REDD+ TOGO

REPUBLIC OF TOGO

MINISTRY OF ENVIRONMENT
AND FOREST RESOURCES

NATIONAL STRATEGY

FOR REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD+)

2020-2029

TABLE OF CONTENTS

TABLE OF CONTENTS

CHAPITER IV

LIST OF FIGURES

LIST OF BOXES

ABBREVIATIONS AND ACRONYMS

ABS Access (to genetic resources) and benefit sharing
ACC Adaptation to climate change
AD Activity data
AF Adaptation fund
AfDB African Development Bank
AFOLU Agriculture, Forestry and other Land Use
APL Autonomous Port of Lomé
APPT Association of Private Planters of Togo
ATO African Timber Organization
AU African Union
AWP Annual work plan
BAU Business as usual
BIA International Bank for Africa
BOA Bank of Africa
C.I.T.E.S. Convention on International Trade in Species of Fauna and Flora
CBD Convention on Biological Diversity
CCAC Climate and clean air coalition / coalition against short-lived air pollutants
CDC Cantonal Development Committee
CDM Clean Development Mechanism
CDMU Cartographic database management unit

CIF Climate investment funds
CN-CPDN Coordinating Committee for the Process of Developing Nationally Identified Planned Contributions
CN-REDD+ National REDD + Committee
CN-REDD+ National REDD + coordination
COP Conference of the Parties
CSOs Civil society organizations
DAFA Directorate of Administrative and Financial Affairs
DE Directorate of the Environment
DFE Permanent Forest Estate
DFR Directorate of Forest Resources
DNA CDM Designated National Authority of the Clean Development Mechanism
DNCC Department of National Cartography and Cadastre
DSP Directorate of Studies and Planning
ECA Economic Commission for Africa
ECOWAS Economic Community of West African States
ECP Expenditure commitment plan
EDF European Development Fund
EF Emission factors
EIB European Investment Bank
ESIA Environmental and social impact studies
EU European Union
FAO Food and Agriculture Organization of the United Nations
FBUR First biennial update report on climate change
FCPF Forest Carbon Partnership Facility
FDA French Development Agency

FDEO Forest Development and Exploitation Office
FERL Forest Emission Reference Level
FFEGE French Fund for the Global Environment
FIP Forest investment program
FREL Forest Reference Emissions Level
FRI Forest Resources Inspection
FSC Forest stewardship council
FSCC Special Climate Change Fund
GAT Green Africa-Togo
GCF Green Climate Fund
GDP Gross Domestic product
GEF Global Environment Facility
GEF MFP Global Environment Fund Micro Finance Program
GFDRR Global Fund for Disaster Risk Reduction and Recovery
GHG Greenhouse Gas
GIS Geographic Information System
GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit
GSF Global Sanitation Fund
ICAT Consulting and Technical Support Institute
IDB Islamic Development Bank
IEC Information, education and communication
IFAD International Fund for Agricultural Development
IFC International Finance Corporation
ILDMP Integrated Land and Disaster Management Project
IMAF Incentive mechanism for agricultural financing
IMFRA Incentive mechanism for financing REDD + actions
IMFWPF Integrated Management of Fertility, Water and Pests by Fungi
IMSF Integrated management of soil fertility
IPPU Industrial Processes and Product Use
ITTO nternational Tropical Timber Organization
IUCN International Union for the Conservation of Nature
LDCF Least Developed Countries Fund
LDCs Least Developed Countries
LEG Least Developed Countries Expert Group
LFC Large forestry company
LNG Liquefied natural gas
LPG Liquefied petroleum gas
LPLLUP Local plans for local land use planning
LSDC Local sustainable development commissions
LULUCF Land use, land use change and forestry
MCSD Municipal Commission for Sustainable Development
MDP Ministry of Development Planning
MEA Millennium Ecosystem Assessment

MEA	Multilateral Environmental Agreements
MEF	Ministry of Economy and Finance
MEFR	Ministry of the Environment and Forest Resources
MRV	Monitoring Reporting Verification or Measurement, reporting and verification
NAAP	National Adaptation Action Program
NAIFNSP	National Agricultural Investment and Food and Nutritional Security Program
NAMA	Nationally Appropriate Mitigation Actions
NAP	National adaptation plan
NAPWSS	National Action Plan for the Water and Sanitation Sector
NBSAP	National Biodiversity Strategy and Action Plan
NCCC	National Committee on Climate Change
NCCSOSD	National Council of Civil Society Organizations for Sustainable Development
NCSD	National Commission for Sustainable Development
NDC	National Development Committee
NDC	Nationally Determined Contribution
NDC	Neighborhood Development Committees
NDP	National Development Plan
NEF	National Environment Fund
NEMA	National Environment Management Agency
NEP	National Environmental Policy
NFAP	National Forestry Action Plan
NFDF	National Forest Development Fund
NFI	National Forest Inventory
NFIP	National Forest Investment Program
NFMS-Togo	National Forest Monitoring System in Togo
NGFC	National Green Fund Committee for the Climate
NGFCC	National Green Fund Committee for the Climate
NGO	Non-Governmental Organization
NHDP	National Health Development Plan
NISEDS	ational Institute of Statistics and Economic and Demographic Studies
NLUP	National Land Use Planning Policy
NLUS	National land use scheme
NOAWETDP-Togo	National Organization for Accessibility, Work and Employment of Togo's People
NOx	Nitrogen Oxides
NPACC	National plan for adaptation to climate change
NPCT	National phosphate company of Togo
NPPRE	National Project for the Promotion of Rural Entrepreneurship
NRP	National Reforestation Program
NSMF	National Strategy for Managing Wildfires
NSSD	National Strategy for Sustainable Development
NTFP	Non-timber Forest Products
NTTARLT	National Think Tank on Agricultural and Rural Land in Togo
NWG REDD+	National REDD + Working Group
NWHSPT	National Water, Hygiene and Sanitation Policy in Togo

NWP	National water policy
OHBL	Organization for the Harmonization of Business Law
OPPC	Organization of Petroleum Producing Countries
PA	Protected areas
PACJA	Panfrican Climate Justice Alliance
PAP	Priority action program
PCIV	Principles, Criteria, Indicators and Verifiers
PEFC	Programme for the endorsement of forest cortication schemes
PP	Procurement plan
P-REDD+	REDD + preparation support project
ProREDD	Support Program for REDD + READINESS and Forest Rehabilitation in Togo
PSDC	Prefectural sustainable development commissions
PSNDCME	Project to strengthen national and decentralized capacities for the management of
PSPAT	Project to strengthen the conservation role of the national system of Protected areas in Togo
RCFOAP	Regional coordination of farmers' organizations and agricultural producers
RDEFR	Regional Directorates for the Environment and Forest Resources
RDPA	Rural Development Program including Agriculture
REDD+	Reduction of Emissions from Deforestation and forest Degradation
RLUS	Regional Land Use planning Schemes
RMF	Road Maintenance Fund
NTNT	Network of tree nurserymen of Togo
RSDC	Regional Sustainable Development Commissions
SAGPE	Strategy for accelerated growth and promotion of employment
SCPO	Service company for producer organizations
SDGs	Sustainable Development Goals
SE4ALL	Sustainable Energy For All
SEVP	Solar energy valuation program
SIFMENR	Strategic Investment Framework for the Management of the Environment and Natural Resources
SLMS	Satellite Land Monitoring System
SNCCC	Second National Communication on Climate Change
SPFCCT	Support Project for the Fight against Climate Change in Togo
SPR	Soil Protection and Restoration
STRD	Scientific and Technical Research Department
TARERE	Togolese Agency for Rural Electrification and Renewable Energies
TARI	Togolese Agronomic Research Institute
TBCI	Togolese Bank for Commerce and Industry

LIST OF TABLES

EXECUTIVE SUMMARY

The National REDD + Strategy is one of the structuring elements that has been agreed internationally as a prerequisite for implementing REDD + and accessing results-based payments. Despite international efforts to stabilize the concentration of greenhouse gases (GHG) in the atmosphere, the phenomenon of climate change continues to grow dramatically. This requires more increased mitigation and adaptation efforts from developing countries including Togo. The sources of GHG emissions linked to land use, land use change and forestry alone represent nearly two thirds of GHG emissions in Togo. Tackling the drivers of deforestation and forest degradation will therefore help to significantly reduce GHG emissions in Togo. In this context, the development of the national REDD + strategy constitutes a long-term measure to face the many challenges that arise, by ensuring sustainable forest management, the enhancement of carbon stocks and the preservation of forest biodiversity.

The REDD + process in Togo aims to curb the observed trend of forest degradation and deforestation by opting for sustainable management of existing forests and an increase in forest heritage. The mechanism for preparing the national REDD + strategy was based on analytical, innovative and participatory studies, involving all stakeholders, in the diagnosis of the current situation and the choice of strategic options, as well as the operational mechanisms for implementation. implementation of planned actions. Togo's national REDD + strategy document is structured in four parts: (i) National circumstances and inventory of forest resources in Togo; (ii) Diagnostic analysis of deforestation and forest degradation in Togo; (iii) Orientations, axes and strategic options for REDD + in Togo; and (iv) Framework for implementing the strategy.

STANCES AND INVENTORY OF FOREST RESOURCES IN TOGO

According to the results of the first National Forest Inventory (NFI) published in 2016, Togo's forest resources cover 24.24% of the land surface. The region with largest forest reserves is the Plateaux, where forests occupy 32.81% of its area, while the least covered is the Savannah region with 9.46%. The Maritime, Centrale and Kara regions respectively occupy 29.06%, 26.83% and 17.04% of the forest cover. In terms of total volume of timber per hectare, the region with the highest potential is the Centrale region with 78.03 m3 / ha. It is followed by the plateau region (65.59 m3 / ha) and the Kara region which can be considered as an area with medium potential, since it has a total volume of wood per hectare equivalent to half that of the Centrale region (39.66 m3 / ha). In contrast, the savannah region and the maritime region constitute areas of low potential with 16.66 m3 / ha and 16.49 m3/ ha respectively. The Centrale region has the highest total volume of wood per hectare of «dense forests», namely 133.48 m3 / ha and open forests with 75.94 m3/ ha. In terms of degradation of dense forests, it is the maritime region that has the highest level of degradation of dense forests and open forests, with a total volume estimated at only 55.52 m3/ ha and 26.73 m3/ ha. respectively. The Savannah region is the area with the most advanced level of degradation of riparian forests.

The forest contributes to the creation of national wealth, through the added values generated in the different branches of the sector, but this contribution of the forestry sector to the national economy is often poorly appreciated. There are essentially two trading systems in Togo, namely the trading system for the satisfaction of domestic demand and that for the satisfaction of external demand. Despite the fact that the annual average exports are higher than the imports in quantities (41.480 tonnes against 13.466) between 2010 and 2014, Togo's trade balance remained in deficit in wood products. One of the reasons for Togo's trade deficit in wood products can be explained to a large extent by the fact that Togo exports its wood in raw form, whereas these imports consist mainly of processed products.

At the national level, Togo has several policy and planning documents to guide actions in favor of the sustainable management of forest resources, the two main ones of which are: (i) the Forest Policy Declaration adopted by Decree No. 2011- 002 / PR of January 5, 2011; and (ii) the 2011 National Forest Action Plan (PAFN, 2011-2019). The country also has more than fifteen strategy documents in sectors related to forestry. Despite this panoply of policy and planning documents, the forest sector faces several constraints of a structural, human, regulatory, organizational and technical nature.

