



## **Securing Permanent Forests to Combat Climate Change and Enhance Sustainable National and Local Economies in Cameroon**

### **ANNEX H**

# **Restoration Opportunities Assessment Report**

**VERSION DATE: 27/05/2026**

## ABBREVIATIONS AND ACRONYMS

|          |                                                               |
|----------|---------------------------------------------------------------|
| ADB      | Asian Development Bank                                        |
| ADM      | Archer-Daniels-Midland                                        |
| AFR100   | African Forest Landscape Restoration Initiative               |
| AREECA   | Alliance for the Restoration of Degraded Ecosystems in Africa |
| BCEF     | Biomass Conversion Expansion Factor                           |
| CAFI     | Central African Forest Initiative                             |
| CBFF     | Congo Basin Forest Fund                                       |
| CBFP     | Congo Basin Forest Partnership                                |
| CF       | Community Forests                                             |
| CIDA     | Canadian International Development Agency                     |
| CIFOR    | Center for International Forestry Research                    |
| COBALAM  | Community-based Landscape Management                          |
| CSO      | Civil Society Sustainability Index                            |
| DFID     | Department for International Development                      |
| ERUDEF   | Environment And Rural Development Foundation                  |
| ETM      | Enhanced Thematic Mapper                                      |
| FAO      | Food and Agriculture Organization                             |
| FIP      | Forest Investment Plan                                        |
| FLR      | Forest Landscape Restoration                                  |
| FMU      | Forest Management Unit                                        |
| FORESCAM | Forest Restoration for Cameroon                               |
| GCF      | Green Climate Fund                                            |
| GEF      | Global Environment Facility                                   |
| GHS      | Ghanaian Cents                                                |
| GIC      | Joint Initiative Groups                                       |
| GIS      | Geographic Information Systems                                |
| GIZ      | Deutsche Gesellschaft für Internationale Zusammenarbeit       |
| HIPC     | Highly Indebted Poor Countries                                |
| ICC      | International Chambers of Commerce                            |
| ICRAF    | International Centre for Research in Agroforestry             |
| IDB      | Inter-American Development Bank                               |
| IFAD     | International Fund for Agricultural Development               |
| INBAR    | The International network for Bamboo and Rattan               |
| IPCC     | Intergovernmental Panel on Climate Change                     |
| IRR      | Internal Rate of Return                                       |
| IUCN     | International Union for Conservation of Nature                |
| JICA     | Japan International Cooperation Agency                        |
| KFW      | German Development Bank                                       |
| MAI      | Mean Annual Increment                                         |
| MINADER  | Ministry of Agriculture and Rural Development                 |
| MINDCAF  | Ministère du Domaine du Cadastre et des Affaires frontières   |

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| MINEPAT   | Ministry of Economy, Planning and Land Planning                        |
| MINEPDED  | Ministry of Environment, Nature Protection and Sustainable Development |
| MINEPIA   | Ministry of Livestock and Animal Industries                            |
| MINFOF    | Ministère des Forêts et de La Faune                                    |
| MLC       | Maximum Likelihood classifier                                          |
| NCCB      | National Cocoa and Coffee Board                                        |
| NGO       | Non-Government Organization                                            |
| NPV       | Net Present Value                                                      |
| NTFP      | Non-Timber Forest Products                                             |
| PAMFOR    | Program to Improve Governance in the Forest Environment                |
| PES       | Payments for Ecosystem Services                                        |
| PRED      | Population Resources Environment and Development                       |
| PRODEBALT | The Lake Chad Basin Sustainable Development Program                    |
| RBDM      | Root Biomass Dry Matter                                                |
| REDD+     | Reducing emissions from deforestation and forest degradation           |
| ROAM      | Restoration Opportunity Assessment Methodology                         |
| ROI       | Return-On-Investment                                                   |
| RPP       | Readiness Preparation Proposal                                         |
| SODECOTO  | Société de Développement du Coton                                      |
| N         |                                                                        |
| TM        | Thematic Mapper                                                        |
| TRIDOM    | Tri-National Dja-Odzala-Minkébé                                        |
| UNDP      | United Nations Development Programme                                   |
| USAID     | United States Agency for International Development                     |
| USFS      | United States Forest Service                                           |
| WAZA      | World Association of Zoos and Aquariums                                |
| WRI       | World Resources Institute                                              |
| WWF       | Worldwide Fund for Nature                                              |
| AEZ       | Agro ecological zone                                                   |

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## EXECUTIVE SUMMARY

Cameroon is making efforts to respond to its commitments on the fight against global warming through the development and implementation of a Green Climate Fund project. The project development process includes a feasibility study that involves several sub-studies, with one of them being the assessment of restoration opportunities using the IUCN and WRI Restoration Opportunity Assessment Methodology (ROAM). This ROAM is considered as a ROAM phase 1, with a phase 2 planned during the project inception phase. The project is expected to target Permanent Forest Areas (PFAs) in three intervention landscapes - Waza, Dja-Lobeke and the Bakossi-Bamboutos landscapes.

In the Waza landscape located in the degraded Sudano-Sahelian agroecological zone, forest ecosystem stability is threatened by bush fires, human-wildlife conflict, lack of community integration in the conservation of the Waza National Park, population growth, lack of infrastructure development, ineffective land-use planning, insufficient implementation of management strategies and coordination mechanisms.

The Dja-Lobeke landscape, located in the bimodal rainfall agroecological zone, forest ecosystem stability is threatened by shifting cultivation subsistence farming, mining and large infrastructure projects, medium and large-scale agriculture, logging, etc. Amongst these factors, agricultural expansion has the greatest impact on forest cover loss, with slash and burn family farming at the forefront. Underlying drivers are fundamental social processes, such as human population dynamics, limited availability of jobs, and lack of alternative livelihoods.

The Bakossi-Bamboutos landscape located in the Western highlands agroecological zone is rather challenged by rapid population growth and rural migration. The landscape plays a major role as a food crop producing area and is experiencing increased population growth and the demand for land.

Six broad restoration interventions that could be used to improve the ecological and economic productivity of degraded forests and lands in the three landscapes were identified. They include:

1. Agroforestry on flat or gently sloping land, including those areas principally managed as pasture and rangelands;
2. Agroforestry on steep sloping land in conjunction with other soil conservation measures such as contour bank terraces;
3. Improved management and rehabilitation of existing, community forests and council forests;
4. Protection and restoration of existing areas of forest reserves, and restoration of degraded areas in or around protected areas;
5. Establishment or improvement of protective forests on important and sensitive sites such as very steep sloping land, riparian zones and wetland buffer zones and margins.

A wide range of species were identified in each landscape, with choices to be made and validated by consent stakeholders during ROAM phase 2.

In terms of the restoration potentials, the geospatial analysis showed that:

1. In the Waza landscape, restoration activities could be carried out on 158 730.3 ha with agroforestry representing 73 937.50 ha, community forests (26 925.4 ha); riparian forest and buffers of water bodies 16 315.7 ha, restoration of degraded parks 41 551.7 ha.
2. In the Dja-Lobeke landscape, the potential areas for restoration is estimated at 16 524.6 ha, where agroforestry could be implemented on 1 457 ha, reforestation of community forests on 8 970.5 ha, areas for improved management of council forests, reserve and park areas covers about 1 524 ha. Protective forests areas of buffer of water bodies are estimated at 4 573.1 ha.
3. In the Bamboutos-Bakossi landscape, the total areas for restoration activities is estimated at 15 075.1 ha. Agroforestry could be carried out on 8 569.1 ha. Restoration of degraded forest reserve and hills areas could be done on 3 006 ha, and finally protection forests on riparian areas and buffers of water bodies could be established on 3 500 ha.

The adoption of these restoration practices is constrained by several similar factors across the three landscapes. Some include:

1. Reluctance of small-scale farmers to engage in restoration due to loss of income during the first years of investment in restoration;
2. Institutional environment not attractive for tree planting;
3. Property constraints;
4. Poor knowledge of the legal and regulatory framework by the population;
5. Ecological conditions not conducive for restoration (threats from bush fires and animals, climate variability etc.
6. Market conditions (cities exert strong pressure on land with ever-increasing demand for agricultural and forestry products;
7. Institutional conditions (roles and responsibilities of different actors not yet clarified lack of coordination mechanism between stakeholders);
8. Lack of adequate financial means;
9. Low capacity of local populations.

The options to overcome the above identified barriers were also identified. Some include:

1. The need to establish incentives, including payments for environmental services. For example, access to credit or in-kind benefits (including access to land, markets, or production inputs) could be offered to stimulate the adoption of sustainable agricultural practices;
2. The need to create an attractive incentive framework for forest plantations. This will make it possible to remove barriers to forest plantation initiatives. Technical assistance could be guaranteed to forest plantation promoters in the development and implementation of their management plans. Consideration should be given to the inclusion of private plantations in any planned Payments for Environmental Services (PES);
3. Ensuring that the land tenure status of an area is clarified prior to any restoration, and then adopt restoration approaches that are compatible with local customary rights (voluntary individual approach) or investment in areas with secure legal

status belonging to the community (community forests), the decentralized entities (communal forests) or the State (protected areas, FMUs, etc.);

4. Raising awareness among local populations about the law, particularly the law prohibiting the harvesting of woody resources in watersheds;
5. Strengthening the human and financial capacities of stakeholders;
6. Build capacity of local people in restoration, including the establishment and management of nurseries, protection of seedlings, etc.

# 1. INTRODUCTION

## 1.1. CONTEXT

Forest ecosystems have a major role to play in the efforts to respond to climate change in Cameroon. The role of forest ecosystems goes far beyond climate change response to include the provision of ecosystem goods and services for national and local economies. The degradation of forests and lands is a threat to both the functioning of ecosystems and the well-being of local communities.

Landscape restoration has always been a concern for public authorities in Cameroon considered as a key approach to regain degraded forests and lands. Doing so, several initiatives have been put in place in the form of reforestation by Cameroonian government, notably the "Sahel Verts" operation in the far north, which for several decades has been planting trees to cope with the advancing desert and aridity of the soil. However, these initiatives have had mixed success. The reasons for these mixed results are linked to a poor choice of restoration options, poor involvement of local populations in the process, limitation of restoration to tree planting alone and failure to take into account other ecosystem services linked to restoration, punctual actions very limited in time with a lack of follow-up, poor inter-sectoral coordination, and lack of funding. Since 2019 a national strategic framework for forest landscape restoration has been developed and provides clear guidelines that now frame restoration activities in Cameroon.

The country has made commitments to restore about 12 million hectares of deforested and degraded land, a pledge towards the Bonn Challenge which is a global effort intended to restore 150 million hectares of the World's deforested and degraded land by 2020 and 350 million hectares by 2030 (MINFOF-MINEPDED, 2019). The Cameroon's strong commitment to the Bonn Challenge now allows the country to mobilise the full attention of government and various sectors in restoration activities, but also to benefit from technical and technological guidance for better implementation of restoration activities. For the country to achieve its commitments, there is a need to mobilise external financial resources and climate finance is a major opportunity.

In December 2020, the GCF expressed its willingness to assist the Government of Cameroon and IUCN in the preparation of a GCF project for submission to the GCF Council. The initial project idea is titled: Securing permanent forests to combat climate change and strengthen sustainable national and local economies in Cameroon. It aims to encourage investments in private concessions, at the community level and in buffer zones outside permanent forest areas. This will not only generate economic and socio-cultural benefits, but also provide incentives for the private sector, communities, and government to protect permanent forests. The project is expected to contribute to climate change mitigation by sequestering 9.14 million tons of CO<sub>2</sub> equivalent and improve the resilience of 500,000 people living around permanent forest areas. The initial project idea is designed around 4 components: sustainable forest management and restoration, stakeholder capacity building, market development and supply chain transformation and project management, monitoring, and partnership. Through the development and implementation of the project, MINFOF expects the project to

contribute to the country's efforts related to the fight against climate change. The project development process includes a feasibility study that involves several sub-studies, with one of them being the assessment of restoration opportunities in the targeted landscapes using the IUCN and WRI Restoration Opportunity Assessment Methodology (ROAM). To ensure the successful implementation of restoration under this project, the selected activities were made following this document ROAM and will be implemented in accordance with the national strategic framework for landscape restoration.

## **1.2. OBJECTIVES OF THE STUDY**

The objective of the study is to undertake an assessment of restoration opportunities in the target landscapes identified for project implementation. This study is considered as ROAM phase I, with a ROAM phase II planned during project inception phase. Specifically, the ROAM I study will:

1. Identify feasible and best restoration interventions in the different landscapes;
2. Identify priority areas for restoration (including their spatial locations);
3. Identify stakeholders who need to be engaged;
4. Identify barriers to the adoption of restoration practices at the project sites.

The study will generate information that will help refine restoration outputs and activities in the context of the project under preparation.

## **2. THE RESTORATION OPPORTUNITY ASSESSMENT METHODOLOGY**

The assessment of restoration opportunities in the targeted landscapes followed the IUCN and WRI Restoration Opportunity Assessment Methodology (ROAM). The tool provides a flexible and affordable framework for assessing the potential for Forest Landscape Restoration (FLR), allowing for rapid identification of FLR opportunities, analysis of these opportunities, and identification of specific areas. The ROAM allows for:

1. Selecting the most appropriate and feasible types of restoration interventions in the assessment area
2. Identifying priority areas for restoration;
3. Diagnose key success factors and identify strategies for addressing key policy, legal, and institutional bottlenecks.
4. Analyzing financing and funding sources to carry out restoration in the evaluation area.

Implementation of ROAM requires a systematic and rigorous assessment and quantification of restoration opportunities available in the target landscapes. The first step is to identify the main environmental challenges in the assessment area, identify site-specific priorities, and landscape intervention options available in the landscape.

ROAM uses geospatial, economic, and rapid restoration diagnostic analyses to map, quantify, and assess the readiness of areas with opportunities for restoration.

The primary data collection was carried out through field focus group discussions and key informant interviews at the community/village level. Key informant interviews were also carried out with deconcentrated services at the regional and divisional levels such as MINFOF, MINEPDED, MINEPIA, MINADER, MINDCAF, MINEPAT, and development partners. Interview guides were used for these field activities.

Community level data collection generated information related to land tenure, ecosystem benefits from the landscape, the relationship between populations and landscapes, the socio-economic importance of certain tree species, etc. This approach allows for a better understanding of land tenure and the range of existing issues related to the management of different spaces in the area, the social and environmental co-benefits of restoration initiatives, and a better analysis of the enabling conditions.

The primary data was supplemented by a desk review of baseline reports, project documents, policy and strategy documents.

## 2.1. INTERVIEWS WITH KEY INFORMANT

This involved one-on-one interviews, using interview guides, with local officials to better understand the dynamics that exist in each landscape between the people and the permanent forest categories involved, the expected role and observed attitude of local officials. These interviews were also intended to provide information about the relationships that exist between the populations living in each of the three landscapes.

*Table 1. Distribution of stakeholders consulted in the Dja-Lobéké landscape.*

| Date       | People we met                                                                                                                                                                                                                                                                               | Number of interviews |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 16/01/2022 | - DR MINEPDED                                                                                                                                                                                                                                                                               | 1                    |
| 17/01/2022 | - DR MINMIDT<br>- DR MINADER<br>- DR MINFOF<br>- DR MINEPIA<br>- Responsible for IRAD Bertoua<br>- Responsible for SAILD East<br>- ANAFOR managers,<br>- Responsible for GIZ Bertoua<br>- Responsible NGO OKANI                                                                             | 9                    |
| 18/01/2022 | - DD MNFOF<br>- DD MINEPDED<br>- DD MINMIDT<br>- NGO managers of CIFED and ROSE Yokadouma<br>- Responsible for WWF Yokadouma<br>- Curator of Nki Park<br>- Head of Nature and Development NGO<br>- Chief Operating Officer CFC Ngola 35<br>- Responsible for the Yokadouma communal forests | 13                   |

|                   |                                                                                                                                                                                                                                                                                                                       |   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|                   | <ul style="list-style-type: none"> <li>- Team CFC Ngola 35</li> <li>- Ngola 35 Nursery Manager (CPF)</li> </ul>                                                                                                                                                                                                       |   |
| <b>19/01/2022</b> | <ul style="list-style-type: none"> <li>- Site Manager SEBC Lokomo</li> <li>- Development SEBC Lokomo</li> </ul>                                                                                                                                                                                                       | 2 |
| <b>20/01/2022</b> | <ul style="list-style-type: none"> <li>- Dior of Moloundou</li> <li>- 1st Deputy Mayor of Moloundou</li> <li>- Head of COVAREF N°10</li> <li>- Responsible for the Moloundou communal forest</li> <li>- Responsible for the Salapoumbé communal forest</li> <li>- Chief of the forestry post of Salapoumbé</li> </ul> | 6 |
| <b>22/01/2022</b> | <ul style="list-style-type: none"> <li>- Dior of Ngoyla</li> <li>- Responsible for WWF Ngoyla</li> <li>- Agricultural postmaster Ngoyla</li> <li>- Head of the association Effort to conserve Ngoyla</li> </ul>                                                                                                       | 4 |

Source : Field (Fokabs, 2022)

*Table 2. Distribution of the actors consulted in the Bamboutos-Bakossi landscape.*

| Date              | People we met                                                                                                                                                                                                                                                            | Number of interviews |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>24/01/2022</b> | <ul style="list-style-type: none"> <li>- DR MINFOF</li> <li>- DR MINEPDED</li> <li>- DR MINEPIA</li> <li>- DR MINADER</li> <li>- Head of GIZ West,</li> </ul>                                                                                                            | 5                    |
| <b>25/01/2022</b> | <ul style="list-style-type: none"> <li>- DD MINEPDED Menoua</li> <li>- DD MINFOF Menoua</li> <li>- DD MINEPIA Menoua</li> <li>- DD MINEPDED Bamboutos</li> <li>- Researcher, Geography Department (University of Dschang)</li> <li>- Head of NGO Green Mmuock</li> </ul> | 6                    |
| <b>26/01/2022</b> | <ul style="list-style-type: none"> <li>- Mayor of Babadjou</li> </ul>                                                                                                                                                                                                    | 1                    |
| <b>27/01/2022</b> | <ul style="list-style-type: none"> <li>- DD MINFOF Bamboutos</li> </ul>                                                                                                                                                                                                  | 1                    |
| <b>28/01/2022</b> | <ul style="list-style-type: none"> <li>- President Large Livestock Producers West</li> </ul>                                                                                                                                                                             | 1                    |

Source : Field (Fokabs, 2022)

*Table 3. Distribution of consulted actors in the Waza landscape.*

| Dates             | People we met                                                                                                                                                                                                                                                                                                      | Number of interviews |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>19/01/2022</b> | <ul style="list-style-type: none"> <li>- DR MINEPIA MAROUA</li> <li>- Head of the Statistics Department at the Regional Delegation of MINADER MAROUA</li> <li>- Head of the Forestry Department at the MINFOF Regional Delegation MAROUA</li> <li>- MINEPDED Staff MAROUA</li> <li>- GIZ staff (Maroua)</li> </ul> | 5                    |
| <b>20/01/2022</b> | <ul style="list-style-type: none"> <li>- DD MINEPIA MORA</li> <li>- DD MINFOF MORA</li> <li>- DD of MINADER MORA</li> </ul>                                                                                                                                                                                        | 3                    |

|                   |                                                                                                                                                                            |   |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <b>24/01/2022</b> | <ul style="list-style-type: none"> <li>- In charge of the ABOLI community forest, LAWANMAKI (PETTE district)</li> <li>- MINADER Delegate for the PETTE District</li> </ul> | 2 |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

## 2.2. COMMUNITY CONSULTATIONS

The community consultations consisted of participatory exchanges that brought together all social strata and categories of rural populations in the target localities. They allowed for the collection of precise economic and social data and information on income-generating activities, the drivers of deforestation and forest degradation, community conflict management, the main value chains, the costs and prices of agricultural and non-agricultural products, the cost of living, etc.

### - Dja-Lobéké landscape

In this landscape, the community consultations were conducted in 18 localities/villages and involved a total of 525 individuals, including 295 indigenous and non-indigenous men and 230 women.

