:</u> Mid-Term Evaluation and Terminal Evaluation conducted by CIGEF</p> <ul style="list-style-type: none"> • Need for an output that will ensure independent conduct of mid-term and Terminal project evaluations <p><i>New Indicator 3.1.2: Number of Mid-Term and Terminal Evaluations conducted by CIGEF</i></p> <p><u>New Target 3.1.2:</u> One Mid-Term Evaluation and One Terminal Evaluation</p>

OTHER SECTIONS WHERE THERE ARE CHANGES

RELEVANT PIF SECTION	ORIGINAL INFORMATION	SUMMARIZED CHANGES
PART I: Project Information	The Executing Agency is Vulcan Inc.	The Executing Agency is The Allen Institute for Artificial Intelligence (AI2).
Stakeholders	A comprehensive Stakeholder Engagement Plan is not provided. Additionally, a detailed list of stakeholders that would be consulted during the PPG Phase and stakeholders who will be engaged during the implementation phase is not provided	A comprehensive Stakeholder Engagement Plan (SEP) has been developed. The detailed SEP is provided in the ProDoc (Appendix. The SEP that is annexed to the ProDoc also provides a detailed list of stakeholders that were consulted during the PPG Phase and a list of stakeholders that will be engaged during the project implementation phase.
Gender Equality and Women's Empowerment	A comprehensive Gender Mainstreaming Plan (GMP) is not provided. Gender Analysis/Assessment was not undertaken at PIF Stage	<ul style="list-style-type: none"> • A gender mainstreaming plan (inclusive of a Gender Action Plan, Gender Analysis/Assessment, and a gender mainstreamed results framework) has been developed and it is annexed to the ProDoc (Appendix VII)

RELEVANT PIF SECTION	ORIGINAL INFORMATION	SUMMARIZED CHANGES
		<ul style="list-style-type: none"> At the PIF stage, the target number of beneficiaries was not provided. The number of beneficiaries has now been provided as 162 trainees: Men: 138 and Women: 24.
Private Sector Engagement	The PIF noted that EA which was Vulcan Inc. (now AI2) - a private sector institution - will be involved but did not specify others that would participate in the project during the implementation phase	It has been established that there will be other private sector institutions to participate in this project including service providers. Private sector actors will include infrastructure construction and installation as well as service and maintenance. In addition, NGOs have been identified and they include Peace Parks Foundation, Wildlife Conservation Society (WCS), African Parks, and Noé.
Risks	Ten (10) risks were identified with most of them at a low rating.	No further risks have been identified but the risk ratings have been updated.
Institutional Arrangement and Coordination.	The implementing agency and executing agencies were provided in the PIF as well as the potential project partners and it was noted that further information would be provided after consulting stakeholders during the PPG Phase e.g., the specific project partners and defining their roles.	<ul style="list-style-type: none"> This section has been expanded. Detailed ToRs of the project partners have been developed. Detailed ToRs of the project staff charging to both components and PMCs have also been developed. The implementation arrangement's organogram has been prepared.
Consistency with National Priorities.	Some information was missing	In the ProDoc, this section has been updated.
Knowledge Management	A Knowledge Management budget is not provided	A Knowledge Management budget has been prepared.
Annex F: GEF 7 Core Indicator Worksheet	At the PIF stage, the target number of hectares was 2,115,000 and the number of beneficiaries was not provided.	The number of hectares is provided as 4,901,650 ha and the number of direct beneficiaries as trainees by gender are Men: 138 and Women: 24.

APPENDIX XV: Status of Utilization of Project Preparation Grant (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: \$69,705			
Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount (\$) 69,705		
	Budgeted Amount	Amount Spent To date	Amount Committed
During PPG Phase, the following activities were conducted: stakeholder mapping and engagement; Preparation of the ProDoc and budget; Filling the METT Tool; Desk studies including policy analysis baseline assessment, socio-economic assessment; and the Preparation of safeguards plans (Limited ESIA/ESMP, GMP, SEP, AGM);	69,705	48,816	20,889
Total	69,705	48,816	20,889

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

Please describe all the activities that took place during the PPG Phase such as, stakeholder engagement, due diligence, safeguards activities, and so forth under the first column. Budgeted Amount is the total PPG amount, and Amount spent to date is all expenses up to the submission of the CEO Endorsement. Amount committed is the left over amount that can be used for other PPG activities up to 1 year after CEO Endorsement.

APPENDIX XVI: Project Taxonomy

Level 1	Level 2	Level 3	Level 4
Influencing Models	<ul style="list-style-type: none"> Strengthen institutional capacity and decision-making 	-	-
	<ul style="list-style-type: none"> Demonstrate innovative approaches 	-	-
Stakeholders	Private sector	<ul style="list-style-type: none"> Large corporations SMEs Individuals/Entrepreneurs 	-
	Beneficiaries	-	-
	Local communities	-	-
	Civil society	<ul style="list-style-type: none"> Community-Based Organizations (CBOs) Non-Governmental Organizations (NGOs) 	-
	Type of engagement	<ul style="list-style-type: none"> Information Dissemination Partnership Consultation Participation 	-
	Communications	<ul style="list-style-type: none"> Awareness raising Education 	-
Capacity, Knowledge and Research			
	Capacity development	-	-
	Learning	<ul style="list-style-type: none"> Adaptive Management 	-
	Innovation	-	-
	Knowledge and learning	<ul style="list-style-type: none"> Knowledge Management Innovation Capacity Development Learning 	-
	Stakeholder Engagement Plan		
Gender Equality	Gender mainstreaming	<ul style="list-style-type: none"> Beneficiaries Sex disaggregated indicators Gender inclusive indicators 	-
	Gender results areas	<ul style="list-style-type: none"> Participation and leadership Access to benefits and services Capacity development Awareness raising Knowledge generation 	-
Focal Area/Theme	Biodiversity	<ul style="list-style-type: none"> Protected area and landscapes 	Terrestrial protected areas
		<ul style="list-style-type: none"> Species 	Threatened species