The legal framework is characterized by: (i) the international commitments made by Togo, in particular the ratification of the three Rio generation conventions and other conventions related to the sustainable management of forest resources; (ii) the Togolese Constitution of October 14, 1992 and the signing of legislative and regulatory texts framing forestry and reforestation, the two main ones being Law No. 2008-005 of May 30, 2008 on the Framework Law on the Environment and Law No. 2008-009 of June 19, 2008 on the Forest Code; (iii) the land code voted by the National Assembly in June 2018, but whose bodies planned for its operationalization have not yet been put in place and the implementing texts have also not been adopted. The main actors involved in the REDD + process in Togo are: the institutions of the republic, in particular the Presidency of the Republic, the Prime Minister and the National Assembly; the Ministry of the Environment and Forest Resources and the coordination and sector ministries; research and advisory support institutions; civil society actors, particularly those grouped together in the National Council of Civil Society Organizations for Sustainable Development (CNODD); private sector actors; the local authorities and the traditional chiefdom; the umbrella organizations and platforms of grassroots organizations; and the National Commission for Sustainable Development (NCSD) and the Local Commissions for Sustainable Development (LSDC).

DIAGNOSTIC ANALYSIS OF DEFORESTATION AND FOREST DEGRADATION IN TOGO

This chapter aims to carry out an exhaustive analysis of the factors, determinants and problematic of deforestation and forest degradation in Togo.

The historical analysis of forest cover in Togo was made on the basis of the results of the interpretation of aerial photos 1976-1985 compared with those of Rapidye 2013-2014 and Landsat 1988-2015 images. Analysis of regional dynamics shows an increasing trend in forest areas in the plateau region. The apparent increase in forest area in the maritime region according to RapidEye 2013 - 2014 data is probably due to the insufficient spatial resolution of these satellite images which did not allow the distinction between palms and trees. Therefore, palm trees, especially present in this region, were included in the different forest types when using the RapidEye images, while they could be classified as non-forest when interpreting the aerial photos. In the 3 other regions (Kara, Centrale and Savanes), the data analyzed confirms a decrease in forest cover. This decline in forest areas is particularly pronounced in the Centrale region. The analysis by forest stratum shows that unlike the riparian forests which are distributed in all regions of the country and which seem to be the best conserved forest strata, the tendency is towards the disappearance of dense forests in the regions of the Savannas and the Kara during the period 1976-2014. It is the same for the open forests and wooded savannas which are losing ground in the savannah, Kara and Centrale regions. The greatest loss is observed in the Centrale region. As for plantations, they are an option for increasing forest cover in the maritime region, and more recently in the plateau region. The Centrale region began by partially compensating for the loss of area of its natural forests through reforestation, while the savannah region saw its plantations dwindle.

The spatio-temporal analysis of deforestation and forest degradation carried out in 2017 made it possible to identify in a spatially explicit manner the areas that have suffered the most disturbances and have thus largely contributed to deforestation and degradation of forests in Togo since 2005. As a result, agriculture develops on the outskirts of human infrastructure and urban centers. Thus, while population growth stimulates urban sprawl, it also stimulates the needs for agricultural commodities and encourages the development of agricultural zones on the urban peripheries. These growing urban peripheries are therefore pushing back farming areas, in particular in the surrounding savannah areas, which in turn are receding and replacing forest areas. The savannas are the representation of a forest degradation process driven by the population's supply needs, in particular wood (fuelwood, timber, etc.) but also for livestock and transhumance. Thus, while at first glance, the advance of Savanes is the main direct cause of forest encroachment, it should be noted that agricultural development is actually the primary cause of the advance of new areas of savannah. It was estimated that over the period 2005-2017, more than 40.000 hectares of agricultural and savannah land have deforested or degraded due to urban expansion, while agriculture has impacted nearly 830.000 hectares of savannah, while savannah ate up only 370.000 hectares of farmland. Therefore, nearly 460.000 hectares of forests that have been spatially encroached by savannas can be indirectly attributed to the evolution of agricultural land on savannas.

The prospective analysis carried out through the spatio-temporal simulation of deforestation and forest degradation suggests an alarming rate of deforestation and forest degradation in Togo over the next 10 years. Indeed, if the rate of expansion of urbanization, agriculture and savannas recorded over the last decade continues, Togo's remaining forests will be rapidly deforested or seriously degraded. Driven by sustained population growth, the rampant urbanization of the various regions of Togo is expected to increase demand for agricultural commodities and wood products. It should be noted that agricultural expansion, in addition to extending directly into the forests, is likely to lead to the retreat of livestock breeding and wood supply areas, whether for energy consumption or the need for construction timber , into forest areas that are still preserved. Beyond the spatial retreat, supply areas will become scarcer and with a trend reduction in the savannah area in Togo, in the next 10 years.

In terms of descriptive analysis, the direct causes of deforestation and forest degradation are as follows:

(i) The use of poor agricultural practices and livestock management systems, including: shifting slash-and-burn agriculture and overuse of unregistered pesticides; extensive agriculture and the fragmentation of farms; the low valuation of agro-forestry potential in production systems; the low valuation of agricultural production; and the inefficiency of the livestock and transhumance system;

(ii) Ineffective management of forest ecosystems and mechanisms for increasing forest heritage, more specifically: the lack of appropriate mechanisms for the preservation and restoration of natural forests; carbon stocks in protected areas poorly preserved; low motivation for private, community and family reforestation; the scarcity and threat of green spaces in urban areas; failure to develop the economic potential of forests; the weak capacity of protection against forest fires mechanisms at local level; poverty precarious livelihoods of local communities engaged in sustainable forest management; and the lack of a participatory mechanism for sustainable forest management; Weight of revealed/imported religions, especially for the conservation of sacred forests;

(iii) Low level of restoration of exploited mining sites and infrastructure rights-of-way, induced by the excessive felling of trees at the opening of construction sites and road infrastructure without the application of compensation measures and low rehabilitation efforts of mining sites;

(iv) Uncontrolled fuelwood exploitation linked to the increase of uncontrolled urbanization and demographic pressure, in particular: the lack of mechanisms for the sustainable supply and consumption of traditional energy and service wood; the weak development of modern renewable energies; the low level of development of conventional energies; and the low use of substitute materials for service wood.

The indirect causes of deforestation and forest degradation are as follows:

(i) lack of control over land use planning, in particular the low level of observation and land planning and the lack of an integrated and decentralized mechanism land management focused on the SDGs;

(ii) land tenure insecurity;

(**iii)** low level of integration of the REDD+ dimension in planning and budgeting;

(iv) low degree of ecological and ecosystem awareness among stakeholders;

(v) Low level of access to productive resources for women, youth and other vulnerable groups;

(vi) weak Institutional and research capacity;

(vii) inadequate legal and regulatory framework for natural resource management.

STRATEGIC ORIENTATIONS AND AXES FOR REDD + IN TOGO

The vision carried by the Togolese government through the development of the national REDD + strategy is that by 2050, the emergence of the green economy and low GHG emissions is effective, complying with standards and principles of conservation, and sustainable and participatory management of forest ecosystems, while ensuring the objectives of economic growth and poverty reduction, human and social development of local communities within a framework of social, cultural and gender equity. The strategic and technical tools of the REDD + process are in place and are operational for the great good of the national and international community.
The overall objective assigned to Togo's REDD + strategy is to achieve a 30% forest cover rate by 2050, inducing carbon sinks and effective carbon sequestration. It is broken down into the following specific objectives:

The overall objective assigned to Togo's REDD + strategy is to achieve a 30% forest cover rate by 2050, inducing carbon sinks and effective carbon sequestration. It is broken down into the following specific objectives:

1. Maintain and strengthen the resilience of forest ecosystems, including increased carbon stocks and biodiversity;
2. Stabilize or even permanently reverse deforestation and forest degradation and restore landscapes;

3. Increase the reforestation effort to 7% of the forest cover;

4. Ensure sustainable and participatory management of forest and agroforestry ecosystems, ensuring the strengthening of the resilience of local communities to the effects of climate change and livelihood improvement.

The strategic axes broken down into strategic options are set out in the table below:

Strategic axes	Strategic axes / Strategic options
Priority 1: Promotion of efficient agriculture with low impact on forests	Promotion of sustainable agricultural production methods
	Promotion of agroforestry systems consolidating carbon stocks
	Support for the development of an agricultural growth pole integrating the REDD+ dimension
	Support for the promotion of production and access to the market
	Promotion of effective management of livestock and transhumance
Priority 2: Sustainable management of forests and increase in forest heritage	Support for the sustainable management of community forests
	Preservation of existing forests and restoration of degraded landscapes
	Protection and conservation of biodiversity and carbon stocks in protected areas
	Establishment and strengthening of the system of prevention and participatory management of vegetation fires
	Incentive for private, community and family reforestation
	Support for increasing carbon stocks in urban and peri-urban areas
	Promotion of the enhancement and transformation of forest resources
	Improving the livelihoods and sources of income of rural communities engaged in sustainable forest management
	Rehabilitation and reforestation of mining sites and other road infrastructure rights-of-way
Priority 3. Reduction of the pressure on wood energy	Sustainable supply and improvement of the efficiency of the transformation and combustion of traditional energies
	Development and promotion of modern renewable energies
	Promotion of alternative energies

Priority 4. Support for the implementation of cross-cutting actions to strengthen the REDD+ process	Implementation and operationalization of tools and mechanisms for better observation and planning of the territory.
	Promotion of integrated and decentralized management of land use planning based on Sustainable Development Goals (SDGs)
	Reinforcement of land tenure security
	Integrating REDD+ into planning documents and programs
	Information, education, communication and environmental awareness
	Strengthening access to productive resources for women, young people, people with disabilities and other vulnerable groups
	Strengthening institutional and research capacities
	Legal reforms

These options are in synergy with 8 of the 17 Sustainable Development Goals (SDGs), notably goals no. 1, 2, 5, 7, 8, 12, 13 and 15. They also constitute a variation of 2 of the 3 strategic axes of the National Development Programme (NDP); this is Priority 2, through the expected outcomes 1 and 5 and Priority 3, through the expected outcomes 6, 10, 12 and 13.

FRAMEWORK FOR THE IMPLEMENTATION OF THE STRATEGY

At the regulatory level, the institutional framework for steering and management of the REDD+ readiness process in Togo, formalized by Decree N°2016-007/PR dated January 25, 2016 and which, among others, accompanied the preparation of this strategy will be maintained during its implementation in the investment phase. It is about:

(i) the National REDD+ Committee (NC-REDD+);

(ii) the National REDD+ Working Group (NWG-REDD+); and

(iii) the National REDD+ Coordination. For effective monitoring and coordination of REDD+ activities, a regional REDD+ unit will be established within each REDD+ RDERF, with appropriate resources.

At the level of each prefecture, focal points will be appointed for monitoring activities at the prefecture level. In addition to these institutional mechanisms, the sectoral thematic groups set up as part of the readiness process will be strengthened and will act as focal points at the level of the various ministries involved.

As far as civil society and the private sector are concerned, the platforms set up as part of the preparation process will play the role of relay. The national sustainable development commission and the local sustainable development commissions constitute platforms for participation, mobilization and consultation. The main project leaders are the sectoral ministries, civil society organizations, the private sector, local authorities and the umbrella organizations of grassroots organizations. Each promoter will set up a management unit dedicated to the implementation of the project. NC-REDD+ will not directly implement investment projects, but will be able to initiate and manage enabling or pilot projects related to REDD. It will implement mechanisms for monitoring and certification of REDD+ actions of all stakeholders.

The implementation of the proposed strategic actions requires the identification and mobilization of multiple funding sources and the use of different financing modalities. However, many projects do not concern REDD+ in the strict sense, but rather cross-cutting priorities for the country's development (governance, land tenure, land use planning, etc.). Numerous traditional funding sources (State budget, public development aid, private investments) are therefore likely to contribute to the implementation of the strategy. The REDD+ strategy can only be imposed in Togo as part of a broader transformation towards a successful green economy model, which implies that beyond the «absolute» investment, the «relative» amounts mobilized for REDD+ and the green economy in Togo will also be essential indicators to judge the success of the REDD strategy. The potential sources of international financing are as follows:

(i) Bilateral (KFW/GIZ, USAID, GEF, AFD, EU/EDF/EIB, JICA, Kuwait Fund, IDB, BADEA and Chinese Fund);

(ii) Multilateral (FAO, UNIDO, UNDP, UNEP, IFAD, World Bank, GEF: Global Environment Facility (GEF), Adaptation Fund (AF), Green Climate Fund (GCF), Least Developed Countries Fund (LDCF), Special Climate Change Fund (SCCF), OPPC Fund, Global Facility for Disaster Risk Reduction and Recovery (GFDRR));

(iii) Sub-regional organizations (ADB, EBID, BOAD) and the International Private Sector.