*Table 4. Statistics of populations consulted in the Dja-Lobéké Landscape.*

| <b>Landscape: NGOYLA – LOBEKE</b> |                                  |                      |                        |
|-----------------------------------|----------------------------------|----------------------|------------------------|
| <b>City/village</b>               | <b>Number of people surveyed</b> | <b>Number of men</b> | <b>Number of women</b> |
| <b>Baka Mimbo Mimbo</b>           | 34                               | 21                   | 13                     |
| <b>Mimbo Mimbo</b>                | 48                               | 24                   | 24                     |
| <b>Legoué</b>                     | 13                               | 5                    | 8                      |
| <b>Adjela</b>                     | 15                               | 8                    | 7                      |
| <b>Nkondong II</b>                | 13                               | 6                    | 7                      |
| <b>Mambélé</b>                    | 21                               | 16                   | 5                      |
| <b>Lokomo</b>                     | 57                               | 34                   | 23                     |
| <b>Baka Mikel</b>                 | 27                               | 15                   | 12                     |
| <b>Kika</b>                       | 35                               | 20                   | 15                     |
| <b>Baka Gbine</b>                 | 16                               | 4                    | 12                     |
| <b>Banana</b>                     | 13                               | 9                    | 4                      |
| <b>Ngatto</b>                     | 36                               | 12                   | 24                     |
| <b>Yenga</b>                      | 28                               | 16                   | 12                     |
| <b>Mikel</b>                      | 49                               | 28                   | 21                     |
| <b>Mbateka</b>                    | 50                               | 34                   | 26                     |
| <b>Ngoyla city 1</b>              | 13                               | 11                   | 2                      |
| <b>Ngoyla village</b>             | 43                               | 26                   | 17                     |
| <b>Zoulabot 1</b>                 | 14                               | 6                    | 8                      |
| <b>TOTAL</b>                      | <b>525</b>                       | <b>295</b>           | <b>230</b>             |

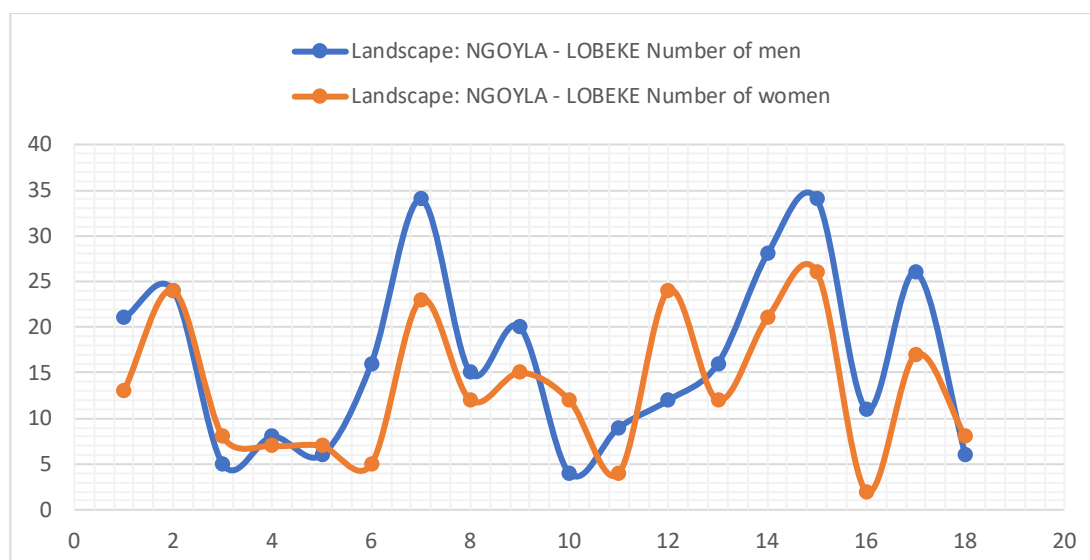


Figure 1. Men and women consulted by locality in the Dja-Lobéké area.

#### - Bamboutos-Bakossi landscape

In this landscape, the community consultations were conducted in 18 localities/villages and involved a total of 329 individuals, including 204 indigenous and non-indigenous men and 119 women.

Table 5. Statistics of the populations consulted in the Bamboutos-Bakossi landscape.

| Landscape: Bamboutos - Bakossi |                           |               |                 |
|--------------------------------|---------------------------|---------------|-----------------|
| Locality or Community          | Number of people surveyed | Number of men | Number of women |
| Bagading II                    | 12                        | 0             | 6               |
| Ndzih njutsa                   | 19                        | 18            | 1               |
| Aghong-Messang                 | 7                         | 6             | 1               |
| Tsopeua                        | 30                        | 9             | 21              |
| Bamaka                         | 31                        | 26            | 5               |
| Femock-Messong                 | 20                        | 16            | 4               |
| Tsopiua Mbororo                | 14                        | 8             | 6               |
| Bamelo                         | 21                        | 14            | 7               |
| BalatchiAghong                 | 17                        | 11            | 6               |
| Messang                        | 18                        | 9             | 9               |
| Ngangong II                    | 11                        | 5             | 6               |
| Balepo                         | 16                        | 7             | 9               |
| <b>TOTAL</b>                   | <b>329</b>                | <b>204</b>    | <b>119</b>      |

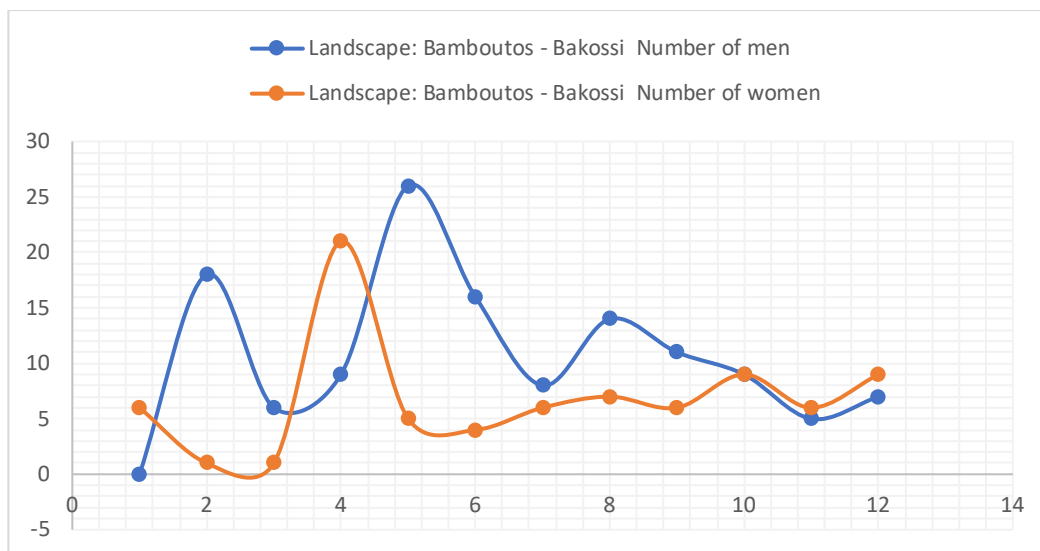


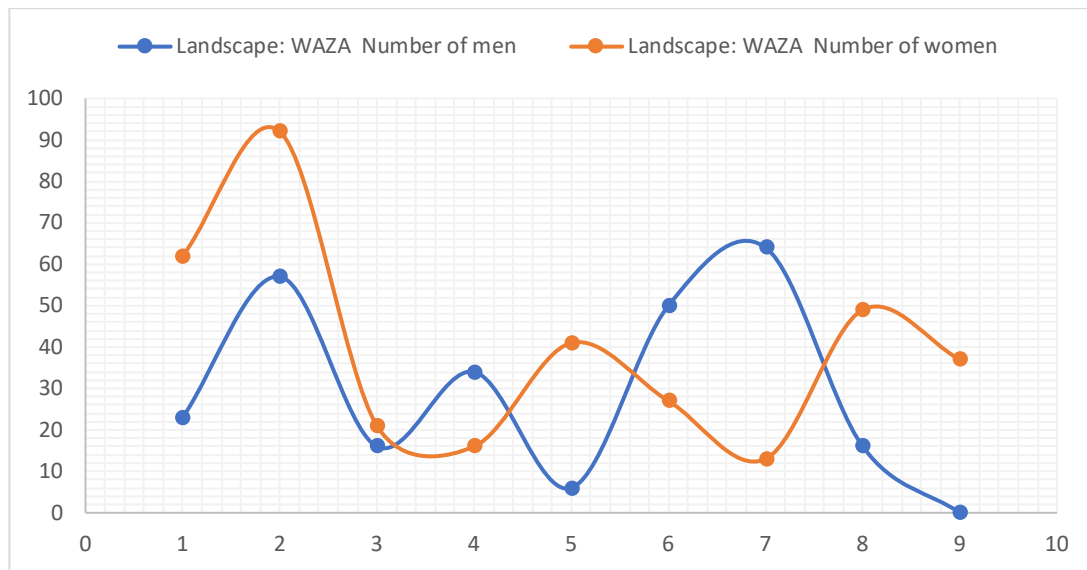
Figure 2. Men and women consulted by locality in the Bamboutos-Bakossi area.

#### - Waza landscape

In this landscape, the community consultations were conducted in 9 localities/villages and involved a total of 624 individuals, 266 indigenous and non-indigenous men and 358 women.

Table 6. Statistics of populations consulted in the Waza landscape.

| Landscape: WAZA       |                           |               |                 |
|-----------------------|---------------------------|---------------|-----------------|
| Locality or Community | Number of people surveyed | Number of men | Number of women |
| Pette                 | 85                        | 23            | 62              |
| Zina                  | 149                       | 57            | 92              |
| Bakié                 | 37                        | 16            | 21              |
| Lougouma              | 50                        | 34            | 16              |
| Chede                 | 47                        | 6             | 41              |
| Dieguere              | 77                        | 50            | 27              |
| Mora                  | 77                        | 64            | 13              |
| Ndiguina              | 65                        | 16            | 49              |
| Badadaye              | 37                        | 0             | 37              |
| <b>TOTAL</b>          | <b>624</b>                | <b>266</b>    | <b>358</b>      |



*Figure 3. Men and women consulted by locality in the Waza area.*

### **2.3. THE GEOGRAPHIC SCOPE OF THE ASSESSMENT**

The project under preparation has a national scope with a focus on three impact areas each having an intervention site. Thus, the ROAM study will focus on these three intervention sites.

Landscape 1: Sudano-Sahelien with Waza as intervention site

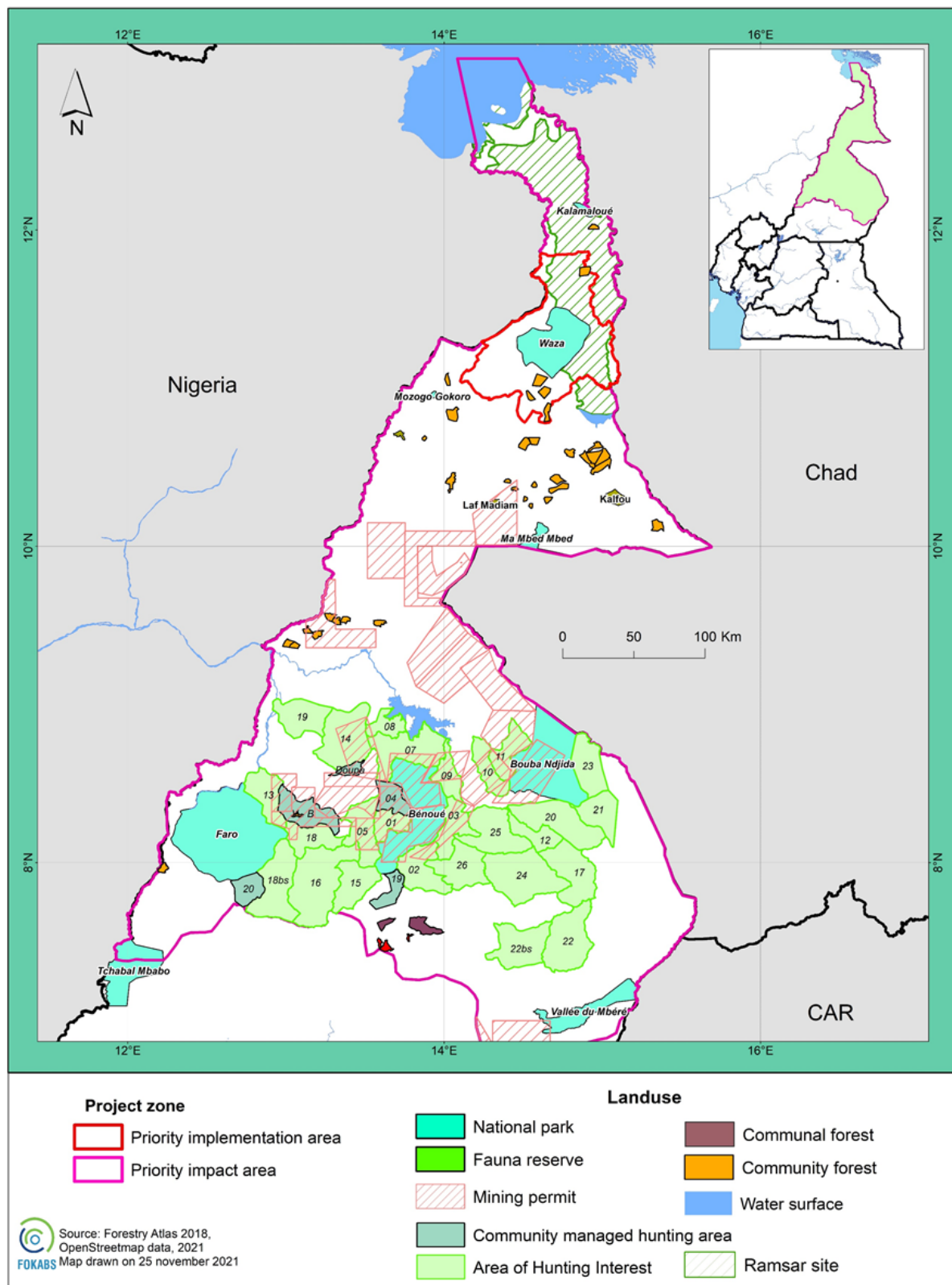


Figure 4. Spatial presentation of the Sudano-Sahelian project impact area and intervention site.

Landscape 2: South -East humid forest with Dja-Lobeke as intervention site

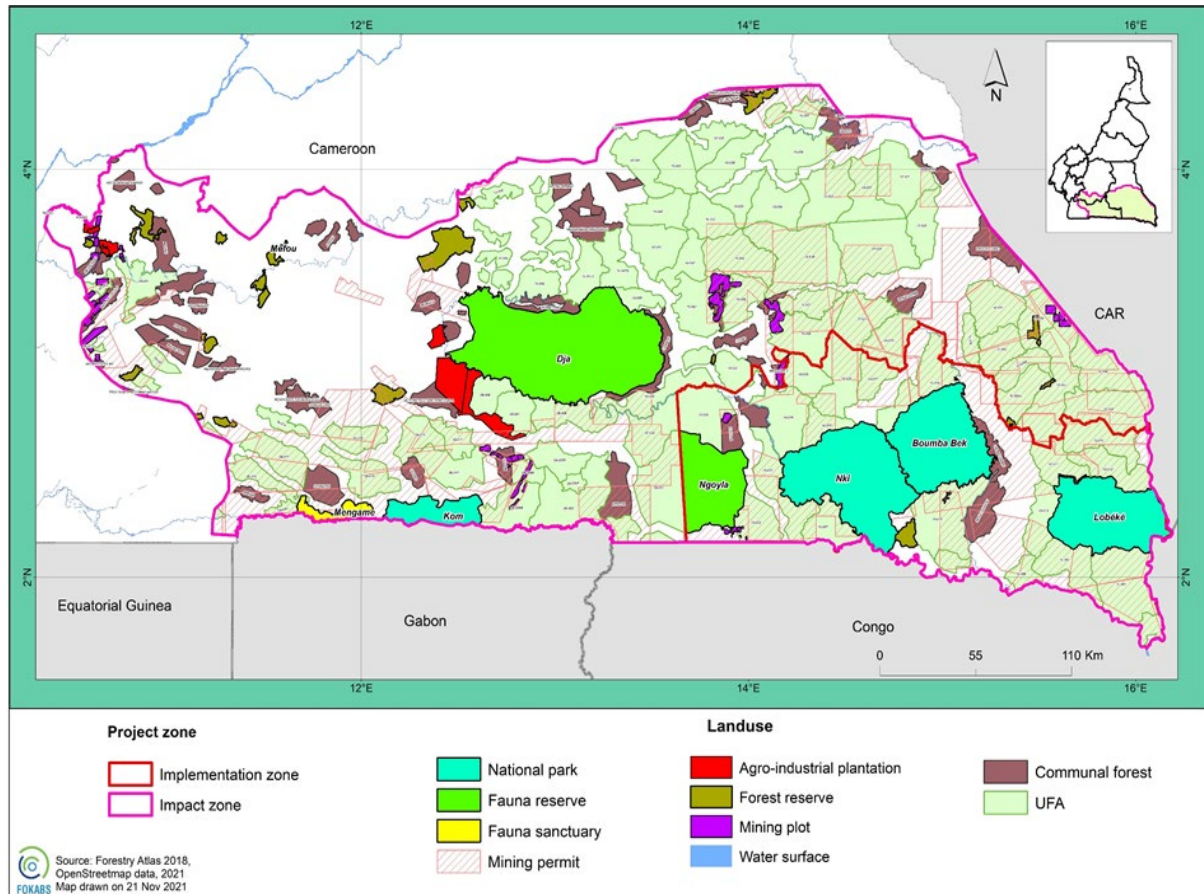


Figure 5. Spatial presentation of the South – East humid forest project impact area and intervention site.

Landscape 3: The Western Highlands with Bamboutos-Bakossi as intervention site.

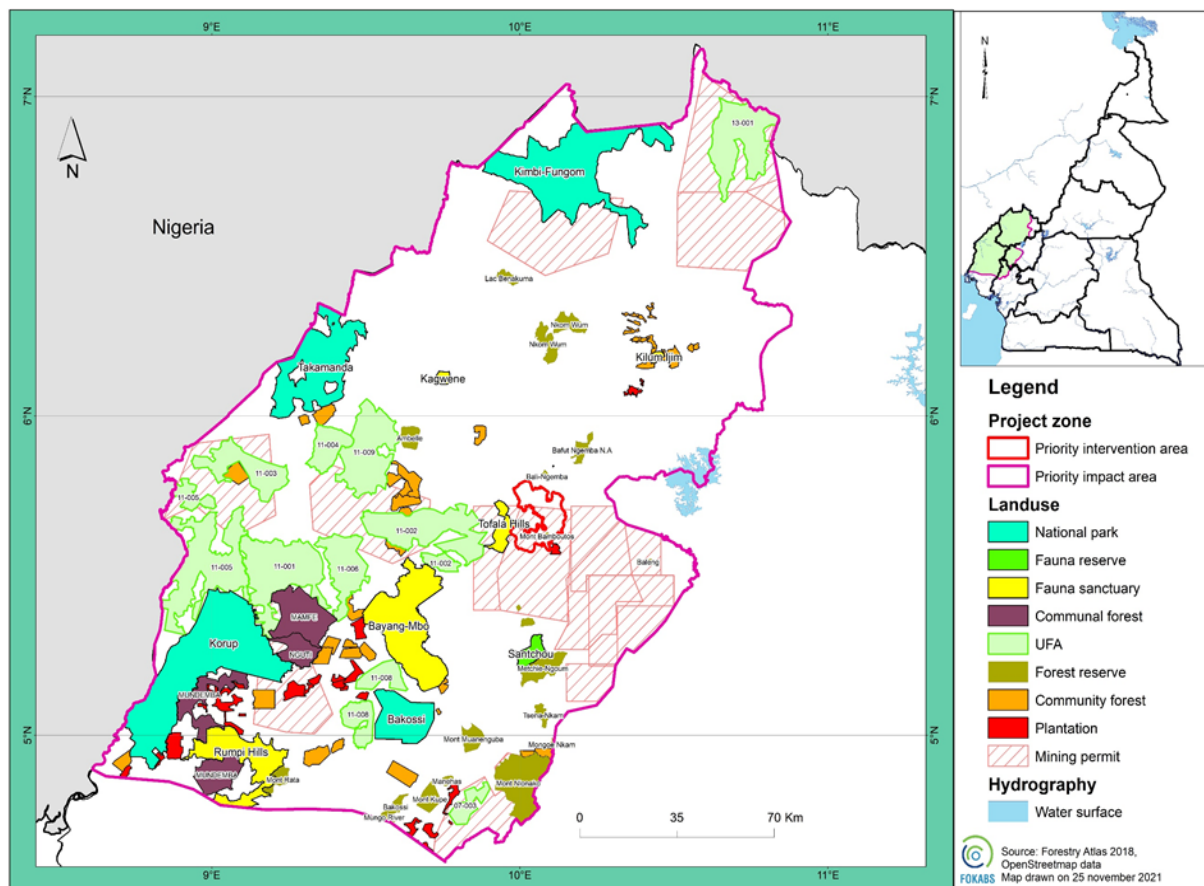


Figure 6. Spatial presentation of the Western Highlands project impact area and intervention site.