The REDD+ financing strategy is based on steps to facilitate access to identified sources of finance. These include;

(i) objective assessment of the options currently available to ensure continuity in the process of preparing and implementing concrete REDD+ action measures;

(ii) familiarization with the modalities for accessing and obtaining financing from targeted sources;

(iii) improvement of the capacity to draft and present application files that meet the requirements of the technical and financial partner being approached;

(iv) commitment to a precise and strategic approach to funding requests, which consists of planning, researching, preparing and submitting funding proposals; and

(v) development of the capacity to follow up on funding requests.

A National Forest Monitoring System (NFMS) and a Measurement, Reporting and Verification (MRV) system for REDD+ is proposed to record and monitor how land is used in the country, and to estimate levels of greenhouse gas emissions. The NFMS will be further refined in terms of methodology and measurement tools in REDD+ Phase 2, through the implementation and measurement of the evolution of REDD+ activities on the ground. Periodic measurements will be carried out on 945 permanent plots installed in the NFI framework, materialized by an iron rod.

Monitoring will be undertaken by the management unit for forest resources database and for national forest inventory results (CBDR/IFN) which is composed of sub-units in the regional directorates of environment and forest resources.

Monitoring will be carried out by remote sensing technology using free satellite images, through the Cartographic Database Management Unit (UGBDC). The MRV system will be based on three pillars; Pillar 1, which is a satellite land monitoring system (SSTS), Pillar 2, which carries out the national forest inventory (IFN), and Pillar 3, which is based on the national GHG inventory carried out by the Environment Directorate. The MRV unit of the REDD+ National Coordination is responsible for coordinating all institutions and organizations involved in feeding the MRV system. Quality assurance and quality control will be done through the internal independent assessment of the Laboratory of Plant Biology and Ecology of the University of Lomé (LBEV/UL) and the General Directorate of Cartography (DGC).

It is also proposed that a monitoring and evaluation mechanism for the implementation of the REDD+ strategy's axes, options and actions be set up to (i) provide continuous information on the progress of implementation of strategy actions, and serve as evidence of REDD+ results that will be recorded, (ii) adjust actions, and (iii) evaluate the impacts of activities carried out and the contribution of each of the stakeholders. The REDD+ monitoring-evaluation mechanism will be in synergy with the existing mechanism at the level of the supervising ministry (in order to effectively inform the performance of the natural resources sector) and other relevant sectoral ministries. It will be anchored with the NDP monitoring mechanism. Indicators for measuring inputs (actions and resources) and results (outputs, effects and impacts) are proposed in the strategy document.

The various approaches adopted for the elaboration and validation of the national strategy document have led to almost consensual results, integrating sustainable development expectations and responding to international provisions relating to the REDD+ mechanism. Moreover, the design of a national REDD+ strategy is an iterative process following a progressive approach, as it is confronted with political, environmental and social issues. The National Strategy will have an evolving and improved approach, on a cyclical basis, and will be subject to a mid-term and final evaluation.

INTRODUCTION

Deforestation in tropical areas accounts for 15 to 20% of all greenhouse gas (GHG) emissions. According to the Global Forest Resources Assessment conducted by the FAO in 2016, more than 7 million hectares of forests were destroyed each year between 2000 and 2010, the vast majority of which were in tropical countries (FAO, 2016). Thus, in December 2007, at the international conference in Bali (COP 13), the United Nations recognized that a viable solution to climate change should include a mechanism to limit deforestation and degradation of tropical forests. Negotiations continued and at COP16 in Cancún in 2010, the parties to the Convention adopted agreements defining the scope of REDD+. Reducing emissions from deforestation and forest degradation, promoting conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks is a voluntary initiative established under the United Nations Framework Convention on Climate Change (UNFCCC) to create financial incentives for developing countries to reduce forest-related greenhouse gas emissions.

Togo's forest cover rate is estimated at 24.24% (NFI , 2015), with an annual rate of forest area loss currently estimated at 1.7% (MEFR, 2017). Aware of this situation, in May 2010, Togo joined the REDD+ Partnership at the Oslo Climate and Forest Conference and has since been engaged in the preparatory phase for the implementation of the national REDD+ strategy in the framework of a partnership with the Forest Carbon Partnership Facility (FCPF). Also, in order to raise its profile after it was classified in 2010 as a country with a high deforestation rate, the Togolese Government, through the Ministry of Environment and Forest Resources (MEFR), developed its Readiness Action Proposal (R-PP) for Reducing Emissions from Deforestation and Forest Degradation (REDD+) and secured financial support from the FCPF, through the World Bank, for the implementation of the REDD+ Readiness Preparation Project (R-REDD+). The REDD+ process in Togo aims at reversing the trend of observed degradation and deforestation by opting for sustainable management of existing forests and increasing the forest cover. The elaboration of the national REDD+ strategy is an opportunity to propose short, medium and long term measures that should lead to addressing all the challenges related to deforestation and forest degradation, ensuring sustainable management of forests, increase carbon stocks and preserving biodiversity. The REDD+ strategy options comprises adjustments to address legal, regulatory, institutional and capacity gaps that impede effective action to address the main causes of deforestation and forest degradation, taking into account priority environmental and social considerations. It is a set of programmatic or policy measures to reduce deforestation and/or forest degradation, and to conserve and enhance carbon stocks, that directly address the key drivers of deforestation and forest degradation.

The national REDD+ strategy preparation process has been analytical, innovative and participatory, involving all stakeholders and ensuring that cross-cutting aspects, including gender, are taken into account in the diagnosis of the current situation and the choice of strategy options, as well as the operational mechanisms for implementing the programmed actions. The preparation of this strategy is led by the REDD+ National Coordination and the National Working Group through the sectoral thematic groups, with the support of a national consultant, specialist in strategic planning, and is based on two levels of analysis results, namely:

(i) contributions from the REDD+ sectoral thematic groups established as part of this process; and

(ii) analytical studies conducted by national and international consultants.

In order to ensure the participatory and inclusive nature of the process, 7 thematic groups were set up:

(i) environment and forest resources;

(ii) agriculture, livestock, fisheries and water;

(iii) energy and mining;

(iv) land use planning and development;

(v) economy and finance; (vi) urban planning and habitat; and

(vii) gender.

All the thematic groups are officially constituted and formalized. A workshop to launch REDD+ strategy development activities was organized on May 18, 2017 with these groups, whose mission is to collect and analyze available documentation in their sectors, conduct a diagnosis of their sectors in relation to the REDD+, and define objectives and related strategic orientations consistent with the issue of deforestation and forest degradation with a view to mitigating the causes and strengthening the resilience of vulnerable communities, as well as promoting low-carbon development. They also ensured that the various deliverables of the sector studies were in synergy with existing sectoral policies and strategies and participated in the validation workshops of these studies. In addition to the state actors represented in the thematic groups, non-state actors were strongly involved in the strategy preparation process. Also, REDD+ platforms and consortia of civil society organizations (including those of women, youth and people with disabilities) and private sector actors were supported and were able to serve as respondents in the strategy preparation process. All stakeholders at the regional and prefectural levels (technical services, NGOs, private sector, producers' organizations, local authorities, customary notabilities) were involved in all activities of the strategy preparation process.

The analytical nature of the process was, among others, based on the completion of nine analytical studies that consolidated existing knowledge on the determinants of deforestation and forest degradation and whose results have been capitalized in this REDD+ national strategy document. They are as follows:

(i) study on the dynamics of wood energy use in Togo;

(ii) study on the integration of the forest sector in other related sectors;

(iii) analysis of the legal and regulatory framework and preparation of implementation texts in the context of REDD+ in Togo;

(iv) study on land use and future strategic options for land management in Togo ;

(v) study on the causes and consequences of deforestation and forest degradation in Togo and identification of appropriate measures of intervention;

(vi) socio-economic analysis of the contribution of the forest sector to Togo's economy;

(vii) assessment on the determination of periods for early fires according to the ecological regions of Togo;

(viii) study on the creation and sustainable management of forest and agroforestry plantations for private individuals; and

(ix) historical analysis of forest cover.

These studies are prerequisites for a spatial analysis of the causes of deforestation and forest degradation and the potential for increasing carbon stock. In addition to these 9 analytical studies, three other cross-cutting studies have been carried out in the framework of the development of Togo's national strategy: the study on strategic environmental and social assessment (SESA), which has enabled the integration of safeguard measures into the strategy; the study on the grievance mechanism, which has enabled the outline of the mechanism to be set up to be defined; and finally the study on carbon governance, which will enable a benefit-sharing mechanism to be put in place. In order to have tools adapted to the Togolese context, a study was also carried out to define the methodology for assessing biomass and carbon stocks in the various compartments.

The above-mentioned studies were capitalized for the preparation of the draft version 1 of the strategy by the REDD+ National Coordination. This version was improved during a retreat that brought together all members of thematic groups, representatives of civil society organizations and private sector platforms, as well as focal points of REDD+ related conventions to which Togo is a Party. The version of the strategy resulting from the retreat was submitted to a series of validation workshops at the local, regional and national levels that brought together all representatives of state and non-state actors, as well as representatives of grassroots communities, including women and disadvantaged groups. These were successively 36 prefectural workshops, 5 regional workshops and a national workshop to validate version 1 of the strategy. The nationally validated version was presented to the members of the National REDD+ Committee in ordinary session on December 27, 2018. This version 1 of the REDD+ strategy was subject to a SESA, in a separate volume, whose concluding elements in terms of impacts and safeguard measures have been integrated in this second version.

This version is supported by an action plan with estimated costs for implementing the strategy (in a separate volume) that prioritized the strategic options and planned the actions selected for the period 2020-2029, the persons responsible for implementation and the results indicators on the basis of which the actions were budgeted.

This version II of the strategy is structured in four parts:

(i) National circumstances and status of forest resources in Togo;

(ii) Diagnostic analysis of deforestation and forest degradation in Togo;

(iii) Orientations, axes and strategy options for REDD+ in Togo; and

(iv) Framework for the implementation of the strategy.

CHAPTER I
NATIONAL CIRCUMSTANCES AND INVENTORY OF FOREST RESOURCES IN TOGO

1.1 ADMINISTRATIVE AND DEMOGRAPHIC CHARACTERISTICS

Togo is a West African country, located between 6° and 11° North latitude and between 0° and 2° East longitude. It covers an area of 56,600 km² and is 660 km long from South to North and 50 to 150 km wide from East to West. It is bordered to the South by the Atlantic Ocean, to the North by Burkina Faso, to the West by Ghana and to the East by Benin. The national territory is subdivided into five administrative (Figure 1) and economic regions without regional autonomy due to the lack of effective implementation of appropriate administrative and financial structures. These are the Maritime Region (6,100 km²), the Plateaux Region (16,975 km²), the Centrale Region (13,317 km²), the Kara Region (11,738 km²) and the Savannah Region (8,470 km²). The country currently has 39 prefectures and 117 communes.

Togo's demography is characterized by rapid population growth. The total population grew from 2.719.567 in 1981 to 6,191,155 in 2010 and is estimated at 7,178,000 in 2017, representing an average annual growth rate of 2.84% (equivalent to more than doubling every 29 years) (Table 1). The distribution in 2017 by place of residence indicates that 59% of the population resides in rural areas compared to 41% in urban areas. The Togolese population is characterized by a slight predominance of women (51.4%) and a very uneven spatial distribution across the country. The fourth General Census of Population and Housing (RGPH) of 2010 indicates a concentration in the Maritime region (42.3% of the national population), followed by the Plateaux region (22.1%), the Savannah region (13.3%), then the Kara region (12.4%) and finally the Centrale region (9.9%). The age pyramid reveals that youth dominate Togo's population. The 0 to 15 age group represents 42% of the total population and the 0 to 25 age group 60%.

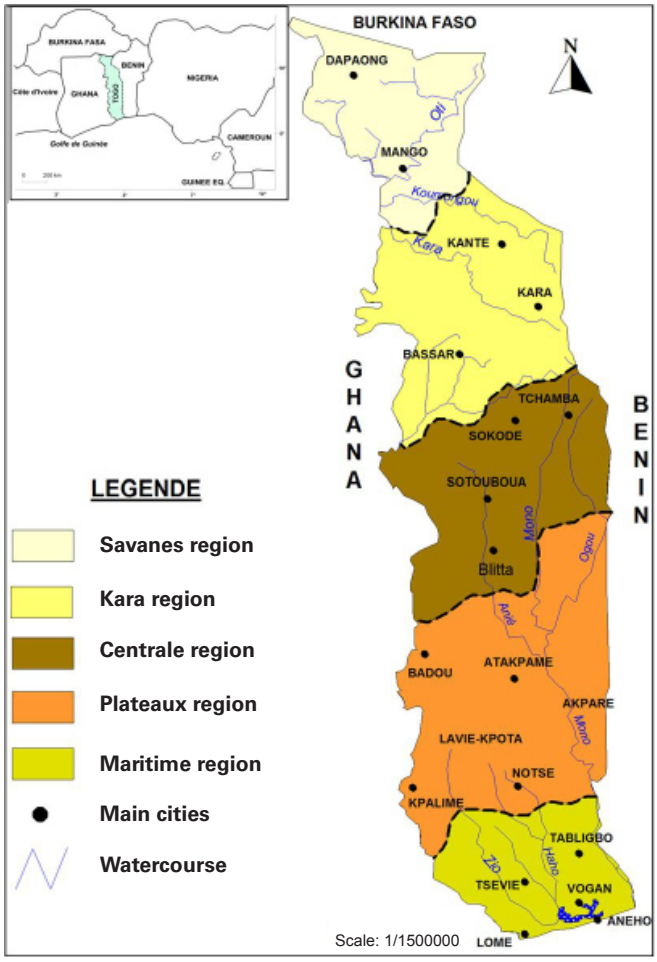


Figure 1: Administrative regions of Togo

[1] *Projection based on the General Census of Population and Housing (RGPH) carried out in 2010 by the General Directorate of Statistics and National Accounts (GDSNA)*

Table 1: Resident Population by Region in 2017

Region	Gender (number)		Total	
	Male	Female	Number	%
Maritime	1,471,376	1,567,136	3,038,512	42.3
Lome Commune	459,589	505,835	965,424	13.4
Outside Lomé Com.	970,545	1,061,301	2,031,846	28.3
Plateaux	776,946	808,118	1,585,064	22.1
Centrale	353,357	358,771	712,128	9.9
Kara	430,879	456,632	887,510	12.4
Savanes	455,950	498,835	954,785	13.3
Total	**3,488,508**	**3,689,492**	**7,178,000**	**100.0**

Sources: MEFR (2017): Comprehensive Study Report on the Dynamics of Wood Energy Use

1.2 ECONOMIC PERFORMANCE AND CONTRIBUTION OF THE FORESTRY SECTOR TO THE NATIONAL ECONOMY

1.2.1 Economic performance

Togo's economic growth[1] increased significantly between 2006 and 2015, from 2.7% to 5.7%, with an average gross domestic product (GDP) growth rate of 4.8% over the period. The stabilization of the socio-political situation and the return of technical and financial partners from 2007 onwards helped to revive the economy. Economic activity has benefited from the structural reforms implemented through various projects carried out and the improvement in the business climate.

In 2015, the GDP will amount to CFAF 2,000.7 billion in real terms. The tertiary sector plays a dominant role in the creation of national wealth with a weight in real GDP of 47.5% and a contribution of 3.1 points out of the 5.7% growth achieved in 2015. The primary sector is no longer the largest contributor to GDP as in previous years. The dependence of food crop production on climatic hazards continues despite the progress made with the implementation of the PNIASA. The national economy is performing well in terms of macroeconomic management, and economic analyses forecast a stabilization of GDP growth between 5% and 6% for the coming years. Inflation is under control with rates of 2.7%, 0.2% and 1.8% for 2013, 2014 and 2015 respectively.

1.2.2 Analysis of the social and economic contribution of the forestry sector to the national economy

The forestry sector makes a major contribution to economic and social development in Togo through the provision of market and non-market goods and services. From timber and services, wood energy (fuelwood and charcoal), to non-timber forest products (NTFPs), forest species play an important part in the daily life of populations, both rural and urban. The themes that are addressed are the following: (i) contribution of the forestry sector to Gross Domestic Product (GDP); (ii) contribution of the forestry sector to employment; (iii) assessment of fiscal and economic losses linked to illegal practices of exploitation of forest resources; (iv) status of investments in the forestry sector; and (v) environmental services.

Contribution of the forestry sector to GDP

Forests contribute to the creation of national wealth, through the added values generated in the various branches of the sector, but it should be noted that the contribution of the forestry sector to the national economy is often poorly appreciated, because the current system of national accounts does not take into account the non-market and ecosystem services of the forestry sector. In addition, the value added generated in the charcoal sector is considered by national accounts to be in the category of «chemicals» and is therefore not accounted for to the benefit of the forestry sector.

[1] *Source: National Institute of Statistics and Economic and Demographic Studies (NISEDS), National Accounts of Togo 2000 to 2007, August 2013 and National Accounts of Togo 2015, December 2017.*

Within the framework of the National Reforestation Programme (PNR), studies have been carried out to quantify the contribution of the forest and its non-market services to the Gross Domestic Product. In terms of value added, it rose from 59.17 billion CFAF (6.66%) in 1990, to 144.02 billion CFAF (13.81%) in 2000 and to 321.20 billion CFAF (18.32%) in 2015. This same source indicates that the value added (VA) of fuelwood in the GDP in 2015 reached 17.80 billion CFAF, from 71.19 billion CFAF for charcoal to 88.99 billion CFAF for fuelwood. The organs of several plants (bark, leaves, roots etc.) are used in traditional pharmacopoeia, in cosmetics, as fodder, food and others.

To illustrate this underestimation of the real contribution of the forest sector to the national economy, data from the study on the socio-economic analysis of the contribution of the forest sector to Togo's economy, carried out in 2017, as part of the REDD+ process in Togo, reassessed the contribution of the forest sector to the national economy, compared with the results of the national accounts for the year 2014[1]. This comparison reveals that the national accounts estimate the contribution of the forestry sector at only 1.7% of GDP against 16.5% for the data from the above-mentioned study, i.e. a difference of 14.8% (Table 2).

[1] *Latest year for which results are available*

Table 2: Comparative assessment of the forest sector's contribution to overall value added according to national accounts and LMDE results for 2014

Headings	2014	Weight in GDP (LMDE, 2014)	Weight in GDP (DGSCN), 2014)	Gap
VA Timber (million CFAF)	35,920	1.6%	0%	
VA Wood Energy (million CFAF)	72,170	3.2%	0%	
VA Non-Ligneous Forest Products (million CFAF)	167,481	7.4%	0%	
VA Ecotourism (million CFAF)	3,315	0.1%	0%	
VA silviculture (million CFAF)	93,942	4.2%	1.7%	
VA forestry sector	372,828	16.5%	1.7%	14.8%
GDP	2,259,000			

Source: National Accounts (2014) and MEFR estimates, 2017 for the year 2014

According to the authors, the major discrepancy between the national accounts data and the results of the above-mentioned study can be explained by the fact that the national accounts do not take into account certain branches of forestry activity, which nevertheless contribute significantly to the formation of national wealth, including non-timber forest products and environmental services. According to this study, the main reason for the non-inclusion of these products in the national accounts is related to the difficulties of data collection in the sector. The results of the LMDE study confirm those found by Agbézouhlon (2016) who estimate the contribution of the forestry sector to GDP at a much higher level than that found in the national accounts.

In fact, by accounting for both the contribution of the forestry sector related to commercial forest products and that related to non-market forest products and services from 1990 to 2015, Agbézouhlon's work estimates the contribution of the forestry sector at 14.45% of GDP on average each year compared with only 2.33% of GDP on average each year according to national accounts estimates.

Contribution of the forestry sector to employment

The number of jobs generated by the forest sector increased from 27,804 in 2010 to 26,152 in 2014 (MEFR, 2017). As a result, on average, the forestry sector generated 25,940 jobs between 2010 and 2014, compared to 1,048,571 jobs in agriculture and 6,742 in extractive activities.

According to the National Institute of Statistics and Economic and Demographic Studies (INSEED), 98.56% of forestry sector activities take place in the informal sector.

Evaluation of fiscal and economic losses linked to illegal practices in the exploitation of forest resources

The forestry sector, while contributing to overall production and supply, also generates public revenue for the State. The sector had generated about 215 million CFAF as revenue from the value added tax on forest products in 2010 (MEFR, 2018)[1] . This amount increased each year to 235 million in 2011, then to 245 million in 2012 before falling to 236 million in 2013. In 2014, it is estimated at CFAF 248 million. In addition, customs duties in relation to imports generated by this sector from the rest of the world rose from 133 million CFA francs in 2012 to 142 million in 2014.

In total, the national accounts estimate the forestry sector's contribution to government revenue at CFAF 390 million in 2014.

Secondary data collection carried out within the framework of the above-mentioned study revealed that forestry revenue is estimated at CFAF 1 078 334 696, CFAF 965,401,516, CFAF 1,514,151,913 and CFAF 1,295 850,294 respectively in 2012, 2013, 2014 and 2015. This proves that the sector's contribution to public revenue is largely underestimated by the national accounts. A close look at Table 3 below shows that the gap between the national accounts declarations and the actual assessment of public revenue from the forestry sector represents -67% in 2012, -55% in 2013 and -80% in 2014, respectively.

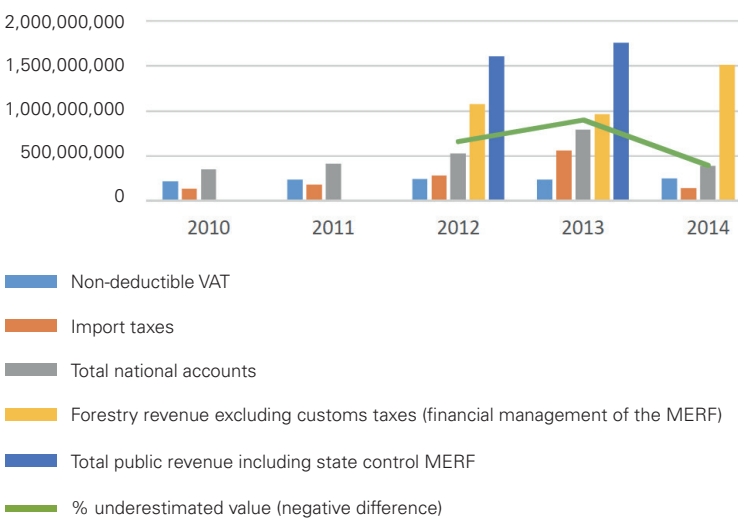
1 *Socio-economic analysis of the contribution of the forestry sector to Togo's economyTogo*

Table 3: Comparative assessment of public revenue generated by the forestry sector according to national accounts and according to the results of the MEFR study (2017) from 2010 to 2014 in CFAF.