The three landscapes constitute about 11,951,452 ha situated in the Northern, Eastern and Western regions of Cameroon. The Assessment was conducted in each of the intervention sites each considered as a landscape. The sites were stratified in relatively homogeneous strata's in terms of restoration-relevant characteristics. This process of stratification was important later on, as it enabled the Cost and Benefits Analysis (CBA) to use the same values (e.g. population growth rates, labour costs, and per hectare productivity) for each sub-area.

## 2.4. LAND USE AND FOREST LANDSCAPE DEGRADATION MAPPING

The land cover mapping for Waza, Dja-Lobeke and Bamboutos- Bakossi landscapes was done using digital supervised image classification with maximum likelihood classifier (MLC). This classification uses the training data by estimating means and variances of the classes, which are used to estimate probabilities while also considering the variability of brightness values in each class. The MLC is based on Bayesian probability theory and is one of the most powerful classifications methods when accurate training data is provided. Based on the 2010 and 2020 Landsat TM and ETM satellite images (Table 4) obtained from the Earth Explorer (<https://dds.cr.usgs.gov/>) land cover for Waza, Dja-Lobeke and the Bamboutos areas were produced.

## **2.5. GEOSPATIAL ANALYSIS FOR FOREST LANDSCAPE DEGRADATION**

To quantify degraded land use (equivalent to opportunity areas for forest and landscape restoration), a geospatial analysis was performed incorporating sub-national datasets representing the geographic and topographic features of Cameroon. Datasets such as elevation, slope, land cover, forest cover, water bodies, parks and reserves, and administrative areas, were consolidated into a geographic information system (GIS), where criteria associated with each type of potential restoration intervention were applied to identify the area's best suited for implementing the intervention. The spatial multi-criteria techniques were used to combine multiple layers representing criteria to consider in order to identify opportunity areas for restoration. The spatial data was overlaid and combined with each other, and areas where they intersected were identified as opportunity areas. This process was replicated for each of the restoration interventions to create maps of opportunity areas.

## **2.6. RAPID RESTORATION DIAGNOSIS**

The diagnosis of the enabling conditions for restoration was analyzed using the Restoration Diagnostic tool developed by WRI and IUCN. The Restoration Diagnostic tool is a structured method for determining the state of enabling conditions in a landscape being considered for restoration and for designing the policies, practices, and actions necessary for successful restoration. This tool was developed as part of the Restoration Opportunity Assessment Methodology (ROAM) by the World Resources Institute (WRI) and the International Union for Conservation of Nature (IUCN). The applicability in the proposed enabling conditions provided by this tool was verified, and contributions made either for their optimization or to overcome possible constraints to their action. This was done through desk review and focus group discussions. There was also an analysis of the opportunities and challenges that arise for the conditions studied from the legal, institutional, political, social, ecological and market points of view.

## 3. LAND COVER AND LANDUSE CHANGE

### 3.1. FOREST TYPES IN THE WAZA, DJA-LOBEKE AND BAMBOUTOS-BAKOSSI LANDSCAPES

#### 3.1.1. WAZA LANDSCAPE

The Sudano-Sahelian agro-ecological zone, to which this landscape belongs is comprised of the northern lowland areas slanting towards the high landscape like the Benoue basin and Tinguelin massif, Diamare and Chad plains. The natural vegetation is made up of thorny steppes, grasslands or "yaérés", the Sudanian highland vegetation as well as Sudanian wooded savannahs and Sudanian dry open forests. The herbaceous and woody species of the savannah have multiple uses: wood energy, construction materials, tools, furniture, food, medicinal, etc. Waza landscape is largely occupied by the Waza National Park, the Pété Community Forests, and the RAMSAR-listed wetland, all of which occupy more than 60% of the landscape. The other areas consist of agricultural plantations (cotton, cereals), and pastures. There is a growing overlap between agricultural and pasture areas and the creation of canals for fishing areas around the park. The production of firewood and charcoal is the most important form of exploitation of woody species in the area, that is exacerbated by a strong demand from urban centres. The most appreciated species are: *Anogeissus leiocarpus*, *Dalbergia melanoxylon*, *Acacia seyal*, *Dichrostachys cinerea*, *Balanites aegyptiaca* (ERVA, 2012).

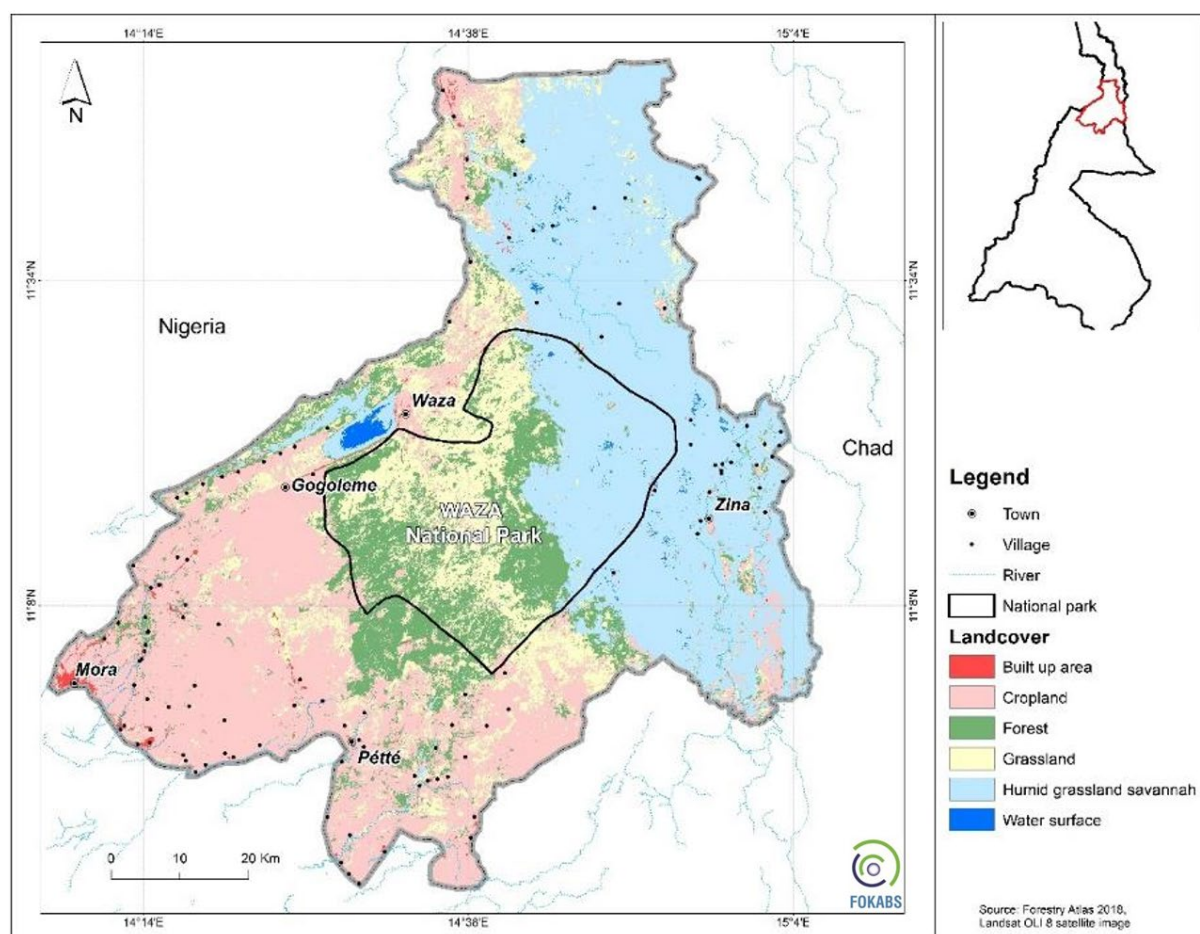


Figure 7. Land cover map of Waza landscape in 2021.

### 3.1.2.DJA-LOBEKE LANDSCAPE

The entire zone is dominated by a bimodal climate condition that maintains a dense humid forest, which has been fragmented by human activities (logging, mining etc.) The prevailing economic activity of this zone is agriculture. Crops are very diverse including food crops (banana, plantain, cassava, cocoyams, maize), as well as cash and industrial crops (cocoa, coffee, palm oil, rubber) (Minepded, 2017). The natural vegetation is comprised on the one hand of dense evergreen forest of low and medium altitude and the Atlantic forest of medium altitude, and, on the other hand, by the dense semi-deciduous forest of medium altitude where one can distinguish a southern part (Congolese hemi-ombrophilous forest), as well as a northern fringe (hemi-ombrophilous forest with Sterculiaceae).



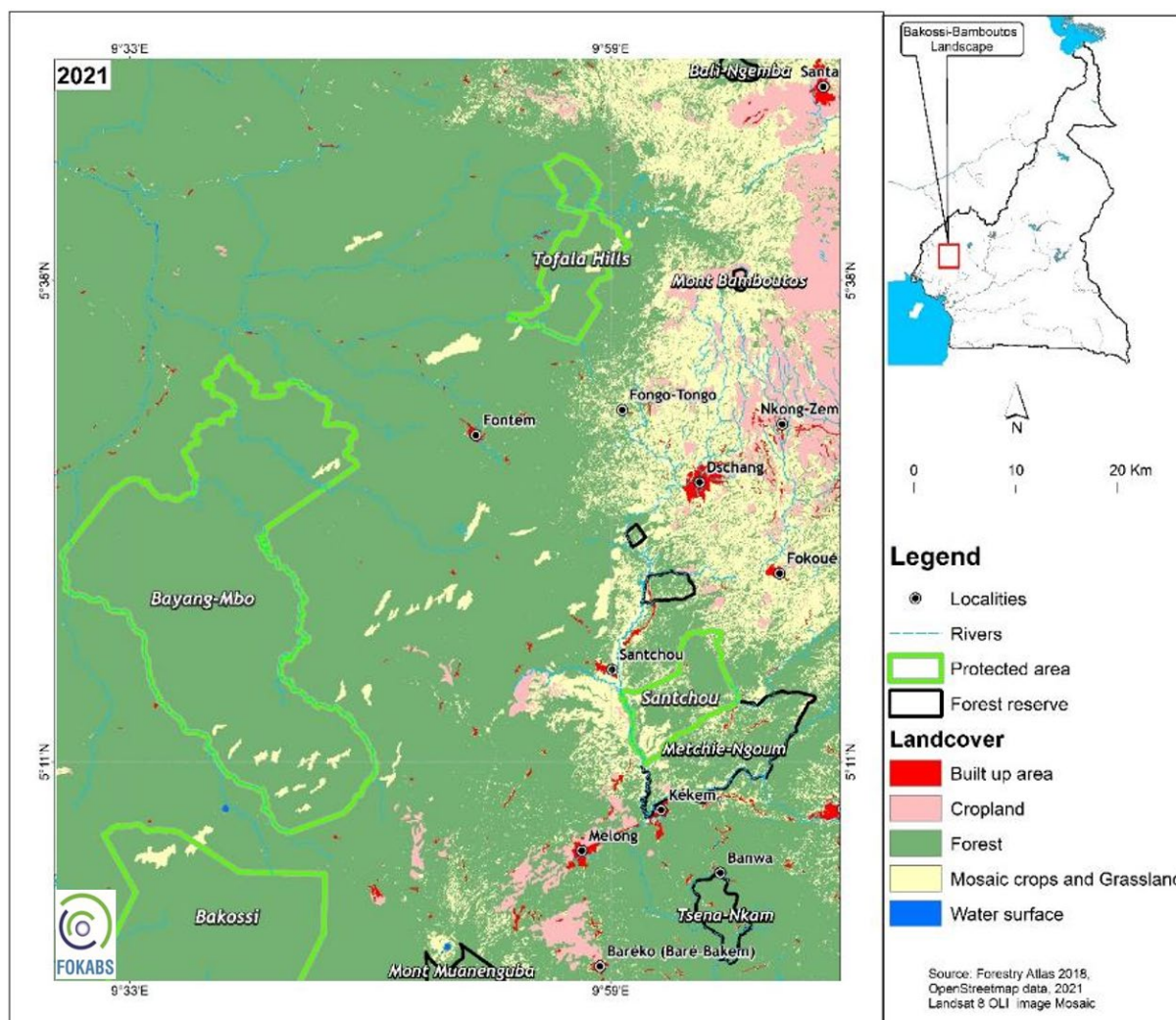


Figure 9. Land cover map of the Bamboutos-Bakossi landscape in 2021.

## 3.2. DRIVERS OF LANDSCAPE DEGRADATION AND DEFORESTATION

### 3.2.1. WAZA LANDSCAPE

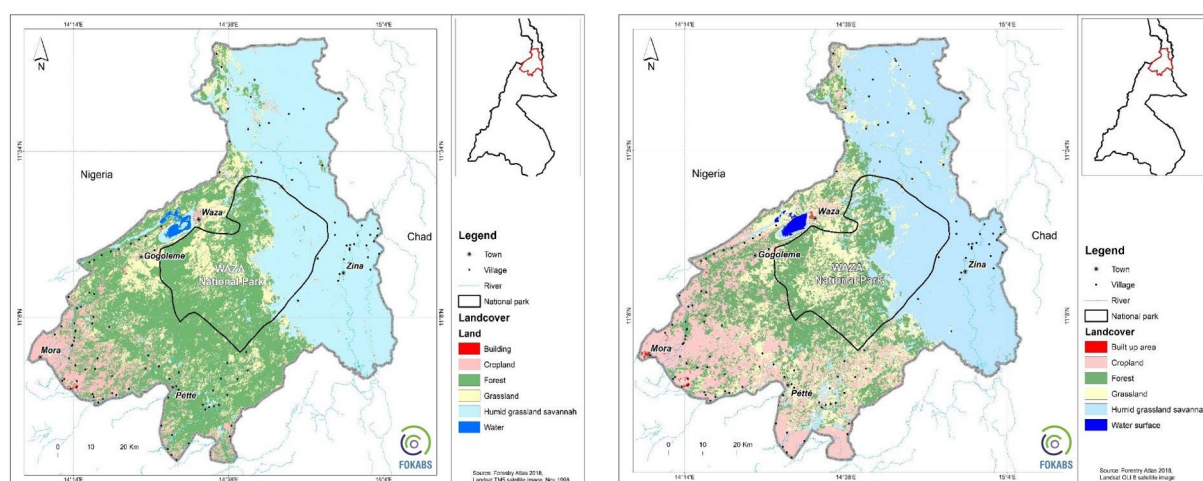
The dynamics of Waza landscape have significantly contributed to the extensive degradation of its woody cover. In 1998, the Waza landscape was mainly occupied by wet savannahs (271 124.37 ha), followed by dry forest (247 541.58 ha), then grassland (72 502.29 ha) and croplands or agricultural plantations (millet/sorghum) (56001.06 ha). Twenty years later the statistics of the different categories of land use show significant changes. This is the case, for example, for croplands, which have passed from 119,866.77 hectares in 2010 to 210 025.08 hectares in 2021, i.e. an increase of 90 158.31 hectares, corresponding to an annual change rate of 5.10%. This expansion of cultivated land is explained by the galloping demographic explosion, coupled with the migration of certain populations who find refuge in the periphery of the Waza National Park. However, the forests have regressed drastically from 153 855.09 hectares in 2010 to 88,811.28 hectares in 2021, i.e. a loss of surface area of 65 043.81 hectares, corresponding to an annual rate of change of 5%. The grassy savannahs have moved from 105 056.37 ha in 2010 to 107 414.73 ha in 2021, (an increase of 2 358.36 ha, for an annual rate of change of 0.20%). Wet savannahs have decreased

by about 31 703.31 ha (1.14%) in the same period (2010- 2021). Built up areas have almost doubled. They have passed from 1 039.95 ha in 2010 to 4 755.69 ha in 2021, representing an increase of 3715.74 ha for an annual change rate of 13.82%. This increase in surface area is justified by the proliferation of new villages, the main cause of which is the growing insecurity in the Waza landscape. Deforestation hotspots are located in the south-western and north-western part of the landscape, and result in the conversion of forests to cropland, grassland and human settlements. The villages or localities that contributed to this loss of forest cover could be Mora, Gogolema, Lougouma, Waza, Petté, Dieguéré and Andirni, as they are located in the major deforestation areas. The potential restoration area in Waza landscape is about 158,730.3 hectares representing the degraded forest surface between 1998-2021.

*Table 7. Dynamic of forest cover change in Waza between 2010 and 2021.*

| Landcover                | Area in 1998      | Area (2010)       | Area (2021)       | Surface variation between (2010-2021) | Annual Variation rate (%) (2010-2021) |
|--------------------------|-------------------|-------------------|-------------------|---------------------------------------|---------------------------------------|
| Humid grassland savannah | 271124.37         | 267907.86         | 236204.55         | -31703.31                             | -1.14                                 |
| Built up area            | 630.99            | 1039.95           | 4755.69           | 3715.74                               | 13.82                                 |
| Cropland                 | 56 001.06         | 119 866.77        | 210 025.08        | 90158.31                              | 5.10                                  |
| Grassland                | 72502.29          | 105056.37         | 107414.73         | 2358.36                               | 0.20                                  |
| Forest                   | 247 541.58        | 153 855.09        | 88 811.28         | -65043.81                             | -5                                    |
| Water surface            | 2956.05           | 3030.3            | 3545.01           | 514.71                                | 1.43                                  |
| <b>Total</b>             | <b>650 756.34</b> | <b>650 756.34</b> | <b>650 756.34</b> |                                       |                                       |

The figures below show the land use map in the Waza landscape between 1998, 2010 and 2021.



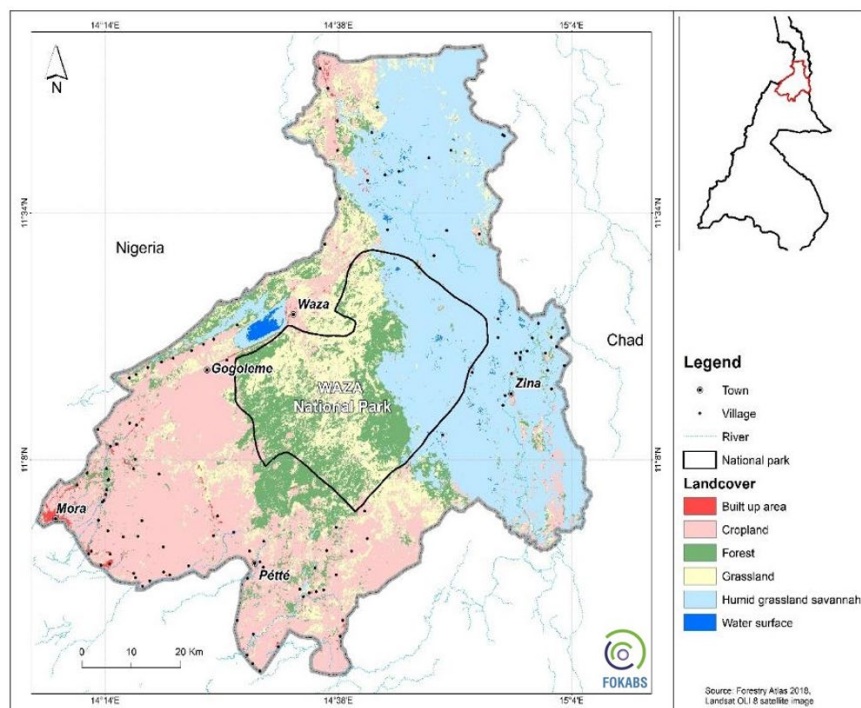


Figure 10. Land use map of the Waza landscape in 2021.