Years	2010	2011	2012	2013	2014
Non-deductible VAT	215,000,000	235,000,000	245,000,000	236,000,000	248,000,000
Taxes on imports	133,000,000	178,000,000	281,000,000	556,000,000	142,000,000
Total National Accounts	348,000,000	413,000,000	526,000,000	792,000,000	390,000,000
Forest revenues excluding customs duties (MEFR financial authorities)			1,078,334,696	965,401,516	1,514,151,913
Total government revenue including public MEFR authorities			1,604,334,696	1,757,401,516	1,904,151,913
% Underestimated value (Negative variance)			-67%	-55%	-80%

Source: National Accounts (2010, 2011, 2012, 2013 and 2014), secondary data and MEFR study calculation (2017)

Figure 2: Comparative Assessment of Government Revenues



Inventory of investments in the forestry sector

In recent decades, the forestry sector has received significant funding, mainly from the State, technical and financial partners and, to a lesser extent NGOs. The forestry sector in Togo over the period from 2000 to 2017 has received an average funding of 1,464.2 million CFA francs per year, of which 141.2 million came from internal resources and 1,323.1 million from external resources. In sum, for the period 2000 to 2010, the sector received overall financing of at least CFAF 2.295.4 million, including CFAF 800.9 million for investments from external resources and CFAF 1,494.5 million for investments from internal resources, i.e. 35% and 65% respectively. On the other hand, over the period 2010 to 2017, the sector's overall expenditure amounted to at least CFAF 24,060.7 million, including CFAF 22,596 million for external resource investments and CFAF 1,464.7 million for internal resource investments, representing 93% and 7%, respectively.

Environmental Services

Ecosystem services include all aspects of ecosystems that benefit humans directly or indirectly. According to NLOM et al (2013) environmental services are services provided by forests and forest plantations that have an impact on the protection and improvement of the environment. The following are recognised as such: mitigation of greenhouse gas emissions (fixing, reduction, sequestration, storage and absorption), protection of water for urban, rural or hydroelectric exploitation; protection of biodiversity for sustainable exploitation and for scientific and pharmaceutical purposes; study of genetic resources and their development; preservation of ecosystems, life forms and the beauty of natural landscapes for tourism and scientific purposes. A distinction is made between regulating services, production services and cultural services. Biodiversity is considered differently because it cannot be reduced to the simple notion of service.

The typology developed for the purposes of the study is inspired by the advances of the Millennium Ecosystem Assessment (MEA) and responds to the challenges of economic evaluation. This typology makes it possible to take into account the «natural potential» of each Protected Area (PA), i.e. the existence of a value associated with a service in the absence of any human use. It thus facilitates economic evaluation by avoiding double counting, i.e. counting twice the same value. This problem arises when the systems being evaluated are complex and the quantification of phenomena imprecise. The Total Economic Value (TEV) of an environmental good or service distinguishes between use values and non-use or future use values (IUCN, 2013):

– Use values correspond to:

(i) direct use through the use of directly consumable ecosystem services,
(ii) indirect use through the benefits derived from ecosystem functions, and (iii) future use or option value through potential uses of ecosystems. These values may or may not be linked to an existing market;

– non-use values are the willingness of individuals to pay to preserve a good that they do not actually use, cannot consider using or are unable to use. These values include:

(i) inheritance values through conservation for future generations, and

(ii) existence values through the value placed on the very existence of the ecosystem.

1.2.3 Projects and programs related to the REDD+ process

The main ongoing or recently completed projects and programs related to the REDD+ process are mainly in the sectors of environment, forest resources, agriculture, urban sanitation, and sustainable land and disaster risk management. These projects are financed by the main technical and financial partners (TFPs) involved in financing actions in the areas of climate, sustainable development and economic and social development. They include, among others the Food and Agriculture Organization of the United Nations (FAO), the Global Environment Facility (GEF), the West African Economic and Monetary Union (WAEMU), the United Nations Development Programme (UNDP), the Deutsche Gesellschaft für Internationale Zusammenarbeit (German Technical Cooperation Agency for Development GIZ), the European Union (EU), the World Bank (WB), the Least Developed Countries Fund (LDCF), the Global Facility for Disaster Risk Reduction and Recovery (GFDRR), the International Tropical Timber Organization (ITTO), the International Fund for Agricultural Development (IFAD), the Agence Française de Développement (AFD), the West African Development Bank (BOAD), the Islamic Development Bank (IDB), the African Development Bank (AfDB), the Pan-African Climate Justice Alliance (PACJA), the Global Sanitation Fund (GSF).

Annex 1 documents the portfolio and ongoing or recently completed programs related to the REDD+ process in Togo in the form of a synoptic table presenting by project, assigned objectives, implementation period, implementation costs by source of financing, regions of intervention, linkage to REDD+ and observations/ outlooks.

1.3 BIO-PHYSICAL CHARACTERISTICS

1.3.1 Climate

Togo enjoys an intertropical climate that varies significantly from southern to northern regions. It is therefore under the influence of two major climatic regimes. These are:

(i) Sudanese tropical regime in the north, with one rainy season and one dry season; annual rainfall varies from 900 to 1.100 mm;

(ii) Guinean tropical regime in the south characterized by two dry seasons and two rainy seasons of unequal duration, with annual rainfall of 1,000 to 1,400 mm/year.

In general, the average temperature is high, up to 28°C in the northern zones, 27°C in the coastal zone, and between 24 and 26°C in other localities. Average relative humidity is high in southern areas (73-90%) but low in northern areas (53-67%). The average wind speed is 1.93 m/s and the average duration of insolation is 6.62 hours per day with maximum values recorded in the northern regions. Average evapotranspiration is 1,540 mm/year.

1.3.2 Climate profiles observed in Togo

Togo experienced an average annual temperature increase of about 1°C between 1961 and 2012. Global warming has been observed in the northern part and the coastal zone of the country. The maximum temperature increased by 1.2°C between 1961 and 2012, with the coastal zone showing an annual increase of 0.69°C and days and nights becoming warmer. The months of February, March and April are identified as the warmest months with temperatures above 35 °C. In contrast to the increase in temperature, Togo is experiencing a reduction in rainfall during the observed period from 1961 to 2012. Compared to the 1961-1985 baseline period, the years 1986 to 2015 are in deficit, with rainfall reductions between 3 and 81 mm. A decrease in the number of rainy days and a disruption of rainfall patterns that disrupt cropping calendars. Paradoxically, since 2007, the country has experienced severe flooding with dramatic consequences. In June 2008, Togo recorded the worst floods in its history, causing the collapse of a dozen bridges, destroying roads, disrupting road traffic and economic activities in the country for several months, destroying farms, killing people, displacing a population and destroying houses and altering living conditions.

1.3.3 Climate change scenarios in Togo

The reference situation describes the average climate for the period 1986-2005 centered on 1995. The climate change scenarios for Togo (TNC, 2015) developed using the SimCLIM2013 simulation tool, and based on IPCC guidelines, show that Togo is expected to experience unprecedented warming for a small increase in rainfall between 2025 and 2100 worldwide (Table 4). Climate warming in Togo would continue with average temperature increases between + 0.9 and + 4.5°C, i.e. variations between 3.21 and 16.87% compared to the 1961-1985 period. As far as rainfall is concerned, it would increase between +5 and +29 mm, which corresponds to variations between 0.10 and 0.55% with respect to the period 1961-1985. Warming would be lower in the mountains of Togo and would gradually increase both in the north and south of the country, while cumulative annual rainfall would be higher and would gradually decrease towards the periphery. At the regional level, the Plateaux region would have the lowest warming compared to the extreme north of the country where the temperature would be the highest. Unfortunately, these climate scenarios do not provide information on changes in precipitation. However, the climate in Togo is likely to dry out further as temperatures will increase faster than rainfall and the additional rainfall will be too little to compensate for the increase in evapotranspiration resulting from high temperature increases. The main climate risks identified in Togo are:

(i) floods;

(ii) drought;

(iii) high heat;

(iv) Time shift;

(v) poor rainfall distribution;

(vi) high winds;

(vii) land erosion;

(viii) landslides; and

(ix) sea level rise.

1 *Third Nation Communication on climate change*

Table 4: Summary of Temperature and Precipitation Scenarios by Horizon and GHG Concentration Profiles for the Country as a Whole

Conditions	Variable	Reference Scenario	Horizon 2025	Horizon 2050	Horizon 2075	Horizon 2100
Optimistic Scenario (RCP2.6)	TMax	26.2-35.3	26.8-36.0	27.1-36.24	27.1-36.2	27.1-36.24
	TMin	16.1-23.6	16.8-24.2	17.1-24.4	17.1-24.3	17.1-24.4
	TMean	21.2-28.7	21.8-29.4	22.1-29.7	22.1-29.6	22.1-29.65
	P (mm)	854-1716	854-1716	859-1724.7	858-1724	859-1724.7
Worst case Scenario (RCP8.5)	TMax	26.2-35.3	27.0-36.1	27.8-37.1	28.8-38.3	29.9-39.7
	TMin	16.1-23.6	16.9-24.3	17.8-25.1	19.0-26.2	20.3-27.3
	TMean	21.2-28.7	21.9-29.5	22.8-30.5	23.9-31.8	25.1-33.2
	P (mm)	854-1716	858-1,724	862-1,732	867-1,743	872-1,755

Source: MEFR, 2015; Third National Communication on Climate Change

1.3.4 Typology of Ecological Zones

According to Ern 1979, plant formations are divided into five (5) ecological zones (Figure 3). These are:

(i) Zone I (northern plains zone) characterized by the Sudanese climate. The main plant formations in this zone are Sudanian Savanes, dry forests, gallery forests and, in places, grasslands around temporary or permanent pools.

(ii) Zone II (Northern Mountains Zone): corresponds to the northern mountain range, with a two-season Sudanese climate. It is the area par excellence of dense dry forest, open forests and combretaceous Savanes, as well as agroforestry parks.

(iii) Zone III (Central Plains Zone): a zone with a lowland Guinean climate, occupying the Beninese-Togolese plain. The dominant vegetation is the Guinean savannah with combretaceous and poaceous trees, interspersed with vast stretches of dry forest. There are also scattered patches of semi-deciduous forests as well as forest galleries;

(iv) Zone IV (southern zone of the Monts Togo).

This zone corresponds to the southern part of the Togo's mountains' chain. The climate here is a Guinean mountain climate.

It constitutes the domain of dense semi-deciduous forests, nowadays very degraded and disappearing, and of the Guinean savannas; and (v) Zone V (southern coastal plain): it corresponds to the coastline with a sub-equatorial 4-season climate.

It presents very degraded plant formations. It is a mosaic of disparate forest islands, relics of gallery forests, highly anthropogenic Savanes, coastal thickets, halophilic or swampy meadows, mangroves, fallow land and crops.

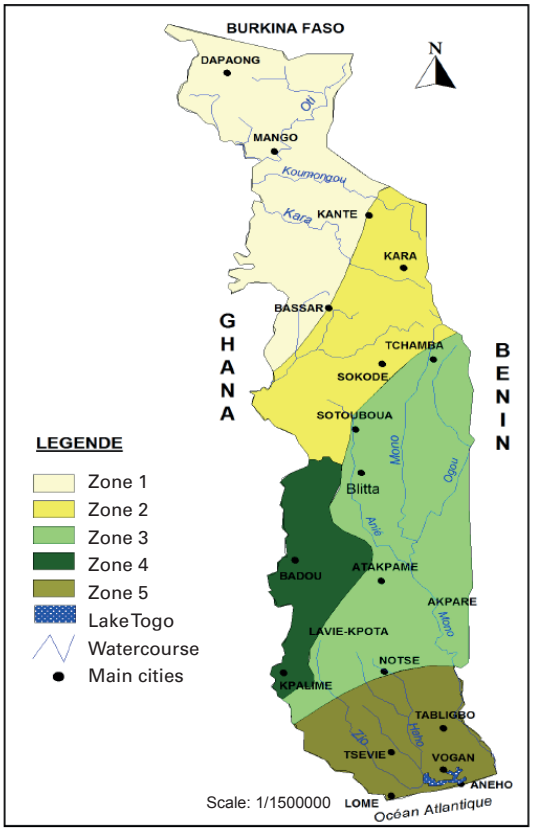


Figure 3: Eco-geographical zones of Togo (Earn 1979)

1.4 FOREST RESOURCES

BOX 1: FOREST REGIME IN TOGO

(I) The State's permanent forest estate: This consists of forests, woodlands and land to be reforested, registered in the name of the State or having been classified (Article 8 of the Forestry Code). The land making up this estate therefore belongs to the State. In these areas, the Forest Resources Administration lays down management rules, draws up management plans and implements them either under its own management or through the intermediary of third parties (article 29). The State manages its lands and their resources, but must nevertheless take steps to encourage the participation of the local population in the management of forest resources.

(II) Forests belonging to a local authority: Having recently embarked on a process of decentralisation, the Togolese State provides for the constitution of a forest heritage for the benefit of decentralised local authorities (commune, prefecture, region). These woodland areas may come from an allocation of part of the State's woodland estate (Art. 20) or from the incorporation of the private domain of the State or of private individuals (Art. 22 and 23). The Code provides for the registration of these woodland areas in the name of the local authority.

(III) Privately-owned woodlands: The private forest estate is made up of (1) forests, woodlands and land to be reforested which are registered or recognised in the name of private individuals (Art. 24) and (2) forests, woodlands and woodlands developed and exploited by private individuals. In Article 25, the Forestry Code defines private individuals as «natural or legal persons, rural or grassroots groups or communities that do not fall into the category of local authorities». This formulation leaves room for the emergence of so-called «community» forests, i.e. based on collective management, although the term is not used in the current Forestry Code.

Source: Law n°2008 - 009 on the forestry code

1.4.1 Land Occupancy

According to the results of the National Forest Inventory (NFI, 2015/16), Togo has a forest resource coverage rate of 24.24% (Table 5).

These results are based on the definition of the forest used in this inventory which is that of the Forestry Code. This stipulates that «forest is an area occupying more than 0.5 hectares with trees reaching a height of more than 5 metres and a tree canopy cover of more than 10%, or with trees capable of reaching these thresholds in situ». This forest cover indicated by the NFI is not uniform across the country. In fact, the region with the highest forest resource coverage in the country is the Plateaux region, where forests occupy 32.81% of its surface area, while the least covered is the Savannah region with 9.46%. The Maritime, Centrale and Kara regions respectively occupy 29.06 %, 26.83 % and 17.04 % of forest cover.

Table 5: Land use classes in 2016

Region	Rate (%)			
	Forests	Savannah	Agriculture / Infrastructures	Total
Savanes	9.46	25	65.54	100
Kara	17.04	40.46	42.5	100
Centrale	26.83	45.34	27.83	100
Plateaux	32.81	33.59	33.6	100
Maritime	29.06	19.62	51.32	100

Source: MEFR 2016; National Forest Inventory (NFI)

Throughout the national territory, soil and climatic factors influence the physiognomic characteristics of the formations and allow to distinguish a mosaic of plant formations. The two most forested regions are the Plateaux and Centrale regions with respectively 1,143,865 ha and 955,845 ha. Next are the Kara region (662,903 ha), the Maritime region (312,929 ha) and finally, the Savannah region (300,646 ha). The regions with the largest cultivated areas are the Savannah region (465,900 ha), the Plateaux region (460,929 ha) and the Kara region (366,096 ha). Cultivated land in the Centrale region is less, however, it is important to underline the dynamics of agricultural expansion in this region (significant clearing). The main host areas are the vast fertile areas of the Mono and Mô plains, i.e. the prefectures of Sotouboua, Blitta, Tchamba and Mô. Table 6 shows the breakdown of the area by land use category and economic region. It shows that Togo's forest area in all strata is estimated at 3,376,188 hectares. The «Mangrove» stratum was not considered in the 2016 NFI.

Table 6: Breakdown of land use by category and by region in 2016.

IPCC strata	National strata	Area by region in hectares					
			Kara	Centrale	Plateaux	Mari-time	Total
Forest land	**Dense semi-deciduous and deciduous forests**	330	1,604	30,699	71,930	22,968	127,531
	Other forest	36,467	67,920	103,172	115,899	19,516	342,974
	Clear forest and wooded savannah	44,926	125,201	210,933	351,967	125,348	858,375
	Wooded and shrubby savannah	218,077	466,409	600,497	578,722	122,848	1,986,553
	Mangroves	-	-	-	-	-	-
	Plantation	805	1,769	10,544	25,347	14,193	52,658
Cultivated land	**Cultivated land**	465,900	366,096	255,338	460,929	200,272	1,748,535
Grasslands	**Grassy formations**	67,834	89,884	62,586	67,518	26,062	313,884
Wetlands	**Wetlands**	4,508	1,581	476	13,073	6,707	26, 345
	Swampy formations	41	-	-	-	8,056	8,097
Human Settlements	**Settlements**	12,584	22,693	22,081	30,614	56,784	144,756
Other lands	**Other lands**	2,434	3,013	17,121	5,968	4,910	33,446
	Other	7,810	6,705	11,050	721	18,610	44,896
Total		**861,716**	**1,152,875**	**1,324,497**	**1722,688**	**626,274**	**2,319,959**

Source: MERF, 2016 ; National Forest Inventory

1.4.2 Typology of forest ecosystems

Togo's forest ecosystems fall into three main categories, namely natural forest formations, forest and agro-forestry plantations and special ecosystems (protected areas and community forests).

1.4.2.1 Natural forest formations

Soil and climatic factors influence the physiognomic characteristics of these formations and make it possible to distinguish in Togo a mosaic of plant formations comprising:

- **semi-deciduous forests:** these are located in ecological zone IV (Ern, 1979) and are characterized by species such as Nauclea diderrichii, Triplochiton scleroxylon, Milicia excelsa, Afzelia spp, Erythrophleum suaveolens, Terminalia superba, Terminalia ivorensis, Mansonia altissima, Entandrophragma angolense, Aubrevillea kestingii, Piptadenia strumafricanum, Khaya spp. Throughout the Guinean zone, other types of semi-deciduous forests have been reported, on barrensic soil or granito-gneissic bedrock (e.g. in the Togodo Faunal Reserve or sacred forests containing Milicia excelsa, Antiaris africana, Ceiba pentandra);

- **dry dense forests:** they are observed in ecological zones I, II and III and are characterized by dense stands of Anogeissus leiocarpa, Monotes kerstingii, Khaya grandifliola, Aubrevillea kestingii, Parinari glabbra, Dialium guineense; Cola gigantea and Cola millenii (Example in the Park of Fazao-Malfakassa);

- **gallery and swamp forests:** these forests are generally located on hillsides in ecological zones I, II, III and IV. They are characterized by dense stands of Isoberlinia dokaet and/or I. tomentosa, or Anogeissus leoicarpa or Uapaca togoensis or Monotes kerstingii etc;

- **open forests:** these forests are generally located on hillsides in ecological zones I, II, III and IV. They are characterized by dense stands of Isoberlinia dokaet and/or I. tomentosa, or Anogeissus leoicarpa or Uapaca togoensis or Monotes kerstingii;

- **savannas:** are formed of a continuous grassy carpet composed essentially of grasses and more or less densely sprinkled with trees or shrubs with a frequently tortuous bearing. We can cite the Guinean mountain savannas characterized by Lophiralanceolata on hilltops; the savannas of the Guinean zone of the Centrale plain and the coast that extend from the coast to the latitude of Tchamba, very rich and dominated by Daniellia oliveri, Terminalia macroptera, Combretum spp, Pterocarpus erinaceus, Parkia biglobosa, Vitellaria paradoxa, etc.; the Sudanian savannas which are found in the northern regions of the country, especially in ecological zones I and II. These are generally shrubby savannas sometimes dominated by Combretum spp. and Acacia spp. These savannas are dotted with agroforestry parks in Parkia, Vitellaria, Borassus and Adansonia;

- **Mangroves:** Togolese mangroves are located in the extreme south-east of the country around the Gbaga channel and its tributary rivers. There are two species of mangroves: Rhizophora racemosa and Avicennia germinans. Mangroves, subjected to very severe human pressure, are reduced today and cover a current area of 546.97 ha (MEFR/DCN, 2010) against 1000 ha in 1999 (Afidégnon, 1999), a reduction rate of about 50%.

1.4.2.2 Forest and agroforestry plantations

In accordance with the new forestry policy, a new forest estate is being set up. This is the domain of private individuals defined as «natural or legal persons, rural or grassroots groups or communities that do not fall into the category of local authorities». Thanks to this new regulatory framework, collective initiatives have emerged to ensure the recognition and management of forest areas with specific characteristics, notably sacred groves.

Since German colonization, plantations and reforestation have been undertaken in Togo on a large scale. More than 200 species, both exotic and local (Tectona grandis, Erythrophleum suaveolens, Khaya grandifoliola, K. senegalensis etc. and later Eucalyptus spp., Terminalia superba) have been trialled with the help of international organizations. At present, only a few of these species, particularly teak, are used by forest owners. In 2016, based on the results of the NFI, the total area of these formations is estimated at 52.658 hectares.

Three categories of plantations can be differentiated:

(i) State plantations (conducted under management);

(ii) community plantations; and

(iii) private and individual plantations.

Out of the total number of forest plantations, 2846 plantations have been registered with private planters and the decentralized services of the Ministry of the Environment and Forest Resources. The cumulative area of these plantations will amount to 10.157.6 ha in 2017 (Table 7). It should be noted that these are not the results of a systematic national census of private forest plantations. In fact, a census of cashew nut growers and plantations in Togo carried out in 2015, estimated the area planted with cashew nuts at 18.500 hectares compared to the 2.200 estimated in this study. The list of the main agro-forestry species is presented in Annex 2.

Table 7: Summary of the number of private forest plantations recorded and their areas in Togo

Designation	Regions					Total
	Savanes	Kara	Centrale	Plateaux	Maritime	
Number of Plantations	141	296	1082	897	430	2,846
Surface (Ha)	306.79	412.63	3,616.85	3,413.191	2,408.65	10,157.6

Source: MEFR, 2018: Study on the creation and sustainable management of forest and agro-forestry plantations carried out in the field of private individuals in Togo.

These are mostly small plantations and are very scattered throughout the country with a predominance of teak plantations which alone occupy an area of 6.771.7 ha, or 66.6% (Table 8). The areas of forest plantations carried out by the majority of private planters on the national territory (70.4%) are less than or equal to 5 hectares, with small variances between planters living in rural areas (71.2%) and urban areas (66.6%). 26, 67% have plantations with areas between 6 and 50 hectares. Less than 2.0% have forest plantations with sizes between 51 and 100 hectares and less than 1.0% have more than 100 hectares.

Table 8: Plantations and areas of teak in the various regions

Regions	Number of Plantations	Surface (ha)
Savanes	31	72.25
Kara	60	68.63
Centrale	320	2,349.5
Plateaux	718	3,053.17
Maritime	388	1,228.65
Total	**1,517**	**6,771.715**

Source: MEFR, 2018: Study on the creation and sustainable management of forest and agro-forestry plantations carried out in the field of private individuals in Togo.

The typology of these plantations according to the status of the planters reveals that 58.3% are carried out by private planters and 41.6% by local farmers in urban areas. In rural areas, 50.3% of forest plantations belong to private planters and 47.4% are carried out by local peasant farmers. In both urban and rural areas, private planters are in the forefront of forest plantations with a proportion of 51.90% compared to 46.19% of local farmer-planters in the five economic regions of Togo.

Overall, the analyses show that the most significant types of species planted by private planters are teak, cashew tree and palm. The cashew tree accounts for nearly 51.0% of the species planted by urban farmers compared to 29.0% by rural farmers. Teak accounts for 39.0% of the species planted by farmers in the rural area compared to 35.0% in the urban area. Palm is planted by 15.0% of the farmers in the rural area and less than 5.0% in the urban area. Coffee/cocoa, Kaya, Flank, Eucalyptus, Shea, Chevalier, Citrus, Avocado, Neems, Mahogany, Acacia, Toothpick, are species that are not widely planted with a proportion of less than 5.0%.

In recent years, cashew nuts have been cultivated in Togo and are an important component of artificial forests. It should be recalled that within the framework of the National Reforestation Programme (PNR) in its Phase 1 (2017-2021), Togo plans to support the current intervention models and pilot actions for reforestation, through the establishment of at least 34.400 ha of new planted areas, representing a net increase of 0.7% of the forest area by 2021 (MEFR, 2017).