### 3.2.2.DJA-LOBEKE LANDSCAPE

The most important transition in land-uses in the Dja-Lobéké landscape between 1992 and 2021 is the conversion of forest land to cropland (30,240.67 ha). In 2021, dense forests in the Dja-Lobéké Landscape alone account for 97.64% (6,383,247.68 hectares), compared to 1.92% (125,484.05 hectares) of croplands. Other types of land use, such as build up areas and water bodies, account for 0.14% (9,156.92 hectares), 0.30% (19,341.85 hectares), and 0.005% (1,860.00 hectares) respectively. In 1992, cultivated land occupied 1.48% of the landscape, extending around roads and between forest concessions, protected areas and community forests. It increased from 96,737.80 hectares in 1992 to 103,952.91 hectares in 2010, an increase of 7,215.12 hectares between the two periods. Forests are the main contributors to the expansion of new cultivated land (15 743.81 hectares). Over the period 2010 to 2021, cultivated land continued to expand to 1.92% of the landscape. Forests remain the main contributors (25,709.81 hectares) to the newly added cropland. These significant increases in cropland have contributed to varying degrees of deforestation coupled with rapid population growth. This regressive trend of forest classes in favour of anthropogenic classes is also noted by numerous studies in other parts of the agro-ecological zone (WRI, 2019, Temgoua et al., 2018; Zapfack et al., 2013, Tanougong, 2019). The main deforestation hotspots are located in the north-western part of the landscape and mainly concern the localities of Sangmélima, Méyomessala and Djoum.

The decline in forest cover is the result of the combined action of several land-use factors, some of which expected to increase in the coming years. These activities

range from subsistence farming for local populations to large-scale mining and large infrastructure projects (dams, roads etc), medium and large-scale commercial plantations, industrial logging, etc. Agricultural expansion appears to be the leading factor of forest cover loss, dominated by family farming. This situation is due to the population explosion and search for new agricultural land in order to compensate for the decrease in yields caused by a short fallow time (Masimo, 2015, Kio 1984). Legal and illegal loggings come third because of the high forest potential of this area, wood energy within the country does not pose a great threat to the forest because of the high forest potential and the wood extraction industries that provide enough wood residues to meet local wood energy demand (MINEPDED, 2017). However, deforestation in the Dja-Lobéké landscape is more or less low. Out of 6,413,488.35 hectares of forest in 1992, an average of 30,240.67 hectares were deforested between 1992 and 2021, which represents an annual deforestation rate of 0.2%, or 5.8% in 29 years. Furthermore, it should be noted that this annual deforestation rate could change in a context of lower agricultural yields and less income-generating activity. The potential restoration areas in Dja-Lobéké landscape is about 30,240.67 hectares.

*Table 8. Evolution of forest cover change in Dja-Lobeke between 1998 and 2021.*

| <b>Landcover</b> | <b>Area (1992)</b>  | <b>Area (2010)</b>  | <b>Area (2021)</b>  | <b>Surface variation (2010-2021)</b> | <b>Annual Variation rate (%) (2010-2021)</b> |
|------------------|---------------------|---------------------|---------------------|--------------------------------------|----------------------------------------------|
| Forest           | 6 413 488.35        | 6 404 769.29        | 6 383 247.68        | -21 521.61                           | -0.03                                        |
| Built up area    | 7 757.68            | 9042.62             | 9 156.92            | 114.3                                | 0.12                                         |
| Cropland         | 96 737.80           | 103 952.91          | 125 484.05          | 21531.14                             | 2.07                                         |
| Water surface    | 19 246.66           | 19 465.67           | 19 341.85           | -123.82                              | 0.06                                         |
| <b>Total</b>     | <b>6 537 230.49</b> | <b>6 537 230.49</b> | <b>6 537 230.49</b> |                                      | <b>100</b>                                   |

Figures 8, 9 and 10 show the dynamics of land use in the Dja-Lobéké landscape between 1998, 2010 and 2021.

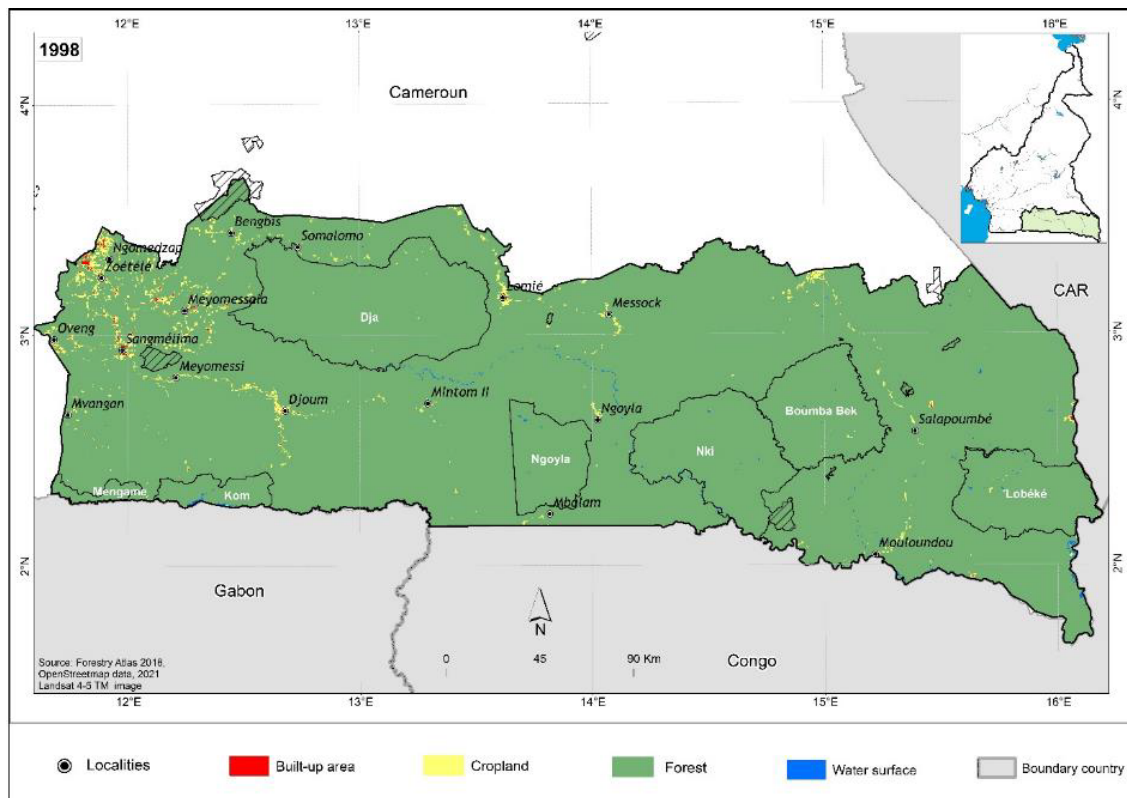


Figure 11. Land use map of the Dja-Lobeke landscape in 1998.

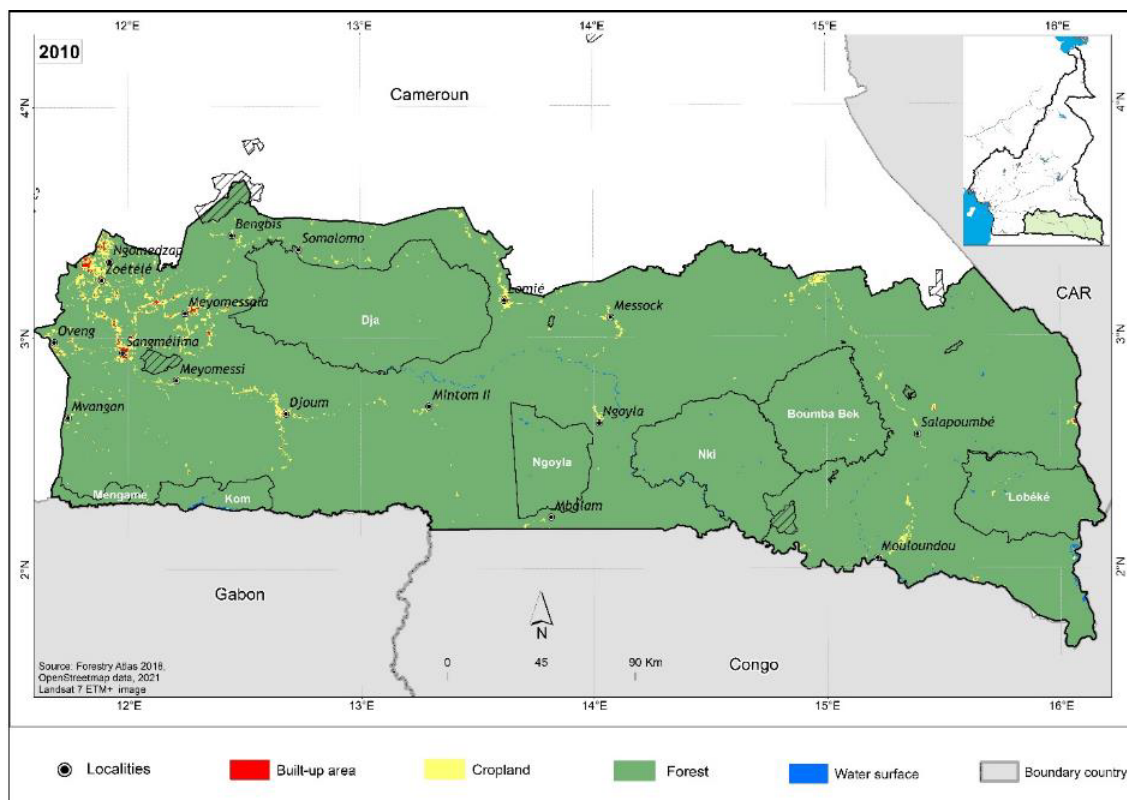
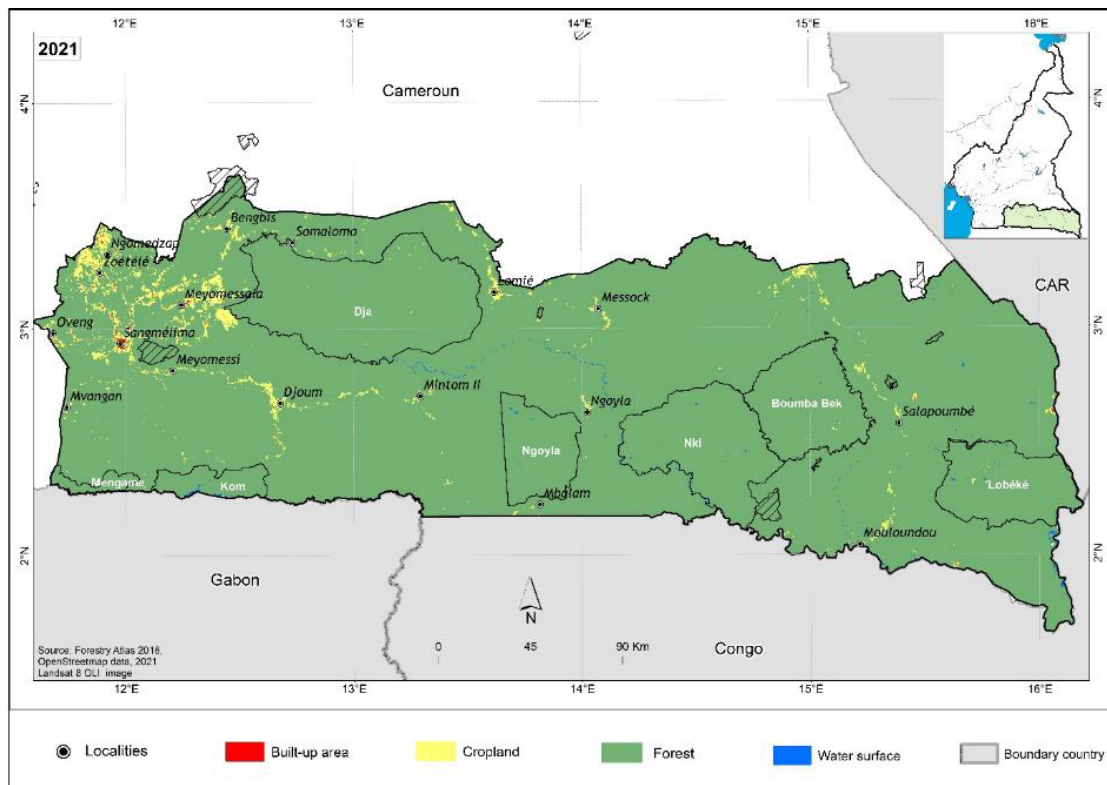


Figure 12. Land use map of the Dja-Lobeke landscape in 2010.



### 3.2.3. BAMBOUTOS BAKOSSI LANDSCAPE

The Mount Bamboutos area has deforestation and land degradation hotspots, thus providing huge potential for restoration and carbon sequestration (GIZ, 2016). The area is part of the Western highlands AEZ where deforestation rate was estimated at about 0.04% per year between 2000-2015 (MINEPDED, 2017). The area is experiencing high population growth and high demand for land; as such, the few remaining pockets of forest such as gallery and riparian forests have been invaded by agriculture (MINEPDED, 2017). Apart from the Djuttitsa tea plantation, which covers several hectares, agriculture is dominated by smallholders whose areas rarely exceed one hectare.

Deforestation in the Bamboutos-Bakossi landscape is as significant as that observed in the Waza area. Out of 574148.79 hectares of forest in 1998, 15075.1 hectares were deforested between 1998 and 2021, which represents a deforestation rate of 0.12%. Statistics from the 1998 and 2021 land use maps highlight the spatio-temporal dynamics of each land use type. The current land use status shows an increase in cropland between 1998 and 2021. Between 1998 and 2010, there are nearly 30884.62 hectares of forest converted to crop-grassland mosaic, 1346.5 hectares for crops, 302.94 for built-up areas and 300.33 hectares for water areas. In addition to forest conversions, there are also about 3,535.36 hectares of crop-savanna mosaic converted to forest and 1,130.4 hectares of crop converted to forest. Between 2010 and 2021, the most significant change in the Bamboutos-Bakossi Landscape is the conversion of forest areas into cultivated land, which represents nearly 27210.35

hectares of the landscape. The percentage of forest land occupation decreased from 81.51% (574184.79 hectares) in 2010 to 79.31% (558644.2 hectares) in 2021. Still during the period 2010-2021, forests and crop-grassland mosaic registered the largest loss, respectively 12646.99 hectares (0.20%/year) and 6122.79 hectares (0.58%/year) of total land cover. Cultivated land recorded the largest gain, i.e. 4.36% of the land cover, corresponding to 17410.96 hectares during this period. In general, the conversion of forests into other types of land use is driven by a number of factors, including climate and human activities. Since 1998, the rate of occupation of the Bamboutos-Bakossi landscape for cultivation has increased from 17.86% to 19.71% of the total area. This pressure on the forests is explained by a galloping increase in population in this landscape. Two hotspots are identified. One around the Mount Bamboutos hills in Fongo Tongo, Bafou, Bangang, Babadjou and another in the Lowlands of Melong-Santchou around the Santchou Forest reserves. The restoration potential in the Bamboutos-Bakossi intervention site is 15 075.1 hectares corresponding to the forest lost surface between 1998 and 2021.

*Table 9. Dynamics of forest cover change in the Bamboutos-Bakossi landscape between 1998, 2010 and 2021.*

| Landcover                  | Area (1998)      | Area (2010)      | Area (2021)      | Surface variation (2010-2021) | Annual variation Rate (%) |
|----------------------------|------------------|------------------|------------------|-------------------------------|---------------------------|
| Forest                     | 574148.79        | 571720.68        | 559073.69        | -12646.99                     | -0.20                     |
| Mosaic crops and grassland | 97615.89         | 99220.77         | 93097.98         | -6122.79                      | -0.58                     |
| Cropland                   | 28173.6          | 28315.35         | 45726.31         | 17410.96                      | 4.36                      |
| Built up area              | 3762.63          | 3850.74          | 5806.26          | 1955.52                       | 3.73                      |
| Water surface              | 711.81           | 1305.18          | 708.48           | -596.70                       | -5.55                     |
| <b>Total</b>               | <b>704412.72</b> | <b>704412.72</b> | <b>704412.72</b> |                               |                           |

Figures 11, 12 and 13 show the dynamics of land use in the Bamboutos-Bakossi landscape between 2000, 2010 and 2021.

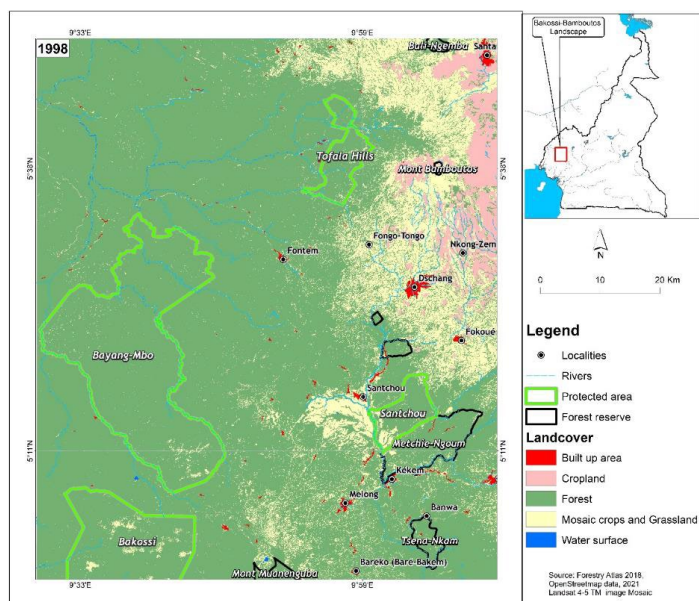


Figure 14. Land use map of the Bamboutos-Bakossi landscape in 1998.

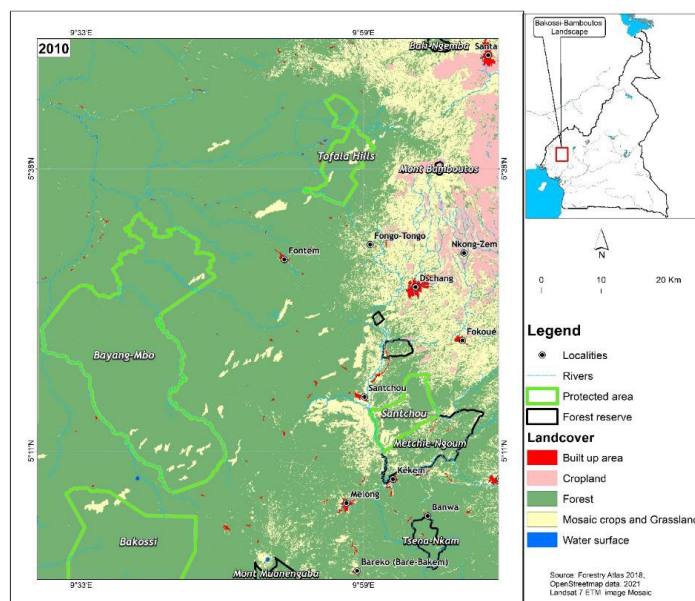


Figure 15. Land use map of the Bamboutos-Bakossi landscape in 2010.

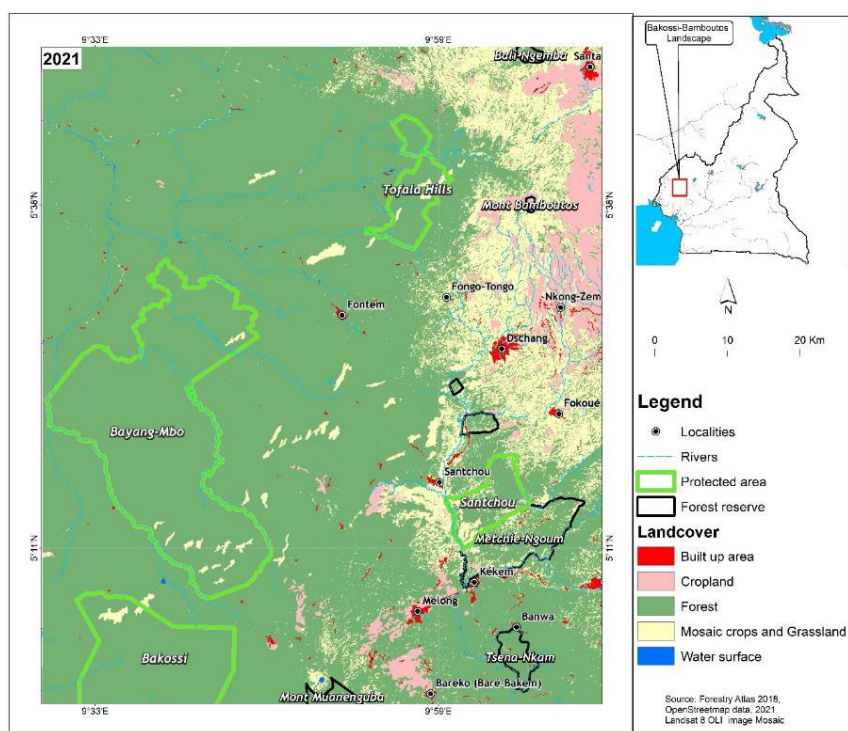


Figure 16. Land use map of the Bamboutos-Bakossi landscape in 2021.