Coffee and cocoa agroforests are not reforestation plots like conventional forest plantations. In fact, these cash crop plantations are cultivated under tree cover and are therefore directly installed under spontaneous forest trees, either fertilizer, timber, fruit or medicinal trees. Thus in 2016, the total area of cocoa plantations amounted to **24.458 ha** while that of coffee plantations estimated at **40.908 ha** for the same year (MEFR, 2017).

1.4.2.3 Special ecosystems: protected areas and community forests

Protected areas

Classified forests are also delimited and named forest areas. The 2008 Forestry Code reaffirms the integration of these classified forest areas into the State forest estate. The cumulative surface area of these classified forests theoretically reaches 792.345 hectares, i.e. 14% of the national territory, created between 1938 and 1958, distributed as follows by region (MEFR, 2017): Maritime (33.299 ha); Plateaux (142.368 ha); Centrale (250.866 ha), Kara (198.906 ha) and Savanes (166.906 ha). However, the coverage rate of protected areas is currently estimated at 10.2% due to encroachments and parts returned to the populations in recent decades. Three of the protected areas are designated as national parks (373.640 ha) and 9 as wildlife reserves (202.405 ha).

BOX 2: DEFINITION OF A PROTECTED AREA AND A COMMUNITY FOREST:

A protected area is defined as a defined geographical area, designated by name, regulated and managed by appropriate means and especially dedicated to the conservation of biological diversity and associated natural or cultural resources. Protected areas are subject to a legal regime for their category and to special provisions. They include in particular strict nature reserves, national parks and protected landscapes.

A community forest is the set of natural and/or artificial forest formations located on the permanent domain of the State or on the lands of communities and private individuals and in which sustainable and community-based management of plant and animal resources is implemented in accordance with a management agreement or charter drawn up between the communities and the forestry administration.

- ***Community forests***

A non-exhaustive list of community forests in the private individual domain is given in Appendix 3.

1.4.3 Potential forest resources

1.4.3.1 Potentialities of natural forests

Togo has a diverse and varied potential in natural resources in quantity and quality.

(i) Biodiversity

The current flora of Togo is estimated at 4002 species including 3501 spontaneous terrestrial species and 501 aquatic species (MEFR, 2014) . It should be noted that the state of the specific diversity of the spontaneous Togolese flora is not exhaustive, due to the lack of in-depth studies on the lower taxonomic groups which are, for the most part, of great importance in the maintenance and development of ecosystems. The distribution of the large plant and associated groups indicates that it is the spontaneous Angiosperms that are being studied and represent 58.6% of all species recorded.

Terrestrial plants:

Within the Angiosperms, there are 2456 spontaneous species and 491 species introduced for horticultural and silvicultural purposes. The Gymnosperms are 13 in number, only one species is spontaneous, Encephalartos barteri in the savannah of Centrale-eastern Togo. The others are introduced for their horticultural qualities. There are 133 species of Bryophytes, almost all of which belong to the forest zone of the South-West. There are 97 species of Pteridophytes, 82 of which are spontaneous and 15 introduced for horticultural purposes (MEFR, 2009).

1 *Cinquième rapport du Togo sur la diversité biologique ; 2009-2014*

The Pteridaceae constitute a family of aquatic, terrestrial, epilithic or epiphytic ferns whose investigations carried out in recent years by the University of Lomé have identified a total of 17 species among which 14 species are present in Ecological Zone IV (Abotsi, 2013). All these species belong to 9 different genera. A new species for the Togolese flora Pteris similis was found only in the classified forest of Assoukoko. In terms of distribution, apart from Doryopterisnicklesii, Isoetesmelanotheca, Ophioglossum gramineum and Ophioglossumrubellum exclusively represented in Ecological Zone III of the Guinean savannas and Anemiasessilis of the rocks of the northern mountains, almost all species belong essentially to Forest Wetland IV of the southern mountains. Within the Mushrooms, there are 190 species. Nevertheless, recent research has so far described 170 new species of fungi. Some species have particular habitats, such as the Macromycetes, Russulaceae (Russulaspp., Lactariusspp), Boletaceae (Boletus spp., Afroboletussp., etc.), Cantharellaceae, Amanitaceae, etc., and the Macromycetes (Russulaspp., Lactariusspp). They are inferred from riparian forests or open forests with plant species such as Berlinia grandiflora, Uapaca spp., Isoberlinia spp. etc. Saprophytes are more abundant in the semi-deciduous forest zone where litter is particularly important. Termitomyces are inferred from termite mounds and are found just about everywhere. The destruction of these habitats, which is now very extensive, is detrimental to the survival of these taxa.

Aquatic plants:

There are exclusively aquatic plants, including 17 species of Pteridophytes. Certain families such as the Azollaceae (Azolla africanaDesv.), the Salviniaceae (Salvinia auriculataAubl. and S. nymphellula Desv.), the Marsileaceae (Marsilea diffusaLepr. ex A. Br.) are exclusively aquatic. Among the Angiosperms, there are 24 species of Broadleaf and 19 species of Monocotyledons. The aquatic flora is very rich in algae, counting 815 freshwater, brackish and marine microalgae, including 93 Conjugatophyceae, 145 Clorophyceae, 283 Diatomophyceae, 12 Xanthophyceae, 7 Chrysophyceae, 150 Cyanophyceae, 85 Euglenophyceae, 28 Dinophyceae, 4 Criptophyceae, 4 Raphidophyceae and 4 Rhodophyceae. The algal flora also contains macroalgae, mainly marine. A total of 28 species are currently identified in Togo, with 9 Chlorophyceae, 9 Pheophytes and 10 Rhodophytes. Census campaigns have contributed to the census of 240 species of microalgae newly described in Togo to date. A total of 32 taxa have been inventoried of which 9 have been identified at the species level and 22 identified at the genus level.

Annex 4 records the top 30 species in the national Significance Value Index.

(ii) Timber and Timber Services

Based on the results of NFI 2016, the total volume per ha is about 54.42 m3 and the average number of trees is about 228 stems per ha, with an average diameter (Dg) less than 21.8 cm. At the regional level, the results of NFI 2016, show that the volumes of woody stands in the savannah region are respectively 5.59 and 16.66 m3/ha for barrel volume and total volume. For the Kara region, the volumes of woody stands are 18.32 and 39.66 m3/ha for barrel volume and total volume. The Centrale region contains 41.86 m3/ha of barrel volume and 78.03 m3/ha of total volume. For the plateau region, the barrel volume is 38.44 m3/ha and the average total volume is estimated at 65.59 m3/ha. The maritime region has a potential barrel volume of 7.9 and 8.58 m3per hectare for a total volume

Table 9: Standing volume and exploitable volume potential of forest resources

Regions	Basal area G (m^2/ha)	Average diameter Dg (Cm)	Density N (n/ha)	Drum volume (m3/ha)	Total Volume (m3/ha)
National	8.51	21.8	227.8	29.18	54.42
Savane	4.02	20.5	121.8	5.59	16.66
Kara	7.91	19.9	255.5	18.32	39.66
Centrale	11.44	22.3	292.8	41.86	78.03
Plateaux	9.26	23.1	221.7	38.44	65.59
Maritime	3.12	20	99.2	7.9	16.49

Source: MEFR, 2016; National Forest Inventory

Table 10: Land use distribution by volume of wood per hectare

N°	Land use	Total average wood volume: Vtot(m3/ha)	Average wood barrel volume: Vbar(m3/ha)
1	Fallow Crops / Fodder	28.58	15.4
2	Open forests/ wooded savannas	59.49	27.6
3	Dense forests	118.6	74.43
4	Riparian/swamp forests	97.08	53.97
5	Forest plantations	28.74	13.52
6	Fruit and palm plantations	20.43	11.4
7	Savannah/Shrubby Savannah	19.76	8.5

(iii) Wood energy

On the basis of the data collected during NFI 2016, the Forest Database Management Unit hosted by the DRF was able to provide the average standing volumes per stratum as well as the standing or lying volumes that could be valorised as wood energy. At the national level, the average standing volume is about 54.42 m³/ha while the average volume of wood for fuelwood in the forest strata is estimated at 21.2 m³/ha [IFN Togo2016]. Taking into account these values as well as a 12-year rotation and a 50% harvest rate, the annual exploitable volume from natural forests, which can supply the wood energy sector, is estimated at nearly 2.23 million cubic meters or 1.559.663 tons of wood per year. Table 11 shows the average standing volume per forest stratum as well as the exploitable volume for wood energy use.

Table 11: Average standing and harvestable wood energy volume in natural forests

Strata	Exploitable[1] area	Standing volume		Annual volume usable for wood energy
		Total	Wood energy	
	(ha)	(m³/ha)	(m³/ha)	(m³/ha)
Semi-deciduous and deciduous dense forests	97,143	118.6	44.2	178,824
Forest gallery	261,250	97.08	43.1	469,271
Clear forest and wooded savannah	653,842	59.49	31.9	868,792
Savannah with trees and shrubs	1,513,198	19.81	11.3	711,203
Mangroves [3]	ND	ND	ND	ND
Total / Average	**2,525,433**	**54.42**	**21.2**	**2,228,090**

Source: MEFR, 2017: In-depth study on the dynamics of wood energy use in Togo

1.4.3.2 Potentialities of Forest Plantations

Timber and Timber Services

The main types of finished products from natural forests and forest plantations include logs, timbers, planks, squared timbers, boards, rafters, poles and piles.

For service wood, forest products such as shells, poles, bamboo, posts, raffia, etc., are used as building materials. The average consumption of service wood is estimated at 0.08 m3 per inhabitant . In addition to teak plantations, nearly 90% of the other plantations carried out in Togo, correspond to fast-growing species (mainly Eucalyptus, Terminalia, Cedrela, Bambusa, etc.) which meet the objectives of service wood and firewood production.

Energy wood

The estimates made in the framework of the in-depth study on the dynamics of wood energy use in Togo, based among others on data collected from ODEF, MEFR and other ongoing projects (Table 12). It presents the area of reforestation by region, the average standing volume for wood energy use and the annual exploitable volume.

1 *area of forest strata minus area of protected areas/sacred forests*
2 *potentially exploitable volume provided by the NFI / rotation (12 years)*
3 *Mangroves were not inventoried during the NFI, 2015/2016*

Table 12: Reforestation area, standing and harvestable volume of wood energy

Region	Surface	Standing volume		Annual exploitable[1] volume
		Wood energy	Total	
	(ha)	(m^3/ha)	(m^3)	(m^3/ha)
Maritime	14,193	14.9	211,759.6	26,470.0
Plateaux	25,347	14.9	378,177.2	47,272.2
Centrale	10,544	14.9	157,316.5	19,664.6
Kara	1,769	14.9	26,393.5	3,299.2
Savanes	805	14.9	12,010.6	1,501.3
Total	**52 658**	**14.9**	**785 657.4**	**98 207.2**

Source: MEFR, 2017; In-depth study on the dynamics of wood energy use in Togo

Applying an eight (8) year rotation of reforestation, based on ODEF's experiences, the potential annual production amounts to 98.207 m^3/year equivalent to 68.740 tons of wood. The share of wood energy supply from reforestation is therefore modest.

1.4.3.3 Trees outside the forest, a growing share

The results of surveys of areas where rural households collect wood fuels have shown that «trees outside the forest» contribute 20-35% of the rural population's household energy supply (MEFR 2017). Based on an area of 1.748.535 hectares and an average standing volume of 13.1 m^3/ha, the total standing volume amounts to approximately 22,905,809 m^3. Assuming a 50% removal rate and a 12-year rotation, the potential volume of wood energy from trees outside the forest amounts to approximately 954.409 cubic metres per year, or 668.086 tonnes of wood.