## 4. PROPOSED RESTORATION OPTIONS AND ASSOCIATED ECOSYSTEM BENEFITS

The identification of restoration options is based on a combination of the different types of degradation and the needs expressed by the populations, where restoration is seen both as a sustainable solution to landscape degradation and as a source of ecosystem goods and services to the populations.

### 4.1. RESTORATION INTERVENTIONS

#### 4.1.1. WAZA LANDSCAPE

According to the ROAM study conducted in 2021 by INBAR, UICN and GEF<sup>1</sup>, and other studies in the Sudano Sahelian region, the restoration interventions in this site are:

1. Assisted natural regeneration and agroforestry on agricultural lands;
2. Reforestation on individual private plots of fallow land or on cultivated land, protected areas, community, and communal forests;
3. Anti-erosion practices on agro-pastoral plots and on hillsides;
4. Improvement of agro-pastoral production systems and access to fodder;
5. Sustainable and participatory management of natural resources;
6. Promotion of organic farming techniques (composting, organic manure, crop association/rotation);
7. Protection of natural forest formations on hillsides and in shrub steppes;

Implementation of these restoration options is expected to generate several benefits for people and the environment such as:

1. The improvement of soil fertility and agricultural yields through the association of crops with fertilizing plants (straw crops);
2. The promotion of agroforestry and Assisted Natural Regeneration on agricultural land (low density reforestation) should see a gradual improvement in agricultural yields, strengthen carbon stocks and eventually provide wood energy for local populations.
3. Improvements in water infiltration and protection of watersheds against water erosion, fodder for animals;
4. Contribution to climate regulation through carbon sequestration;
5. The provision of ecosystem services such as reducing erosion, improving soil fertility through simple anti-erosion measures such as stone barriers, grass strips, and stone wedges;
6. Improvement of rainwater retention and infiltration etc.

*Table 10. Main intervention opportunities in Waza intervention site.*

|   | Restoration options                            | Target intervention area |
|---|------------------------------------------------|--------------------------|
| 1 | Assisted natural regeneration and Agroforestry | Agricultural lands       |
| 2 | Restoration of soil fertility                  | Agricultural lands       |

<sup>1</sup> INBAR, IUCN and GEF. Forest Landscape Restoration Opportunity Assessment For Sub-National landscapes of Cameroon: Waza, Mbalmayo and Douala-Edea. September, 2021

|   |                                         |                                                       |
|---|-----------------------------------------|-------------------------------------------------------|
| 3 | Reforestation                           | Mountains and hills                                   |
|   |                                         | National parks                                        |
|   |                                         | Community and communal forest                         |
| 4 | Protection and restoration of watershed | Buffer zones around water bodies and riparian forests |
| 5 | Anti-erosion measures                   | Agricultural lands                                    |
| 6 | Improvement of agropastoral production  | Pasturage                                             |

#### 4.1.2. DJA-LOBEKE LANDSCAPE

Agroforestry and particularly, Cocoa agroforestry seems to be the main restoration options for degraded landscapes in the area. It is a system that combines cocoa with other tree plants (fruit trees and other species of value to the local population. Five popular species of value were identified as relevant for this combination, such as the avocado, safoutier, ndo'o (*Irvingia gabonensis*), Moabi (*Baillonela toxisperma*) and Djansang (*Ricinodendron heudelotii*). For a better yield of cocoa, which remains the pioneer crop, it is estimated that an association of 1,275 trees per hectare is recommended with 1,200 cocoa trees and 15 trees each for the other species.

Other restoration options include, protective measures for protected areas, or reforestation in permanent domains. However, these 2 measures are not profitable to the local populations.

In terms of benefits, agroforestry on degraded lands should contribute to generate economic benefits related to cocoa, NTFPs, as well as contribute to carbon sequestration.

Lastly, protection and reforestation of permanent forest areas should help preserve or increase carbon stocks, contribute to the preservation of biodiversity and improve water resources.

*Table 11. Intervention opportunities Dja-Lobeke intervention site.*

| Restoration options |                                         | Target intervention area                              |
|---------------------|-----------------------------------------|-------------------------------------------------------|
| 1                   | Cocoa Agroforestry                      | Agricultural lands                                    |
| 2                   | Reforestation                           | Mountains and hills                                   |
|                     |                                         | National parks and forest reserves                    |
|                     |                                         | Community and communal forest                         |
| 3                   | Protection and restoration of watershed | Buffer zones around water bodies and riparian forests |

#### 4.1.3. BAMBOUTOS-BAKOSSI LANDSCAPE

The agricultural system proven in the area for at least two centuries is linked to the agroforestry and bocage system and intensive commercial farming on the upper hills. The forest landscape model could be tested here under the condition of zero deforestation in the form of sustainable multi-use management with enhanced productivity. The objective is to increase the economic value of the landscape by diversifying the agricultural sector and seeking synergy with other sectors towards multi-use of landscape. An agroforestry approach to a "productive multiple-use forest landscape" with rational and integrated spatial planning could restore forest landscapes and increase production of primary and secondary products in non-forest

plantations. This approach should also make it possible to protect watersheds and water resources for this landscape, which is one of the main water towers in Cameroon. The avocado tree, a popular fruit tree in the area, could serve as a flagship species in this model. This approach could be coupled with the improvement of soil fertility as well as the improvement of the pasturage as strategy for the reduction of multiple conflicts between Mbororo breeders and commercial farmers.

*Table 12. Intervention opportunities in the Bamboutos-Bakossi landscape.*

|   | Restoration options                     | Target intervention area                              |
|---|-----------------------------------------|-------------------------------------------------------|
| 1 | Avocado Agroforestry                    | Agricultural lands                                    |
| 2 | Reforestation                           | Mountains and hills<br>Forest reserves                |
| 4 | Protection and restoration of watershed | Buffer zones around water bodies and riparian forests |
| 5 | Anti-erosion measures                   | Agricultural lands                                    |
| 6 | Improvement of agropastoral production  | Pasturage                                             |

## 4.2. POTENTIAL SPECIES FOR FOREST LANDSCAPE RESTORATION (FLR)

Although there is a wide variety of plant species nationwide that can contribute to the restoration of these different landscapes, emphasis should be made to use species that are local to each landscape or those that have become adapted to it over the past several decades and are valued by the population. In some cases, some of the species are suitable socioeconomically on the one hand, and on the other hand are ecologically unsuitable. For example, the Eucalyptus tree species, which have been present for several decades in certain landscapes such as the Bamboutos Mountains, are today accused, of being harmful to the environment because of their very high-water requirements and their allelopathy. Thus, in areas where it is very important, studies could be conducted to identify varieties that are much more compatible with the environment.

*Table 13. Major Species for restoration in the Waza landscape.*

| Nb | Common Name             | Scientific Name                 | Vernacular Name           | Ecosystemic Services                                        |
|----|-------------------------|---------------------------------|---------------------------|-------------------------------------------------------------|
|    | Egyptian Mimosa         | <i>Acacia nilotica</i>          | Gabdé                     | Firewood, timber, soil fertilization, fodder, hedgerows     |
|    | Senegal's gum tree      | <i>Acacia senegal</i>           | Pattugelhi                | Firewood, soil fertilization, fodder, shading               |
|    | Whitebark Acacia        | <i>Acacia seyal</i>             | Mboulbi                   | Firewood, fodder                                            |
|    | Siberianna              | <i>Acacia sieberiana</i>        | Alloukidanéhi or dandaneh | Firewood, soil fertilization, fodder                        |
|    | Acacia with round apple | <i>Faidherbia albida</i>        | Tchaski                   | Firewood, soil fertilization, fodder, shading               |
|    | Dattier desert          | <i>Balanites aegyptiaca</i>     | tanned                    | Food, firewood, lumber, medicinal, fodder, charcoal, timber |
|    | Bayahonde               | <i>Prosopis juliflora</i>       | -                         | Firewood, timber, soil fertilization, fodder                |
|    | Bamboo                  | <i>Oxytenanthera abyssinica</i> | Kewé                      | Non-Timber products                                         |

**Table 14. Major Species for the restoration in the Dja-Lobeke landscape.**

| Nb | Common Name          | Scientific Name                 | Vernacular Name | Ecosystemic Services                                          |
|----|----------------------|---------------------------------|-----------------|---------------------------------------------------------------|
|    | Mango/mangue sauvage | <i>Irvingia gabonensis</i>      | Ndo'o           | Food, seed used for medicine, Firewood, power supply, shading |
|    | Bitter Kola          | <i>Garcina cola</i>             | Onié            | Firewood, food, medicinal plant, shading                      |
|    | Safou                | <i>Dacryodes edulis</i>         | Nsé             | Firewood, power supply, shading                               |
|    | Ndjansang            | <i>Ricinodendron heudelotii</i> | Ndjansang       | NTFP fruits, kitchen oil, medicinal plant, wood for arts      |
|    | Bamboo               | <i>Oxytenanthera abyssinica</i> | Esong tanhain   | Non-Timber products                                           |
|    | Ebony                | <i>Dyospiros crassifolium</i>   | Ebène           | Timber, NTFP                                                  |

**Table 15. Major Species for the restoration in the Mount Bamboutos landscape.**

| Nb | Common Name | Scientific Name                 | Vernacular Name | Ecosystemic Services                                                     |
|----|-------------|---------------------------------|-----------------|--------------------------------------------------------------------------|
|    | Avocado     | <i>Persea Americana</i>         | Pea             | Food, medicine, Firewood, shading                                        |
|    | Raphia      | <i>Raphia spp.</i>              | Bamboo          | Firewood, Wine, power supply, shading, Handicraft, water body protection |
|    | Safou       | <i>Dacryodes edulis</i>         | Nzo'o           | Non-Timber products                                                      |
|    | Bamboo      | <i>Oxytenanthera abyssinica</i> | Lefouok         | Non-Timber products, Handicraft, water body protection                   |
|    | Eucalyptus  | <i>Eucalyptus spp</i>           | Eucalyptus      | Timber and service wood, fire wood                                       |

It is important to note that the selected species are all multiple use species as shown in the tables above. Indeed, the success of a landscape restoration program must consider species that provide many goods and services at the local level (fertility improvement, diet, timber and energy wood, cultural values, medicine etc.).

## 5. PRIORITY AREAS FOR INTERVENTION BY LANDSCAPE

The choice of the restoration site is crucial and requires thorough analysis involving many factors. Good choice of intervention areas can guarantee the best chances of success and support of the local populations. The identification of priority areas for intervention took into consideration the deforestation and land degradation hotspots. Furthermore, the analysis of the different land rights that are exercised in the area, the threats and mechanisms for securing land, potential land conflicts, etc., helped the identification of areas where more secure restoration investments could be made. To better select the intervention sites, we carried out a multi-criteria analysis for each landscape

### 5.1. MULTI-CRITERIA ANALYSIS FOR OPPORTUNITY AREAS

Multi-criteria analysis identifies which land use types offer the most potential to meet the restoration criteria used, but also how many criteria can be addressed for each land use type. It also allows the planning and design of locally targeted restoration interventions for specific land uses, with a reasonable expectation of the extent of criteria that can be addressed by restoration in a specific area. For each landscape, we carried out a multi-criteria analysis for the identification of priority areas for restoration using objective and empirical geospatial data to define the characteristics of a landscape that would be of interest to restoration practitioners at various geographic and administrative scales.

- *Opportunity areas for agroforestry*

Opportunity areas for agroforestry was obtained by isolating areas of both cropland and grassland/shrubland from the land cover data; non-forested areas from the forest cover data; land with a slope less than 3 degrees (5%) and steep sloping land. The intersection of these datasets is the opportunity area for agroforestry.

- *Opportunity for forest plantations*

Opportunity areas for forest plantations was identified through the geospatial analysis involving isolating areas of bare soils / degraded forest land/or savannah & shrubs (non-protected areas) from the land cover data; non-forested areas from the forest cover data; and land with a slope greater than 3 degrees (5% incline) from the slope data. The intersection of these datasets is the opportunity area for forest plantations.

- *Opportunity areas for assisted natural regeneration of the protected degraded wooded savannah and shrubs, parks, reserves, and community forests*

For Assisted natural forest regeneration, we included degraded natural forest inside parks and community forests, we also we extracted areas from the forest cover dataset defined as “degraded savannah” and overlay these areas with the boundaries of reserves and national parks. Any areas of degraded forest that overlap with these boundaries are quantified as opportunity areas for assisted regeneration intervention.

- *Opportunity areas for Restoration and improved management*

Concerning opportunity areas for improved management, we used the data on community forests, forest council and forest reserve boundary, and a non-forested area within the boundary of these two. To identify areas of restoration, we extracted

areas of non-forested areas within the boundary of forest reserve, forest council, and of community forests.

- *Opportunity for protective forests*

The opportunity areas for protective forest interventions was obtained by establishing a protective forest on steep degraded land; within 50-m buffers of riparian areas; and within 50-m buffers of wetlands and within 30-m of water bodies. Protective trees are also established within the populated areas and along with the roads.

However, since the prioritization of restoration areas and site of interventions should be a collaborative process between stakeholders, we took into account other factors such as the desired outcomes of land rights, labor and how restoration can address systemic drivers of degradation. We also took into account criteria related to social, economic and ecological feasibility in regard to the restoration objective of landscape (food security, population, forest cover, watershed protection, biodiversity, etc.). Several factors can also exacerbate conflicts related to land use. For example, poverty, youth unemployment and the precarious living conditions of local communities, the non-respect of the customs and traditions of local communities related to land tenure; the lack of transparency in the distribution and management of restoration benefits. In addition, the cohabitation of several forms of land use and natural resource development in some areas such as mining concessions, artisanal mining, forest concessions (FMUs, community forests, communal forests), protected areas (wildlife reserve, hunting zones), infrastructure projects (road, rail, hydroelectric, etc.), agriculture, etc. We took this into account when selecting the priority areas for intervention.

## 5.2. IDENTIFIED PRIORITY AREAS FOR INTERVENTION PER LANDSCAPE

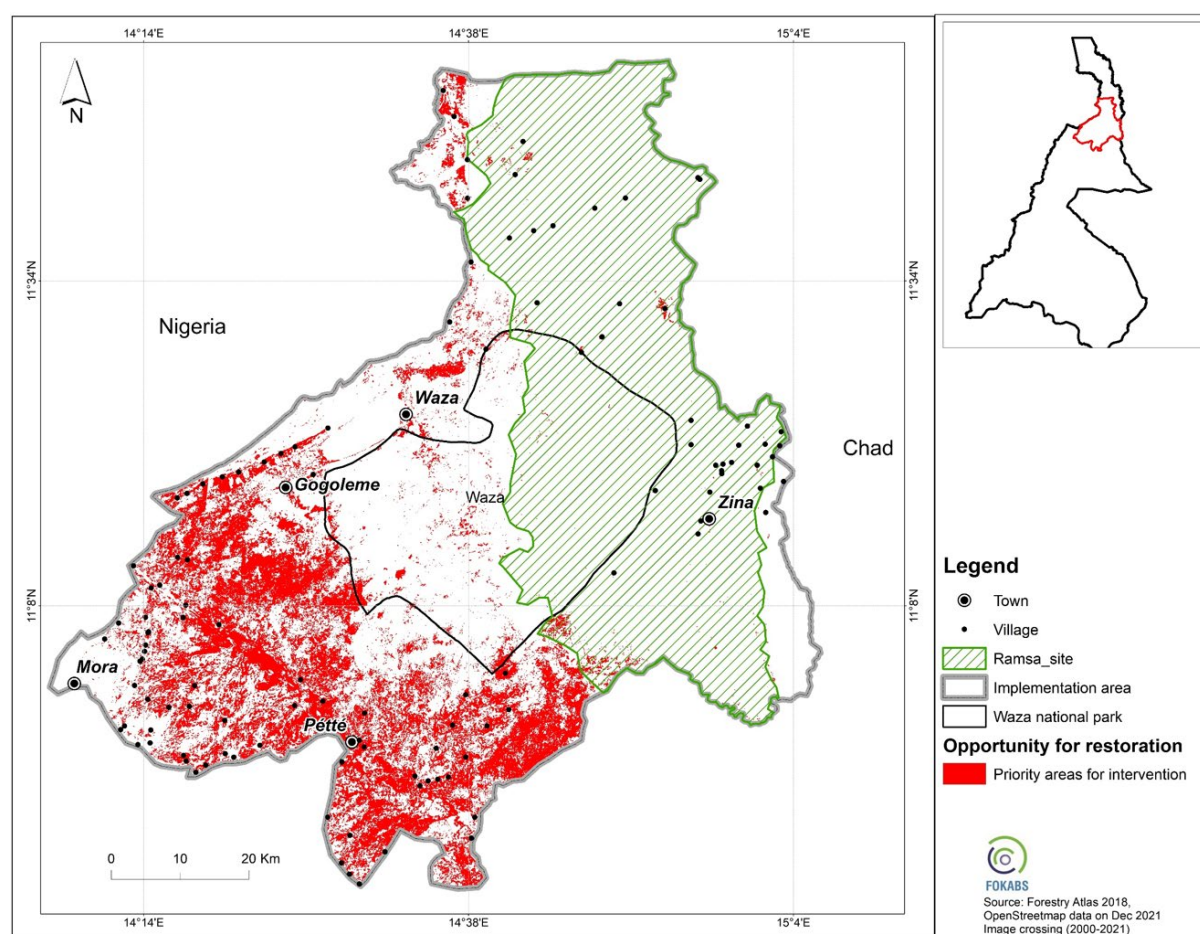


Figure 17. Map of priority areas for intervention in Waza landscape.

Table 16. Surface areas for each restoration option in Waza landscape.

| Restoration action                                      | Agroforestry | Reforestation of Community forest | Restoration of degraded forests & park | Riparian buffers of water bodies | Total for the landscape |
|---------------------------------------------------------|--------------|-----------------------------------|----------------------------------------|----------------------------------|-------------------------|
| <b>Total areas to be restored (ha) per intervention</b> | 73 937.50    | 26 925.4                          | 41 551.7                               | 16 315.7                         | 158 730.3               |

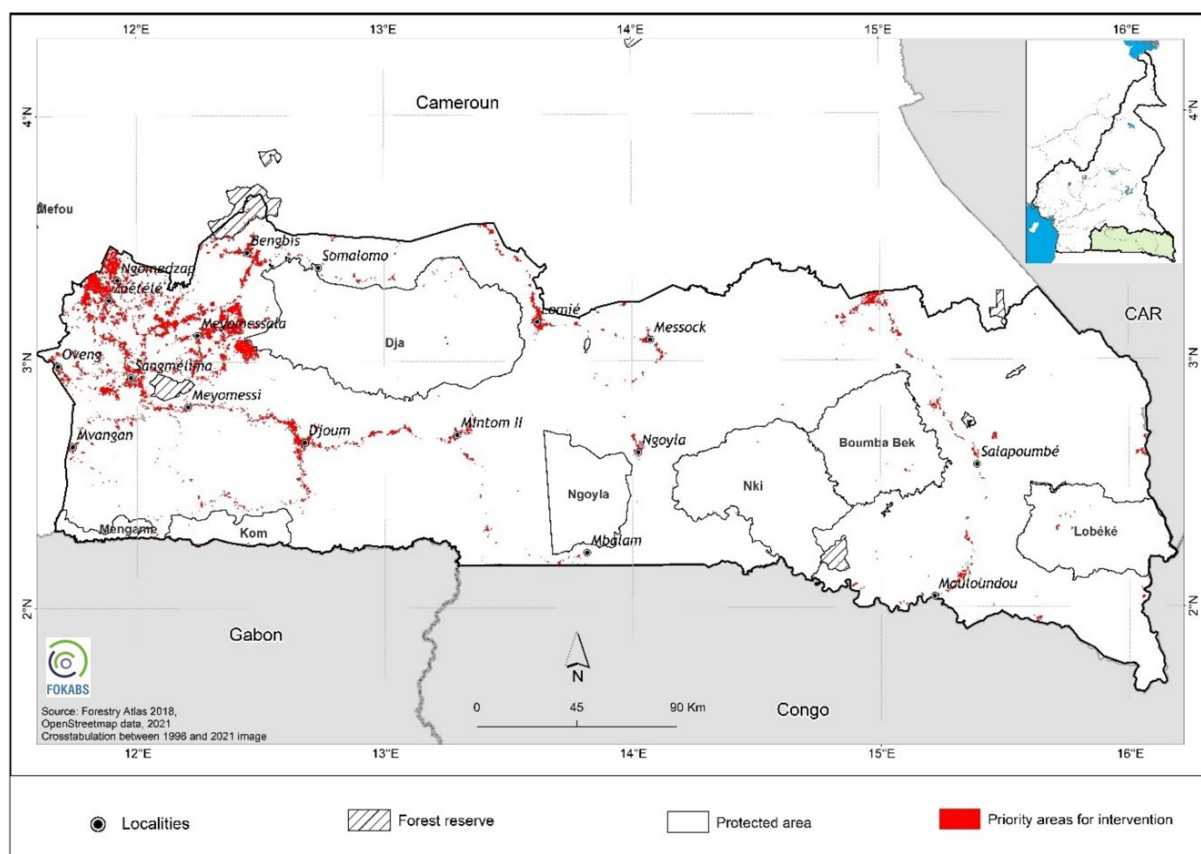


Figure 18. Map of priority areas for restoration in Dja-Lobeke landscape.

Table 17. Surface areas for each restoration option in Dja-Lobeke landscape.

| Restoration action                               | Agroforestry agricultural land | Reforestation of community forests | Restoration of degraded council forests reserve and park areas | Riparian forests & and buffers of water bodies | Total for the landscape |
|--------------------------------------------------|--------------------------------|------------------------------------|----------------------------------------------------------------|------------------------------------------------|-------------------------|
| Total areas to be restored (ha) per intervention | 1 457                          | 8 970.5                            | 1 524.0                                                        | 4 573.1                                        | 16 524.6                |

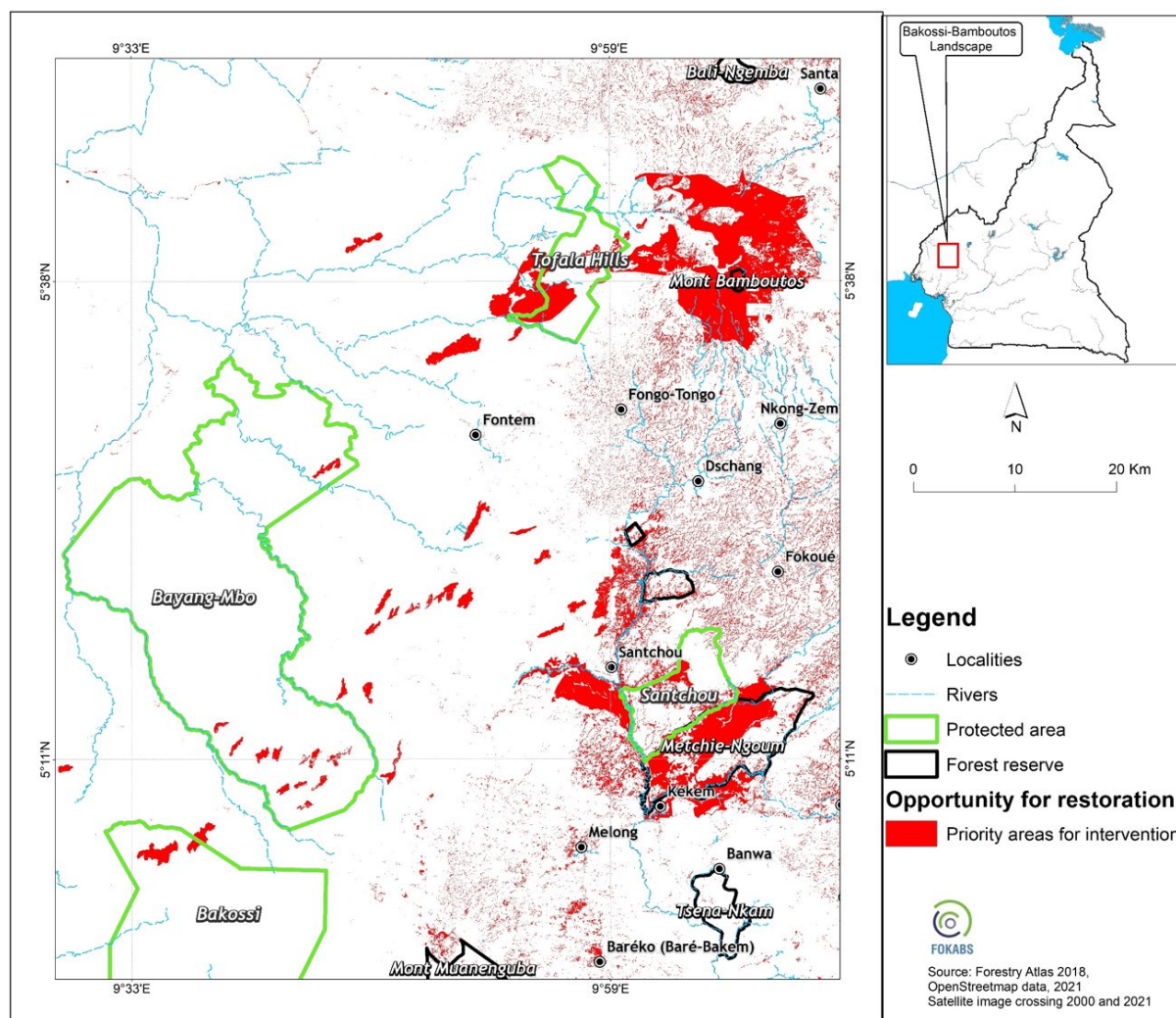


Figure 19. Map of priority areas for restoration in the Bamboutos-Bakossi landscape.

Table 18. Surface areas for each restoration options in Bamboutos landscape.

| Restoration action                                      | Agroforestry agricultural land | Restoration of degraded forest reserve and park areas | Riparian forests & and buffers of water bodies | Total for the landscape (ha) |
|---------------------------------------------------------|--------------------------------|-------------------------------------------------------|------------------------------------------------|------------------------------|
| <b>Total areas to be restored (ha) per intervention</b> | 8 569.1                        | 3 006                                                 | 3 500                                          | <b>15 075.1</b>              |

In areas where land pressure is very high, such as in the Bamboutos Mountain landscapes, and where private interest dominated with lands almost all private properties, mosaic restoration approach is advised on plots owned and/or used by individuals for agriculture. It will also be necessary to ensure at this time that there are no family-type conflicts over the targeted land.

In areas where there is no pressure for land restoration could take place on areas of high community interest (community forests, grazing areas) or on land held by the State or by decentralized territorial entities - councils. As there is no such concept as

ownerless land, the restoration of certain community spaces could revalue land that was not at the heart of major land issues and give rise to conflicts over the control of benefits resulting from the restoration. Thus, for greater security of investment, the most suitable sites should be in the permanent domain of the State (FMU, protected areas, community, and communal forests).

A restoration project could also opt for either a full acquisition of the rights to the desired space, or a collaborative development. Full acquisition gives investors the opportunity to choose the restoration model that best suits their needs and implement any desired improvements. However, the choice to fully acquire the rights to the chosen area is not advisable since not only does it require a commitment of very high amounts of compensation to classify the area as public utility, but it also excludes local populations in the process (compromising the sustainability of the project), and it can also create food insecurity by removing populations that have been settled for ages from their arable land. Concerted management of the space is the most advisable, though it requires adaptation of restoration options to the needs and rights of the landowners. In this case, the population as stakeholders together with the investors make the choice of space and the restoration options through consultations. This approach can reconcile restoration objectives with the different rights that populations have over the targeted areas.

In summary, there are several management units where the forest landscape approach could be used as a measure to increase land productivity by integrating agroforestry. Some Community Forests (CFs), and some Communal Forests and Forest Reserves are heavily degraded by agricultural activity and offer a unique opportunity for the integration of an agricultural system respecting forest resources within a well-defined normative and incentive framework. Community Forests are multi-purpose agroforestry landscapes under community management following a simple forest resource management plan (woody and non-woody) but without a mapped land use plan. CFs now represent about 25% of the Non-Permanent Forest Estate (MINFOR 2016 and Cuny 2011). This is a unique opportunity to reconcile agriculture with the forest and to maximize the value of an agroforestry area for the local community. This model is of interest in the Waza and Dja intervention sites.

## **6. ANALYSIS OF STAKEHOLDERS TO BE INVOLVED IN LANDSCAPE RESTORATION**

FLR initiatives can involve a number of stakeholders, defined here as individuals, women and men, groups, agencies or organizations that have a direct interest or direct influence on the process or outcome.

## **6.1. RESTORATION STAKEHOLDERS FOR THE 3 LANDSCAPES**

### **6.1.1. THE STATE THROUGH SECTORAL ADMINISTRATIONS**

They are in charge of environmental, forestry, agricultural, transport, infrastructure, mining, energy, indigenous peoples, vulnerable groups and communities, stakeholder management. They play the role of conflict arbitration and have data on ongoing initiatives in different zones etc. They have a holistic view of the activities planned in different areas. They guide government decisions, have a database of actors, facilitate the mobilisation of other actors etc. The government and sectoral administration are in charge of:

- Implementation of various sectoral policies and strategies;
- Promotion of an integrated and sustainable management of local natural resources;
- Preservation of biodiversity and the integrity of natural ecosystems
- Etc.

MINEPDED for example is responsible for the development and implementation of the Government's policy on environmental preservation and nature protection. It is responsible, among other things, for the integration of environmental considerations into all national plans and programmes and is concerned about the issues of deforestation and forest degradation and the resulting land degradation

MINFOF is at the heart of Cameroon's forest resource management policy. Its missions aim to "perpetuate and develop the economic, ecological and social functions of Cameroon's forests, within the framework of an integrated management that ensures, in a sustained and sustainable way, the conservation and use of forest resources and ecosystems."

The role and responsibility of these and other government institutions is highlighted in the table below.

### **6.1.2. DECENTRALIZED TERRITORIAL ENTITIES**

They are responsible for the planning, economic and social development of the local communities. They are managed by local elected officials. The decentralised territorial entities are in charge of mobilisation local communities and control of the land and forest management system at the local level. According to the law of July 22, 2004, which establishes the rules applicable to councils, they are responsible for managing local affairs under the supervision of the State, with a view to the social and cultural development of its populations. The mayor's office is the seat of the communal institution.

### **6.1.3. THE TRADITIONAL AUTHORITIES**

The traditional chiefs are "auxiliaries of the administration", assist the administrative authorities in their missions of supervising the populations. They have a good knowledge of their territories, of the legitimate owners of the land as well as of the problems facing the communities. Community leaders are in charge of the

management of a forest area belonging to the community and following the appropriate regulations. The holders of ancestral powers apply customary law on the basis of local cultures and ensure their continuity.

#### **6.1.4.LOCAL COMMUNITIES**

Local communities and CSO are main beneficiaries of restoration activities. They are the privileged actors on which the project focuses its hopes of restoration, because they have customary rights over most of the land to be restored. The level of ownership of local development projects and programmes by local population is extremely low, given their low commitment to the design and planning process of these projects; only, it is crucial that these populations take ownership of the ongoing restoration project. If support mechanisms throughout the process are to be put in place, communities must play their part, without which the project would fail. Therefore, the existence of competing interests in the management of natural resources and precisely in conservation areas is a major constraint. They perceive conservation projects as a succession of prohibitions with no real benefits for them. Given the specificity given to women and young people, it is desirable that their commitment be made beyond the activities of the group, through specific activities.

#### **6.1.5.LOCAL CSO AND INTERNATIONAL NGOS**

They include non-governmental organizations, associations and other forms of groupings of interests that intervene at the national level or directly in the landscapes. They are extremely active in the targeted landscapes and takes part in major discussions on various themes, development and sustainable management of resources, restoration, improvement of the living conditions of populations. CSO have good knowledge of the local socio-economic development context and provided support and control to the management of local resources. The help in structuring and organising local communities.

#### **6.1.6.DEVELOPMENT PARTNERS**

The development partners provide technical and financial support at strategic and grassroots for sustainable forest and environmental management, fighting against climate change etc. through the mobilization and provision of funding to the State and organizations at the national level, as well as lobbying and international advocacy with other partners. These include international organizations such as WWF, WRI, IUCN, CIFOR, etc., bilateral and multilateral organizations (ADB, World Bank, KFW, EU, IFAD, GEF, IDB, FAO, UNDP, etc.) that mobilize funding from mechanisms such as the CBFF, CBFP, PES, PIF, CAFI, FCPF, Carbon Fund, Carbon Market, and various calls for projects. In addition, development agencies and bilateral partners such as USFS, GIZ, AFD, SNV, KFW, JICA, USAID, CIDA, DFID, etc., are also involved.

#### **6.1.7.THE PRIVATE SECTOR**

Private sector is engaged in lucrative natural resource exploitation activities. They are owner of land (forestry, mining, agro-industry) and thus could see in restoration,

opportunities to making businesses. There are in the landscapes, several categories of operators in the private sector working in a formal or informal context, namely large producers (cotton, sorghum, pineapple, palm oil, firewood, etc.), large transhumant herders, wood processing industries; all with relative / great responsibility for deforestation. It is therefore important that they participate in discussions organized at the landscape and/or community level. These actors are interested in marketable services (agricultural products, forest products, carbon credits, etc.) with the objective of improving the quality and quantity of these goods in order to generate financial benefits, but also to enhance their image as part of corporate social responsibility. In the Sudano-Sahelian zone, large companies in the agricultural sector, such as SODECOTON, have also been investing for several years in land restoration in order to boost cotton production. SODECOTON, through the ASGIRAP project, has been carrying out land restoration activities in the area for several years with school fields including in the landscape north of the city of Maroua. However, these companies are sometimes very powerful, which makes it difficult to mobilize them and invite them to process at both national and local levels. Also, their interest in social and environmental matters remains weak.

### **6.1.8. UNIVERSITIES AND RESEARCH INSTITUTIONS**

Universities and research institutions work towards providing expertise and solutions to issues facing the societies. They provide inputs to projects and programs, develop research to improve knowledge, etc. These technical research and development institutions have a significant technical capital and results of experiments (species, management systems, studies, information, experiments) transferable to communities and restoration initiatives.

## **6.2. ROLES AND RESPONSIBILITIES OF RESTORATION STAKEHOLDERS**

The participation or involvement of the different stakeholder groups should vary slightly depending on the scope and scale of the restoration initiative, their interest, etc., For example, a large-scale restoration project, might include all the groups mentioned above, while a restoration initiative focusing on land restoration with a small group of farmers might include only one or two stakeholder groups. Regardless of the scope and scale, explicit and deliberate efforts should be made in stakeholder engagement processes to ensure active presence, active participation and equitable engagement of women, men and youth from all stakeholders. It is rare to find land where restoration can be carried out without taking into account the wishes of the local community. However, although the term 'community' is often used to represent an integrated union of people, it is often divided along ethnic, economic, political and gender lines. Therefore, it is essential to understand the dynamics and interests of local communities when developing a restoration initiative. Although the participation or involvement of the different stakeholder groups could vary, their role and responsibilities are almost identical in all 3 landscapes as they are the same stakeholder groups whether we are in Waza, Dja-Lobeke or Bamboutos-Bakossi.

*Table 19. Main roles and responsibilities of restoration stakeholders in the 3 landscapes.*

| Stakeholders                                                                                    | Role and responsibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Government through its decentralized services (MINFOF, MINEPDED, MINEPAT, MINADER, MINEPIA) | <p>As responsible of national institutions, the roles and responsibilities of the deconcentrated technical services of the State will be:</p> <ul style="list-style-type: none"> <li>☞ To technically support the implementation of restoration activities</li> <li>☞ Ensure that they are consistent with recommendations of the national framework for forest landscape restoration in Cameroon;</li> <li>☞ Ensure the application of laws on environmental protection, soil, water, etc.;</li> <li>☞ Raise awareness among local populations on the legal regime of land management;</li> <li>☞ Promote incentive mechanisms for investment in restoration;</li> <li>☞ Facilitate access to restoration areas;</li> <li>☞ They will also have to intervene in the arbitration or resolution of potential conflicts arising from the implementation of restoration activities</li> </ul>                                                                                                                                                             |
| The local municipalities                                                                        | <p>As responsible of local development and the management of local affairs. The roles and responsibilities of the councils will be to:</p> <ul style="list-style-type: none"> <li>☞ coordinate and organise the restoration process on their territory with the support of the sectors,</li> <li>☞ contribute to the planning and implementation of local restoration policy in collaboration with sectoral administrations</li> <li>☞ mentoring populations and facilitating the process of information and conflict management between different stakeholders</li> <li>☞ Ensure the integration of restoration actions into the communal development plans</li> <li>☞ Mobilize funds and build partnerships for restoration</li> <li>☞ Provide access to communal lands for restoration (communal forests)</li> <li>☞ Facilitate the sustainability of restoration achievements</li> <li>☞ Develop or improve the basic infrastructure necessary for restoration (roads, water points, etc.)</li> <li>☞ Facilitate restoration activities</li> </ul> |
| Traditional authorities                                                                         | <p>As community leaders, their role will be to ensure the mobilization of communities for restoration interventions.</p> <ul style="list-style-type: none"> <li>☞ As the main bearers of customary land rights, they will be responsible for ceding or conceding land areas that can facilitate restoration;</li> <li>☞ They will also have to intervene in the arbitration or resolution at local level of potential conflicts arising from the implementation of restoration activities</li> <li>☞ contribute to the monitoring of restored plots as well as to the monitoring of illegal activities taking place in the landscape.</li> <li>☞ influence and educate a positive community dynamic towards restoration and encourage them to participate.</li> </ul>                                                                                                                                                                                                                                                                                  |

|                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>Local communities<br/>(Women and men in the participating communities)</p>                                                            | <p>These populations are mainly involved in primary sector activities (agriculture, livestock, small-scale trade, mining crafts, etc.). They are the main beneficiaries of the restoration activities. Their roles and responsibilities will thus be to:</p> <ul style="list-style-type: none"> <li>☞ Allocate their private spaces for the implementation of restoration activities;</li> <li>☞ Serve as local labor for the restoration activities;</li> <li>☞ setting up nurseries, planting, monitoring and maintenance of restored plots and mobilizing local resources (in kind and cash) to contribute to the self-financing of activities;</li> <li>☞ Take individual initiatives for the restoration of their landscape</li> <li>☞ Involve in local monitoring and protection (against animals, bush fires, vandalism etc.) of restoration investments</li> <li>☞ Engage in value chain development around restoration products</li> <li>☞ contribute to the production of a local seed and plant production chain, as well as to watering.</li> </ul> |
| <p>Local SCO and international NGOs</p>                                                                                                  | <p>With their technical knowledge, their role will be to:</p> <ul style="list-style-type: none"> <li>☞ Make innovative proposals for restoration;</li> <li>☞ Seek funding for restoration activities;</li> <li>☞ Implementing restoration activities</li> <li>☞ Supporting the monitoring and evaluation of the implementation of restoration projects</li> <li>☞ provide advisory support to administrations and other local services, such as awareness, training, monitoring, community organization;</li> <li>☞ carry out advocacy actions with donors to strengthen their contributions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Private sector actors</p>                                                                                                             | <p>They are stakeholders with an interest in the site and their role will be to:</p> <ul style="list-style-type: none"> <li>☞ Identify and develop opportunities for restoration;</li> <li>☞ Mobilize funds and invest in catering activities;</li> <li>☞ Promote the value of restoration products</li> <li>☞ Supervise the population to ensure the success of their investments</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>Financial and technical partners<br/>(Donors and other direct project partners IUCN, FAO, WRI, NEPAD, World Bank, FAO, GIZ etc.);</p> | <ul style="list-style-type: none"> <li>☞ Raising of various funds related to restoration (design, implementation, monitoring and evaluation...)</li> <li>☞ Strengthening the capacity of local actors to implement restoration activities</li> <li>☞ Support/advice to government and other local actors</li> <li>☞ Providing technical and material support for the implementation of activities</li> <li>☞ Support for the development of partnerships for restoration</li> <li>☞ Support for the structuring of communities and the setting up of governance structures</li> <li>☞ Facilitation of south-south exchanges to support restoration activities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        |

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Universities and research institutions | <p>Within the framework of the action research, their roles will be to:</p> <ul style="list-style-type: none"> <li>☞ Provide their expertise for restoration (identification of species and adapted techniques, production of quality seeds and plant material, solutions and answers to the various technical problems encountered, etc.)</li> <li>☞ Technical support to actors to the production of plants, the planting and the maintenance of the plots.</li> <li>☞ Develop research projects on restoration;</li> <li>☞ Produce/disseminate knowledge on FLR through the publication of scientific articles</li> </ul> |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **7. FUNDING OPPORTUNITIES**

### **7.1. EXISTING RESTORATION INITIATIVES**

#### **7.1.1. EXISTING RESTORATION INITIATIVES IN WAZA LANDSCAPE**

1. The landscape restoration project in the north of the city of Maroua carried out by WRI and GIZ. This project aims to restore the watersheds of degraded landscapes in the Maroua II and Meri council areas. This project is an WRI/AFR100 initiative to support African countries, including Cameroon, in forest landscape restoration. This project targets the drylands of Cameroon.
2. The KfW project to identify potential landscape restoration initiatives that can contribute to the AFR100 initiative in Cameroon. The project will assist potential projects to define restoration options and develop project documents for enable the mobilisation of additional financial resources. The project that has a budget of 10 million euros is mainly targeting the dry savannah areas of Cameroon.
3. The program to improve governance in the forest-environment sector (PAMFOR) aims to reforest 1,400 ha to restore vegetation cover in degraded forest reserves in the northern part of the country. This 1.7 million euro program, carried out by the Technical Center for Council Forest (CTFC) targets the dry areas of Cameroon.
4. The Restoration Initiative (TRI). This \$9.1 million project (including \$1.4 million from GEF) supports landscape restoration and sustainable use of local tree species for biodiversity conservation, sustainable livelihoods, and emissions reduction in Cameroon. It is implemented by IUCN-GEF-INBAR Cameroon and targets the Far North Region as one of its priority intervention areas.
5. The project for the restoration of degraded ecosystems in the Far North Region of Cameroon (PRED-EN). This project, which aims to reduce the trend of ecosystem degradation in the Far North Region while improving the livelihoods of communities, is funded with 5.7 million euros, and supported by IUCN, CADEPI, MINFOF and the HIPC Initiative.
6. Forest Restoration for Cameroon (FORESCAM) is a project under the leadership of CIFOR-ICRAF and Biodiversity International that aims to develop

and restore nearly 1.5 million hectares of forest reserves and other degraded natural areas in the state domain, based on a replicable model for the period 2020-2030. It targets the dry and wetlands of Cameroon.

7. The FAO-GEF RPF project with GEF funding of 2 million euros, which targets the restoration of drylands in Cameroon
8. The "Green Sahel" Project implemented by MINEPDED aims at re-greening the Sahelian areas. The project receives yearly state budget support for restoration of degraded lands and the implementation of other measures to curb the pressure on natural resources. It is an entire development program that includes not only the planting of trees, but also monitoring, water control and the vulgarisation of actions and practices (production and distribution of improve cook stoves to reduce the exploitation of wood in the Sahelian zone. Since the re-beginning of the "Green Sahel" operation in 2008, more than 30,000 ha of land have been restored and more than 150,000 improved stoves distributed to more than 40000 households. These operations cost between 800,000,000 and billion CFA francs per year.
9. The Lake Chad Basin Sustainable Development Program (PRODEBALT). PRODEBALT covers an area of 966,955 km<sup>2</sup> which extends over parts of Cameroon, Niger, Nigeria, CAR and Chad. This program aims at improving biodiversity conservation and watershed restoration. This project was jointly funded by an ADF grant of UA 30 million and other donors (GIZ, BGR, European Union, World Bank, Islamic Development Bank). Watershed management activities could be linked to this sub-regional program.

### **7.1.2.EXISTING RESTORATION INITIATIVES IN THE DJA-LOBEKE LANDSCAPE**

1. The Dja Cocoa agroforestry and Mintom Restoration project, design by Partnership for Forest. The project aims to enhance cocoa agroforestry as restoration strategy for degraded community forest;
2. Ebony project, developed by Taylors Guitar in partnership with the Ministry of Environment to protect commercially valuable timber species, reforest degraded lands and improve rural livelihoods. In the first 2 years the project has planted over 2000 ebony trees, with plans to increase to 15000 beyond 2020. The project also supports national and regional efforts to conserve biodiversity, rehabilitate degraded forest and sequester carbon;
3. The WWF-EU Ngoyla-Mintom Project entitled "Reduction for deforestation and degradation in the Ngoyla-Mintom forest massif through the implementation of sustainable integrated management in the Dja-Odzala-Minkebe landscape (TRIDOM);
4. The restoration of degraded lands conducted by timber exploitation companies etc.

### **7.1.3. EXISTING RESTORATION INITIATIVES IN THE BAMBOUTOS-BAKOSSI LANDSCAPE**

1. The COBALAM and COBALAM women project implemented by the Rainforest Alliance aims to improve biodiversity conservation and community livelihoods in the landscapes of the Western Highlands and Southern Region of Cameroon through community-based participatory landscape management and responsible resource use enterprise development.
2. The FLR Program (Large Scale Forest Landscape Restoration in Africa) or AREECA (Alliance for the Restoration of Degraded Ecosystems in Africa) is implemented through MINFOF and MINEPDED with the support of GIZ and its AFR100 partners such as IUCN, WRI, FAO, World Bank etc. The program targets the restoration of 25,000 ha in the western part of the Mount Bamboutos through direct interventions on 5,000 ha.
3. The Mount Bamboutos restoration initiative carried by ERUDEF. A 15-year project that focuses on the participatory restoration of the Bamboutos Mountains ecosystem. The interventions target the three regions concerned by the Bamboutos Mountains. The project aims to restore 35,000 hectares of degraded land through the planting of 15 million trees that will benefit 30,000 people. The overall objective is to restore the biodiversity and ecosystem functions of the Bamboutos Mountains while protecting the resources on which people depend and the economic and financial stability of these people. The project will be implemented in three phases of five years each, the first phase running from 2021 to 2025 with a three-year pre-implementation period that ran from 2018 to 2020.

### **7.2. FUNDING OPPORTUNITIES TO FOREST LANDSCAPE RESTORATION**

The restoration process should be seen from a partnership perspective. To this end, it is necessary to mobilize different stakeholders and especially investors to cooperate, create synergy on actions to be undertaken. If some of these partners may be interested in a particular landscape, because of their area of intervention or their preferences, the majority on the other parties could be interested in all landscapes provided that the options selected are profitable. These investors can come from a variety of sources such as the state through its projects and programs, development partners, the private sector, local governments, or payment for environmental services and funding from the local population. In recent years, many national programs and projects have been developed by the government, development agencies, and local NGOs to fight the increasing deforestation and degradation, as well as to secure livelihoods for the populations that depend on them (MINFOF & MINEPDED, 2019). A few of these FLR projects (currently maturing) that appear promising may constitute real sources of funding for the restoration of these different landscapes. They can be classified as follows:

### 7.2.1. LOCAL COUNCILS

Cameroon's municipalities will receive more and more state funds and, above all, prerogatives in the development of their territory as part of the ongoing decentralization process. To this end, environmental protection, sustainable land management, and the fight against climate change should figure prominently in local development agendas as provided for in the 2004 law on the orientation of decentralization and laying down the rules applicable to communes and regions. In the past, these communes have benefited from state funds for landscape restoration. The communes could integrate certain landscape restoration components into their annual budgets. This could range from the recruitment of competent staff for the monitoring and surveillance of restored areas to the financing of actions in communities such as certain anti-erosion measures, the protection of investments, the establishment of communal nurseries, the transportation of seedlings, etc. These communes can also invest in the restoration of pastures, thanks to which they collect taxes on livestock.

### 7.2.2. PRIVATE SECTOR

Private sector could finance activities to improve agricultural yields. Investors in the gum arabic, cashew nut, and neem oil value chains could also be interested in the project. Indeed, the climate of the Sudano-Sahelian zone is conducive to the development of plantations of these crops, which have great potential in terms of value added. However, given the land context of the zone, which is more conducive to mosaic restoration, it would be difficult to have large continuous areas for such investments, which could be discouraging for investors because of the operating costs. The approach could be that of SODECOTON, which rather supports the populations to develop these crops for which it will be the main buyer. It will also be necessary to consider the competition between these different crops (cotton, gum arabic, cashew nuts, etc.) and food crops.

If private sector cannot finance restoration activities directly, it could be a partner of choice for the implementation of PES systems in some landscapes. As a matter of facts, more than 80% of the Cameroonian cocoa export market is dominated by three large multinationals: TELCAR Cocoa (national partner of Cargill), Olam (including ADM) and Sic Cacaos (National partner of Barry Callebaut). Only about 15% of cocoa beans are processed in Cameroon (Office of the Prime Minister 2014: 68). Of these 32,000t that are processed locally, 31t are processed by local artisans in powder and cocoa butter and sometimes in cosmetics. Although still embryonic, this market has tripled since 2013-2014 (CICC 2015: 10). In Cameroon, certification began only recently (according to the figures of the standardization bodies, less than 10,000t in 2014), but an increase in the value of Cameroonian cocoa is expected. Certification is seen by many actors as a major strategic element for the future (Hütz-Adams, 2016). Some initiatives have been undertaken by government through the National Cocoa and Coffee Board (NCCB) and the private sector: in particular the TELCAR Cocoa Ltd and Cargill "Cargill Cocoa Promise" certification program in the Southwest Region. More than 15,000 cocoa producers have been trained and are already UTZ certified. SIC CACAOS and Barry Callebaut have invested in certification schemes in the Centre and Southwest Regions, while Agro-produce Management Services Ltd and

Theobroma have launched certification schemes in the Southwest and Centre Regions. This could be an opportunity for investment in landscape restoration through cocoa agroforestry targeting “zero deforestation”

### **7.2.3. THE STATE**

A national strategic framework to guide restoration was developed in 2019 with the objective of addressing new and emerging constraints and issues related to forest and environmental management, including climate change, and also meet Cameroon's commitment to restore an estimated 12 million hectares of degraded forests and lands (covering a range of permanent and non-permanent forest areas) by 2030. The State has already implemented and continues to implement several projects and programs to restore degraded landscapes, such as the Green Sahel project developed since the 1980s and implemented by MINEPDED, in which each year, through the State budget, investments are being made against land degradation and desertification through the planting of trees in the Sahelian regions. The objective of the Green Sahel program was to strengthen the capacities of the populations and to raise their awareness on the issues of land degradation and desertification. The revised project document now aims at an annual target of 5,000 ha of degraded land, or 800,000 plants. The participatory approach is promoted for its implementation through the involvement of various stakeholders, in particular neighbouring communities whose increased participation makes "Operation Green Sahel" a High Labour Intensity (HLI) project. This aspect marks the innovative character of the Project, which thus intends to remove the constraint relating to the low level of involvement of the said communities noted above. From 2008 to 2016, the project allowed the planting of 3,830,000 seedlings for an area of 26,250 ha distributed mainly in the Far North region, threatened by the spread of the desertification process due to harmful human land use practices and its proximity to the arid zones of the Sahara. 21,000 improved stoves were distributed in Logone et Chari and Mayo-Kani (Far North). Overall, the average annual completion rate for this component of the project is 90%, i.e. a cumulative total of 121,638 stoves distributed over nine years to 39,000 households in the Far North. The landscape restoration project in the northern part of the city of Maroua could easily fit in.

MINFOF has also in the past developed and implemented in collaboration with local councils several actions on landscape restoration through the National Reforestation Program. The recently developed national forest development program of MINFOF also provides key orientations that are relevant for restoration. As part of the fight against climate change, the government of Cameroon is involved in several initiatives that could provide great support to restoration processes. For example, the REDD+ initiative, the Great Green Wall initiative, the land degradation initiative etc. The REDD+ strategy, states that forest landscape restoration is a key means for Cameroon to achieve climate change mitigation and adaptation objectives, increase food and water security, and increase household incomes, particularly in rural areas. The REDD+ strategy aims to reduce emissions, enhance biodiversity conservation and the improve livelihoods.

Concerning state funding procedures, public funds, whether from the recurrent or capital budget, follow the public expenditure procedure adopted by the Ministry of Finance. Funds of external origin that are part of national sectoral programmes, such as the Forest and Environment Sector Programme (FESP) for example, and which are therefore included in the BIP (10.73% in 2009), follow the same public expenditure procedure. On the other hand, some financing, the example of C2D funds follow a similar procedure, but which does not go through the Treasury, payments being made directly by the *Caisse Autonome d'Amortissement* (CAA). Several national funds have been established. More specifically, these are:

- MINFOF's Special Forestry Development Fund (FSDF)
- Special Fund for the Development and Equipment of Wildlife Conservation and Protection Areas
- National Fund for the Environment and Sustainable Development (FNEDD)
- Forest and Environment Sector Programme (PSFE)
- Highly Indebted Poor Countries (HIPC) Fund

#### **7.2.4.LOCAL COMMUNITIES**

Local communities are the main beneficiaries of restoration. Indeed, they have contributed significantly to the identification of the drivers of degradation and the formulation of restoration options. It is therefore essential that land users and communities themselves invest in restoration, to ensure a sense of local ownership for all initiatives and to increase the likelihood of sustainable outcomes for local people. Local communities have always been involved in the restoration of their landscapes. This can be seen through the various ancestral knowledge that they have and practice in adapting to degradation in their environment. Some restoration options need to be implemented in private plots, so landowners need to participate in this effort. This could include monitoring of investments in community plantations. The cost of monitoring could discourage some investors from making large, long-term commitments. The organization of communities through the Restoration Management Committees could ensure the transport and planting of seedlings, monitoring, and surveillance and at the same time make these investments much more attractive to external partners etc.

#### **7.2.5.INTERNATIONAL NGOS, BILATERAL DONORS, DEVELOPMENT AGENCIES AND BILATERAL PARTNERS**

Funds for restoration projects can be raised from international development partners following traditional development approaches of grants, subventions, calls for project proposals etc. Apart of these traditional development support approaches, these partners are also using innovative financing mechanisms such as PES schemes to support activities that generate a large number of environmental services, such as water regulation, biodiversity conservation and carbon sequestration, for which markets are lacking. One of the innovative mechanisms that can be mobilized for landscape restoration perspective is the Global Mechanism (GM). Established in accordance with Article 21 of the United Nations Convention to Combat Desertification, the GM's mandate is to increase the effectiveness and efficiency of existing financial

mechanisms and to promote actions to mobilize the financial resources needed by affected developing countries to fight desertification, land degradation and drought. The GM supports government initiatives to mobilize funding for the Green Climate Fund. The Fund was established in 2010 to limit or reduce greenhouse gas emissions in developing countries and to help vulnerable communities adapt to the inevitable effects of climate change. It is also the only global initiative to address climate change through 67 It is also the only global initiative to address the lack of investment in low greenhouse gas emission development strategies and climate change resilience.

Other mechanisms are:

- The AFR100 initiative involving GIZ, WRI, IUCN and the World Bank. It is a country-led effort to restore 100 million hectares of land in Africa by 2030. This initiative, officially launched at the 21st Conference of the Parties (Cop 21) in Paris, will support the Bonn Challenge to restore 150 million hectares of land worldwide by 2020. The New York Declaration on Forests builds on and extends the Bonn Challenge to 350 million hectares by 2030 and the African Resilient Landscapes Initiative (ARLI) pursues a climate change adaptation and mitigation objective. This initiative has already targeted the Bamboutos Mountains Landscape as a priority site where several activities have begun. Other activities are targeting the Sudano-Sahelian zone and the Central region of Cameroon.
- The Land Degradation Neutrality Fund ("LDN Fund") aims to channel resources from impact and institutional investors into projects that contribute to land degradation neutrality (from sustainable agriculture to large-scale rehabilitation of degraded land). The development of the fund is in collaboration with a private sector partner specialized in structuring funds in a public-private partnership. The Land Degradation Neutrality Target Setting Programme aims to assist countries in setting national and voluntary targets for land degradation neutrality and to identify transformative/innovative projects to achieve these targets.
- The Great Green Wall, a major African initiative to restore productivity and vitality to the Sahel region
- Etc.

The restoration of the various landscapes identified falls largely within the scope of their interventions.

## 8. ANALYSIS OF ENABLING CONDITIONS FOR EACH LANDSCAPE: BARRIERS TO THE ADOPTION OF RESTORATION PRACTICES

Enabling conditions can be defined as the set of factors which, when present, naturally or through human action, catalyse the process of landscape restoration. Within the framework of a landscape restoration project, it is essential to always verify the existence and/or manifestations of these enabling conditions on the ground, then to propose measures to boost them if their presence or manifestation is not optimal, on the one hand, and on the other hand, to simply propose measures to make these conditions manifest themselves if they do not exist. In the context of this project, a set of key components which can act as motivation factors, enabling factors or implementing factors were verified in the different landscapes, etc. The result shown that:

1. There are success stories in the Waza landscape where women are taking the lead in the restoration and management of the FLR product value chain. The main products involved in the waza landscape are: neem oil, baobab juice and powder, balanite oil, acacia and tamarind gum juice and syrup, and moringa powder. Men and women each have a role to play in restoring the landscapes of Dja-Lobeke and Mont Bamboutos where they play a leading role in agricultural production.
2. Land tenure was also analyzed and certain land-related factors were highlighted in order to facilitate FLR investments: Accelerating and finalizing the national and regional land-use planning process, securing actors' rights to land both on customary rights and on the national domain as well as in classified forests; strengthening participatory land management structures at the landscape and village levels; and sensitizing and educating authorities and traditional populations are essential to encourage men to grant substantial land rights to women.
3. Cameroon has several sectoral policies and laws related to forest landscape restoration (FLR), and harmonization and alignment with the requirements of the FLR process will ensure its success.
4. The cross-cutting, multi-disciplinary and inclusive nature of the FLR initiative, and the "landscape" approach it advocates for several sectors whose areas of action are within the forest and open space will contribute significantly to the success of FLR.
5. The role of communities in the implementation of FLR activities should be strengthened. If support mechanisms throughout the process are to be put in place, communities must play their role. They can easily contribute to the production of a local seed and plant production chain, as well as to watering. The funds from the sale of these plants could be capitalized on, among other things, for the maintenance of the plots.

6. In terms of financing, Cameroon is committed to the Forest Investment Plan (FIP) and the CAFI process in which FLR activities can be financed.

*Table 20. Constraints and corrective action for successful restoration in the different landscapes.*

| Main Constraints                                                                                                                            | Proposed Corrective Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reluctance of small-scale farmers to engage in restoration due to loss of income during the first years of investment in restoration</b> | Establish incentives, including payments for environmental services. For example, access to credit or in-kind benefits (including access to land, markets, or production inputs) could be offered to stimulate the adoption of sustainable agricultural practices. On a larger scale, market-based incentives could be put in place through certification schemes to support large and small-scale agribusiness producers who adopt sustainable practices. In addition to positive incentives, it is also important to ensure that measures with potential negative impacts are eliminated |
| <b>Institutional environment not attractive for tree planting</b>                                                                           | The definition of an attractive incentive framework for forest plantations will make it possible to remove barriers to the forest plantation initiative. Technical assistance could be guaranteed to forest plantation promoters in the development and implementation of their management plans. Consideration should be given to the inclusion of private plantations in Payments for Environmental Services (PES)                                                                                                                                                                       |
| <b>Property constraints</b>                                                                                                                 | Ensure that the land tenure status of an area is clarified prior to any restoration, and then adopt restoration approaches that are compatible with local customary rights (voluntary individual approach) or investment in areas with secure legal status belonging to the community (community forests), the collectivity (communal forests) or the State (protected areas, FMUs, etc.)                                                                                                                                                                                                  |
| <b>Poor knowledge of the legal and regulatory framework by the population.</b>                                                              | <ol style="list-style-type: none"> <li>1. Raise awareness among local populations about the law, particularly the law prohibiting the harvesting of woody resources in watersheds</li> <li>2. Strengthen the human and financial capacities of stakeholders</li> </ol>                                                                                                                                                                                                                                                                                                                     |
| <b>Ecological conditions not conducive to restoration (threats from bush fires and animals)</b>                                             | <ol style="list-style-type: none"> <li>1. Raising awareness among the population, relying on traditional leaders (Lawan and Djaorous)</li> <li>2. Recruitment of guards to monitor the restored areas</li> <li>3. - Barriers made of thorns or barbed wire to protect restored areas from animal</li> </ol>                                                                                                                                                                                                                                                                                |

|                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Market conditions (cities exert strong pressure on land with ever-increasing demand for agricultural and forestry products)</b>                      | <ol style="list-style-type: none"> <li>1. Development of alternative sources to wood energy such as solar energy,</li> <li>2. Promotion of domestic gas</li> <li>3. Energy efficiency programs such as improved stoves</li> <li>4. Support to farmers to improve agricultural yields</li> <li>5. Development of the neem value chain</li> <li>6. Research to add more value to neem</li> <li>7. Exploration of the REDD+ process (PES)</li> <li>8. Development and promotion of ecotourism</li> </ol> |
| <b>Institutional conditions (roles and responsibilities of different actors not yet clarified, lack of coordination mechanism between stakeholders)</b> | <ol style="list-style-type: none"> <li>1. The need to clarify the roles and responsibilities of actors</li> <li>2. Development of simple, fluid and inclusive institutional arrangements for better coordination of interventions ensuring the effective involvement of all stakeholders.</li> </ol>                                                                                                                                                                                                  |
| <b>Lack of adequate financial means</b>                                                                                                                 | <ol style="list-style-type: none"> <li>1. Development of an investment plan</li> <li>2. Capacity building of project leaders in terms of mobilization of funding.</li> </ol>                                                                                                                                                                                                                                                                                                                          |
| <b>Low capacity of local populations</b>                                                                                                                | <ol style="list-style-type: none"> <li>1. Capacity building of local people in restoration, including the establishment and management of nurseries, monitoring of seedlings, protection of seedlings, etc.</li> <li>2. Capacity building in simple soil restoration techniques</li> <li>3. Design of a strategy to prevent or manage deforestation or degradation leakages</li> <li>4. Development of a Monitoring and Reporting System</li> <li>5. Development of a communication plan</li> </ol>   |

## 9. IMPLEMENTATION COSTS AND PROPOSED ACTIVITY COVERAGE

This section presents the implementation cost estimates developed for each activity type and landscape covered under the SPEFOCE mitigation programme. Per-hectare costs were estimated drawing on published national and international reference sources. The resulting cost estimates, applied to the proposed activity areas, determine the implementation budget required to deliver the programme.

All costs are expressed in USD per hectare. For agroforestry and restoration activities, costs cover the direct field implementation component: establishment, planting, and multi-year maintenance. For SFM governance activities, costs are treated as all-inclusive, covering field governance, patrol, management plan activities, and enabling environment.

### 9.1. REFERENCE BENCHMARKS

#### 9.1.1. GCF STRATEGIC PLAN 2024–2027 (GCF/B.37/INF.17)

Table B of the GCF Strategic Plan, under Targeted Result 5 (Ecosystems)<sup>2</sup>, sets out the per-hectare cost metrics used by the GCF Secretariat for portfolio planning.

| Activity category            | GCF benchmark    | Notes                                                        |
|------------------------------|------------------|--------------------------------------------------------------|
| Conservation / protection    | USD 25/ha        | Includes monitoring and enforcement                          |
| Restoration                  | USD 100–1,500/ha | Full range across tropical restoration types globally        |
| Sustainable management (SFM) | USD 12/ha        | Forestry governance and management systems (portfolio floor) |

#### 9.1.2. PNDPF 2019 — CAMEROON NATIONAL REFERENCE

The Programme National de Développement des Plantations Forestières (PNDPF)<sup>3</sup>, adopted by MINFOF in September 2019, provides the most authoritative national cost benchmark for plantation and restoration activities in Cameroon. The programme targets approximately 12 million hectares over 25 years at a total cost of CFA 12,893 billion, implying a national blended average of approximately USD 1,782/ha. This figure is all-inclusive, covering all activity types and enabling environment. The pure field implementation component is estimated at approximately USD 500–1,100/ha depending on activity type and ecosystem zone. Field component derived by removing enabling environment proportion (~35–45%) per FIP Cameroon 2017<sup>4</sup> programme structure.

#### 9.1.3. FOREST INVESTMENT PLAN (FIP) CAMEROON 2017

<sup>2</sup> GCF Secretariat. (2023). Strategic Plan for the GCF 2024–2027: Criteria and planned allocations for targeted results (GCF/B.37/Inf.17). Green Climate Fund, Incheon.

<sup>3</sup> MINFOF. (2019). Programme National de Développement des Plantations Forestières (PNDPF) 2020–2045. Ministère des Forêts et de la Faune, Cameroon.

<sup>4</sup> CIF/MINEPDED. (2017). Forest Investment Plan — Cameroon. Climate Investment Funds.

The FIP Cameroon (2017)<sup>5</sup> allocates its budget across three landscape programmes corresponding to the SPEFOCE target areas: Programme 1 (Congo Basin / Dja-Lobéké), Programme 2 (Sudano-Sahelian / Waza), and Programme 3 (Western Highlands / Bakossi-Bamboutos). Analysis indicates that approximately 40–60% of each programme allocation covers enabling environment activities, with the remainder covering field-level restoration.

## 9.2. IMPLEMENTATION COSTS BY ACTIVITY TYPE

### 9.2.1. SUSTAINABLE FOREST MANAGEMENT (SFM) GOVERNANCE

SFM activities cover community-based governance reform, surveillance patrols, wildlife monitoring, management plan revision, and compliance enforcement across SFM concession areas. The indicative unit costs per hectare were derived as literature-informed proxies anchored to the most relevant available cost evidence.

For Waza, the USD 100/ha value was set slightly above a case-study estimate of USD 79.06/ha for forest carbon management in Tanzania (Hindawi, 2014) and within a broader low-cost implementation context reported for REDD+ pilots, where implementation costs were estimated at USD 3.7–7.9/ha/year (Merger et al., 2012). This was considered a reasonable lower-range proxy for a drier landscape with relatively lower-cost governance and protection measures.

For Dja-Lobéké, the USD 150/ha value was selected as a mid-range proxy, informed by the Cameroon-specific REDD+ cost and benefit literature (Bellassen and Gitz, 2008) and broader REDD+ cost evidence (Merger et al., 2012). For Bakossi-Bamboutos, the USD 200/ha value was anchored to the peer-reviewed global restoration synthesis reporting a median forest management cost of USD 185/ha (One Earth, 2024), and rounded upward slightly to reflect the more demanding terrain and operational conditions of the highland context. The three values should be understood as indicative planning proxies derived from the published literature, rather than site-specific measured costs.

| Landscape         | Cost per ha (all-inclusive) | Key sources                                                                |
|-------------------|-----------------------------|----------------------------------------------------------------------------|
| Waza              | USD 100/ha                  | Merger et al. (2012) <sup>6</sup> ; Hindawi (2014) <sup>7</sup>            |
| Dja-Lobéké        | USD 150/ha                  | Bellassen and Gitz (2008) <sup>8</sup> ; Merger et al. (2012) <sup>9</sup> |
| Bakossi-Bamboutos | USD 200/ha                  | One Earth (2024); montane East Africa proxy <sup>10</sup>                  |

<sup>5</sup> CIF/MINEPDED. (2017). Forest Investment Plan — Cameroon. Climate Investment Funds.

<sup>6</sup> Merger, E., Dutschke, M. and Verchot, L. (2012). Options for REDD+ Voluntary Standard Methodologies for Permanence and Leakage. *Forests* 2012, 3(4): 813–833.

<sup>7</sup> Hindawi, S. (2014). Developing a REDD+ Project in Tanzania: Costs and Revenues from the Pilot Phase. UN-REDD Programme.

<sup>8</sup> Bellassen, V. and Gitz, V. (2008). Reducing emissions from deforestation and degradation in Cameroon — assessing costs and benefits. *Ecological Economics* 68(1–2): 336–344.

<sup>9</sup> Merger, E., Dutschke, M. and Verchot, L. (2012). Options for REDD+ Voluntary Standard Methodologies for Permanence and Leakage. *Forests* 2012, 3(4): 813–833.

<sup>10</sup> One Earth. (2024). Nature-Based Solutions Cost and Benefit Database. One Earth, Los Angeles.

The SFM unit costs are substantially above the GCF portfolio floor of USD 12/ha for sustainable management, reflecting the governance intensity and patrol costs of community-based SFM in remote Cameroonian landscapes. As all-inclusive figures, they absorb what would otherwise be a separate enabling environment budget for the SFM component.

### 9.2.2. FOREST RESTORATION (COMMUNITY FOREST, PARK AND RESERVE, RIPARIAN)

Restoration activities cover three site types: community forest compartments, council and park-managed degraded areas, and riparian corridors. These fall within the GCF benchmark range of USD 100–1,500/ha. SPEFOCE restoration activities involve enrichment planting, gap-filling, and assisted natural regeneration rather than full clearance-and-replant, placing them toward the lower-middle of this range. The most relevant reference is Busch et al. (2024), which estimates field-level costs for assisted natural regeneration in West and Central Africa at USD 47–183/ha (median USD 140/ha). Waza activities carry a higher cost reflecting the aridity, watering requirements, and firewall maintenance specific to Sahelian restoration.

| Landscape / Activity       | Cost per ha  | Basis                                                                                                            |
|----------------------------|--------------|------------------------------------------------------------------------------------------------------------------|
| <b>Waza</b>                |              |                                                                                                                  |
| Community forest           | USD 900/ha   | Active enrichment planting, Sahelian zone; WRI/Reij & Winterbottom 2017 <sup>11</sup> ; PNDPF field component    |
| Council/park restoration   | USD 900/ha   | As above                                                                                                         |
| Riparian restoration       | USD 700/ha   | ANR + riparian enrichment; lower cost than upland planting; Busch et al. 2024 <sup>12</sup>                      |
| <b>Dja-Lobéké</b>          |              |                                                                                                                  |
| Community forest           | USD 800/ha   | Enrichment planting in degraded forest; FIP Programme 1 <sup>13</sup> ; Busch et al. 2024 <sup>14</sup>          |
| Park/reserve restoration   | USD 750/ha   | Within GCF range; FIP Programme 1 <sup>15</sup>                                                                  |
| Riparian restoration       | USD 550/ha   | Passive + assisted regeneration; Busch et al. 2024 <sup>16</sup>                                                 |
| <b>Bakossi-Bamboutos</b>   |              |                                                                                                                  |
| Forest reserve restoration | USD 1,100/ha | Montane forest restoration; FIP Programme 3 <sup>17</sup> ; The Restoration Initiative (see Section 7.1.3 above) |

<sup>11</sup> Reij, C. and Winterbottom, R. (2017). Scaling up Regreening: Six Steps to Success. World Resources Institute, Washington DC.

<sup>12</sup> Busch, J., et al. (2024). Cost-effectiveness of natural climate solutions in tropical and subtropical developing countries. Nature Climate Change.

<sup>13</sup> CIF/MINEPDED. (2017). Forest Investment Plan — Cameroon. Climate Investment Funds.

<sup>14</sup> Busch, J., et al. (2024). Cost-effectiveness of natural climate solutions in tropical and subtropical developing countries. Nature Climate Change.

<sup>15</sup> CIF/MINEPDED. (2017). Forest Investment Plan — Cameroon. Climate Investment Funds.

<sup>16</sup> Busch, J., et al. (2024). Cost-effectiveness of natural climate solutions in tropical and subtropical developing countries. Nature Climate Change.

<sup>17</sup> CIF/MINEPDED. (2017). Forest Investment Plan — Cameroon. Climate Investment Funds.

| Landscape / Activity | Cost per ha | Basis                                                                                             |
|----------------------|-------------|---------------------------------------------------------------------------------------------------|
| Riparian restoration | USD 400/ha  | Highland riparian; ANR dominant; within GCF range <sup>18</sup> ; Busch et al. 2024 <sup>19</sup> |

### 9.2.3. AGROFORESTRY ESTABLISHMENT

Agroforestry activities cover *Prosopis* spp. parkland agroforestry in Waza, shaded cocoa in Dja-Lobéké, and avocado/safou mixed systems in Bakossi-Bamboutos. These fall within the GCF restoration benchmark range of USD 100–1,500/ha. The most relevant Central Africa reference for cocoa-based systems is Zero Carbon Analytics (2025) at USD 861–1,005/ha for Congo Basin agroforestry. WRI (2017) reports Sahel parkland agroforestry at USD 500–800/ha. The Bakossi-Bamboutos system carries a premium for specialty grafted planting material.

| Activity                                           | Cost per ha  | Basis and notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waza parkland agroforestry ( <i>Prosopis</i> spp.) | USD 1,000/ha | WRI/Reij & Winterbottom 2017 <sup>20</sup> : Sahel parkland agroforestry USD 500–800/ha. 25% uplift for Cameroon context and 3-year maintenance.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Dja-Lobéké cocoa agroforestry                      | USD 1,200/ha | Zero Carbon Analytics 2025 <sup>21</sup> : Congo Basin agroforestry USD 861–1,005/ha. 20% uplift for shaded cocoa input costs and FIP Programme 1 context.                                                                                                                                                                                                                                                                                                                                                                                                  |
| Bakossi-Bamboutos avocado/safou                    | USD 2,000/ha | Component decomposition: grafted material ~USD 300–600/ha, establishment ~USD 600–1,000/ha, extension ~USD 200–400/ha.<br><br>The decomposition was developed as an estimate by the IUCN country team, given the absence of a peer-reviewed source for avocado/safou agroforestry establishment costs at this scale in the Western Highlands context. The total of USD 2,000/ha sits above the GCF restoration benchmark range of USD 100–1,500/ha, with the premium justified by the specialty grafted material requirements and highland site conditions. |

### 9.3. PROPOSED ACTIVITY COVERAGE

The proposed coverage is presented below by activity family and landscape, together with the implementation cost per hectare and the resulting budget requirement. Component and portfolio totals are shown in the summary table that follows.

<sup>18</sup> GCF Secretariat. (2023). Strategic Plan for the GCF 2024–2027: Criteria and planned allocations for targeted results (GCF/B.37/Inf.17). Green Climate Fund, Incheon.

<sup>19</sup> Busch, J., et al. (2024). Cost-effectiveness of natural climate solutions in tropical and subtropical developing countries. Nature Climate Change.

<sup>20</sup> Reij, C. and Winterbottom, R. (2017). Scaling up Regreening: Six Steps to Success. World Resources Institute, Washington DC.

<sup>21</sup> Zero Carbon Analytics. (2025). Congo Basin Deforestation Cost Analysis.

| Activity                         | Area (ha)     | Cost per ha | Basis                                                                 |
|----------------------------------|---------------|-------------|-----------------------------------------------------------------------|
| <b>Agroforestry</b>              |               |             |                                                                       |
| Waza parkland agroforestry       | 1,020         | USD 1,000   | WRI 2017; Sahel benchmarks                                            |
| Dja-Lobéké cocoa agroforestry    | 748           | USD 1,200   | Zero Carbon Analytics 2025; FIP CMR                                   |
| Bakossi-Bamboutos avocado/safou  | 333           | USD 2,000   | IUCN Country Team estimate (see table above for cost breakdown)       |
| <b>Agroforestry total</b>        | <b>2,101</b>  |             |                                                                       |
| <b>Reforestation</b>             |               |             |                                                                       |
| Waza community forest            | 516           | USD 900     | WRI 2017; PNDFP field component                                       |
| Dja-Lobéké community forest      | 1,618         | USD 800     | Busch et al. 2024; FIP Programme 1                                    |
| Bakossi-Bamboutos forest reserve | 750           | USD 1,100   | FIP Programme 3; The Restoration Initiative (see Section 7.1.3 above) |
| <b>Reforestation total</b>       | <b>2,884</b>  |             |                                                                       |
| <b>Restoration</b>               |               |             |                                                                       |
| Waza park restoration            | 210           | USD 900     | WRI 2017; PNDFP field component                                       |
| Waza riparian restoration        | 207           | USD 700     | Busch et al. 2024; ANR                                                |
| Dja-Lobéké park restoration      | 706           | USD 750     | FIP Programme 1; IUCN ROAM                                            |
| Dja-Lobéké riparian restoration  | 1,063         | USD 550     | Busch et al. 2024                                                     |
| Bakossi-Bamboutos riparian       | 2,837         | USD 400     | ANR; Busch et al. 2024                                                |
| <b>Restoration total</b>         | <b>5,023</b>  |             |                                                                       |
| <b>SFM governance</b>            |               |             |                                                                       |
| Waza                             | 20,000        | USD 100     | Merger et al. (2012); Hindawi (2014)                                  |
| Dja-Lobéké                       | 15,000        | USD 150     | Bellassen and Gitz (2008); Merger et al. (2012)                       |
| Bakossi-Bamboutos                | 15,000        | USD 200     | One Earth (2024); montane East Africa proxy                           |
| <b>SFM governance total</b>      | <b>50,000</b> |             |                                                                       |

## 9.4. IMPLEMENTATION BUDGET SUMMARY

The table below sets out the implementation budget required to deliver the proposed activity coverage. Totals are presented by activity, component, and portfolio.

| Activity                                            | Area (ha)        | Cost per ha | Budget required (USD) |
|-----------------------------------------------------|------------------|-------------|-----------------------|
| <b>Sequestration component — Agroforestry</b>       |                  |             |                       |
| Waza                                                | 1,020            | USD 1,000   | USD 1,020,000         |
| Dja-Lobéké                                          | 748              | USD 1,200   | USD 897,600           |
| Bakossi-Bamboutos                                   | 333              | USD 2,000   | USD 666,000           |
| <b>Agroforestry total</b>                           | <b>2,101</b>     |             | <b>USD 2,583,600</b>  |
| <b>Sequestration component — Reforestation</b>      |                  |             |                       |
| Waza                                                | 516              | USD 900     | USD 464,400           |
| Dja-Lobéké                                          | 1,618            | USD 800     | USD 1,294,400         |
| Bakossi-Bamboutos                                   | 750              | USD 1,100   | USD 825,000           |
| <b>Reforestation total</b>                          | <b>2,884</b>     |             | <b>USD 2,583,800</b>  |
| <b>Sequestration component — Restoration</b>        |                  |             |                       |
| Waza                                                | 210              | USD 900     | USD 189,000           |
| Waza                                                | 207              | USD 700     | USD 144,900           |
| Dja-Lobéké                                          | 706              | USD 750     | USD 529,500           |
| Dja-Lobéké                                          | 1,063            | USD 550     | USD 584,650           |
| Bakossi-Bamboutos                                   | 2,837            | USD 400     | USD 1,134,800         |
| <b>Restoration total</b>                            | <b>5,023</b>     |             | <b>USD 2,582,850</b>  |
| <b>Sequestration component total</b>                | <b>10,008 ha</b> |             | <b>USD 7,750,250</b>  |
| <b>Avoided emissions component — SFM governance</b> |                  |             |                       |
| Waza                                                | 20,000           | USD 100     | USD 2,000,000         |
| Dja-Lobéké                                          | 15,000           | USD 150     | USD 2,250,000         |
| Bakossi-Bamboutos                                   | 15,000           | USD 200     | USD 3,000,000         |
| <b>Avoided emissions component total</b>            | <b>50,000 ha</b> |             | <b>USD 7,250,000</b>  |
| <b>TOTAL PROJECT</b>                                | <b>60,008 ha</b> |             | <b>USD 15,000,250</b> |

## CONCLUSION AND RECOMMENDATIONS

The assessment of the drivers of degradation of the different landscapes has resulted in the identification of a number of solutions translated into restoration options.

While implementing these options individually may produce results, a holistic approach should optimize them, ensure their sustainability, and allow for an economy of scale in terms of follow-up and monitoring. For example, reforestation on agricultural land coupled with the implementation of erosion control measures should guarantee a long-term impact of the expected ecosystem services, whether they are provisioning or regulating.

Despite these biophysical and financial potentials, the adoption of these restoration practices is constrained by several similar factors across the three landscapes. Some include: reluctance of small-scale farmers to engage in restoration due to loss of income during the first years of investment in restoration; Institutional environment not attractive for tree planting; ecological factors not conducive for restoration (threats from bush fires and animals, climate variability etc.); market conditions (cities exert strong pressure on land with ever-increasing demand for agricultural and forestry products; etc.

To overcome some of these challenges, a holistic approach with the implementation of all these options should also make it possible to mobilize all the stakeholders around the project at a given time, thus creating a dynamic around the local populations that would guarantee a better follow-up by the populations of the actions undertaken, which would guarantee a better local appropriation of the restoration but also a significant reduction of the costs of follow-up and monitoring. There is also need to establish incentives, including payments for environmental services, the need to create an attractive incentive framework for forest plantations, ensuring that the land tenure status of an area is clarified prior to any restoration, and then adopt restoration approaches that are compatible with local customary rights (voluntary individual approach) or investment in areas with secure legal status belonging to the community (community forests), the decentralized entities (communal forests) or the State (protected areas, FMUs, etc.); raising awareness among local populations about the law, particularly the law prohibiting the harvesting of woody resources in watersheds; strengthening the human and financial capacities of stakeholders; building capacity of local people in restoration, including the establishment and management of nurseries, protection of seedlings etc.

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