1.4.4 Carbon Sequestration Potential

Natural Forests

In the context of the adaptation of forest ecosystems to climate change, as well as in the context of carbon financing, FAO methodology was applied for the calculation of the biomass of Togolese forest resources and carbon sequestration potential in the framework of the in-depth study on the dynamics of wood energy use in Togo carried out in 2017. It is estimated that above-ground forest resources fix on average 266 tons of CO2 per hectare in their biomass. In total, Togo's forest ecosystems have a sequestration potential of 702 million tonnes of CO2, i.e. about 191 million tonnes of carbon (Table 13).

1 Potentially exploitable volume calculated with: standing volume (m³/ha) / rotation (8 years)

Table 13: Carbon sequestration potential of natural forests (by stratum)

Strata	Carbon (t/ha)	CO2(t/ha)	Land surface (ha)	Total	
				C(t)	CO2(t)
Semi-deciduous and deciduous dense forests	86.7	317.8	127,531	11,056,937	40,524,228
Forest gallery	85.6	313.9	342,974	29,358,574	105,840,717
Clear forest and wooded savannah	73.8	270.5	858,375	63,348,075	228,240,350
Savannah with trees and shrubs	44.2	161.9	1,986,553	87,805,643	321,586,891
Mangroves	0.0	0.0	0.0	0.0	0.0
Average / Total	**72.54**	**266.02**	**3,315,433**	**191,569,229**	**701,970,545**

Source: MEFR, 2017; In-depth study on the dynamics of wood energy use in Togo

Plantation

Regarding carbon sequestration, it is estimated that reforestation in Togo fixes an average of 185.9 tons of CO2 per hectare (above-ground biomass only). In total, these resources have a sequestration potential of 9.8 million tons of CO2 or about 2.7 million tons of carbon (Table 14).

Table 14: Plantation carbon sequestration potential

Region	C(t/ha)	CO2(t/ha)	Superficie (ha)	Total	
				C(t)	CO2(t)
Maritime	50.7	185.9	14,193	719,585	2,638,479
Plateaux	50.7	185.9	25,347	1,285,092	4,712,007
Centrale	50.7	185.9	10,544	534,581	1,960,129
Kara	50.7	185.9	1,769	89,688	328,857
Savanes	50.7	185.9	805	40,816	149,649
Average / Total	**50.7**	**185.9**	**52,658**	**2,669,762**	**9,789,122**

Source: MEFR, 2017; In-depth study on the dynamics of wood energy use in Togo

1.5 SUPPLY AND DEMAND BALANCE FOR FOREST PRODUCTS

There are essentially two trading systems in Togo, namely the trading system for the satisfaction of domestic demand and that for the satisfaction of external demand. The first one is characterized by the internal trade of wood fuelled by national production and the import of wood coming essentially from neighboring countries (Ghana, Benin) and Nigeria. The second is characterized by the export and re-export of wood. Despite the fact that average annual exports exceed imports in terms of quantity (41,480.55 tons against 13,466.24) between 2010 and 2014, Togo's trade balance remained in deficit in wood products. The integrated analysis of the wood energy sector is illustrated in Figure 4 below.

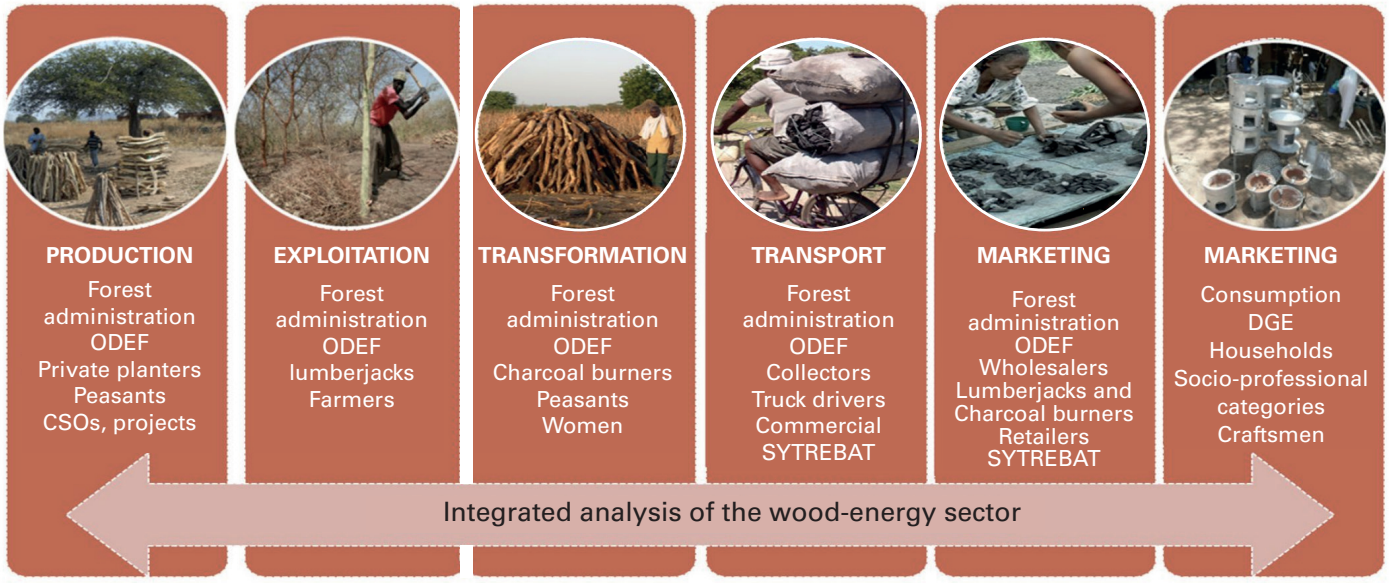
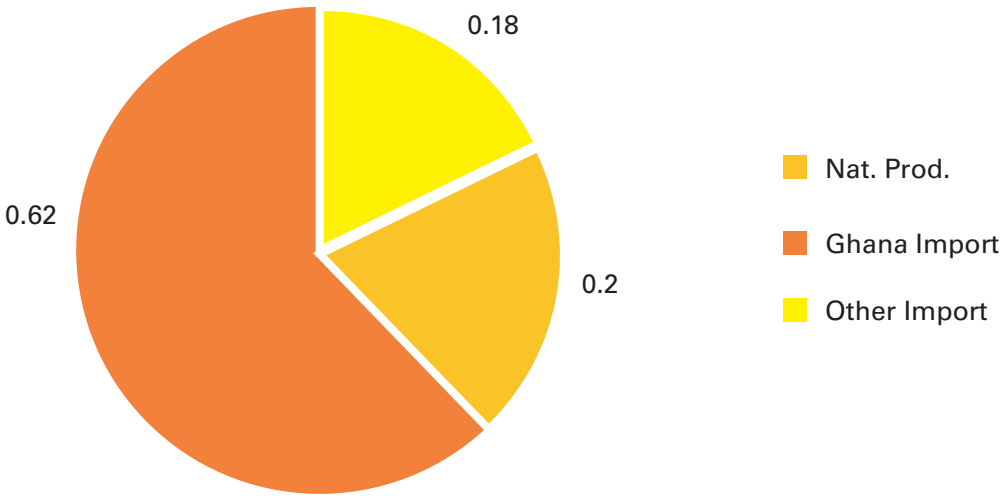


Figure 4: MEFR, 2017: Integrated approach to the analysis of the wood energy sector in Togo

1.5.1 Timber

Timber production in Togo is estimated on the basis of individual consumption, assuming that all production is consumed. Annual national timber production covers only 20% of needs and is estimated at nearly 15,000 m3 of sawn timber (for an estimated national consumption of 40.000 m3 which is increasing at an annual rate of 2.5%). Togo is largely dependent on the outside (mainly Ghana) for sawn timber, which provides about 62% of consumption. This border flow of timber, which was estimated at 22.960 m3 in 2000 and 29.104 m3 in 2010 and estimated at between 4 and 8 billion CFA francs per year, is not always legal and does not always pass through customs.[1]

Figure 5: MEFR, 2017; Timber Supply/Demand



1 MERF, 2011; National Forest Action Plan (NFAP), Phase 1, 2011-2019

Self-consumption of timber would represent only 6% of local production against 94% for marketing. However, due to the poor organisation of the sector, only about 40% of this share would be controlled by the forestry services. Production takes place essentially in the Plateaux and Centrale regions and particularly in the border areas with Benin and Ghana because of their natural potential. 63% of this is consumed in rural areas where 60% of the population lives and where the incidence of poverty is 74.3%.

1.5.2 Service wood

Forest products such as shells, poles, bamboo, posts, raffia, etc., are used as building materials. The average consumption of service wood is estimated at 0.08 m3 per inhabitant[1]. In addition to teak plantations, nearly 90% of the other plantations carried out in Togo correspond to fast-growing species (mainly Eucalyptus, Terminalia, Cedrela, Bambusa, etc.) which meet the objectives of service wood and firewood production. National supply does not cover demand

1.5.3 Energy wood

Firewood remains the main source of energy in Togo. In rural areas, women control about 90% of the firewood and charcoal trade. Indeed, 76% of the production is self-consumed. On the other hand, the situation is reversed with regard to charcoal, as 85% of production is marketed. Charcoal is mainly consumed in urban areas which, with 40% of the population and 20% of the poor population, uses 76% of production compared to only 24% in rural areas where 80% of the country's poor are concentrated [2].

The quantity of fuelwood consumed by households and socio-professional categories is estimated at 7,576,922 m³/year . On the supply side, the sustainable production of natural forests, reforestation and forest mosaic (trees outside forests) has been estimated at 3,280,706 m³/year. Demand exceeds potential wood energy production by a factor of 2.3 and the theoretical deficit between supply and demand totals 4,296,216 m³/year. It should be noted that the charcoal share has been converted into wood equivalent, calculated with a charcoal weight yield set at 10% and a wood density of 0.7 t/m³. Starting from the assumption that the forests and plantations are managed on the basis of a validated development and management plan with details of the quantities that can be exploited annually in each forest or plantation, the evolution of demand without intervention was made on the basis of two simulations. The first simulation concerns the forecast evolution of the situation if no action is taken to improve organisation and efficiency within the sector. Applying an annual population growth rate of 1.9%, Togo's population is expected to reach 9.167.857 inhabitants by 2030, of which 3.,796,908 will live in urban areas and 5,370,949 in rural areas. Assuming constant household energy practices until 2030, national domestic consumption would amount to 7,944 million cubic meters of wood, including 1.919.751 tons of firewood (2,742,502 m³) and 364.107 tons of charcoal (equivalent to 5,201,532 m³ of wood). By adding the consumption of socio-professional categories to that of households, the total national consumption of wood energy in 2030 would be 9,818 million cubic meters of wood including: 19.1% consumed by socio-professional categories (CSP) and 80.9% consumed by households.

It should be noted that in wood equivalent, calculated with a carbonization weight yield fixed at 10% and a wood density of 0.7 t/m³: By 2050, total national consumption would reach 14.285 million cubic meters of wood including 3,938,380 tons of firewood (5,626,257 m³) and 606.141 tons of charcoal (equivalent to 8,659,157 m³ of wood). Of this total annual consumption, 2,725,813 m³ of wood would be consumed by socio-professionals and the remaining 11,559.602 m³ would be consumed by rural and urban households.

As far as the supply of wood energy is concerned, it is directly linked to the forest areas (natural forest and plantations) as well as to agricultural areas with a minimum number of trees per hectare. Applying a degradation rate of -1.7%, Togo's forest cover would reach 4.603 million hectares in 2030 of which 2,300.911 ha would be natural forest and 52.658 ha would be plantations (BAU scenario-identical to 2017). In 2050, forest cover would reach 3.8 million hectares with a major share of trees outside forests (2,306.522ha) compared to barely 1.5 million hectares of natural forest. Figures 6 and 7 below illustrate the supply-demand balance for wood energy for the period 2017-2050 in the BAU and voluntarist scenarios respectively.

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1 *MEFR , 2011. Report of the socio-economic and environmental study. Project TCP/TOG/3203(D)*

2 *MERF (2010): National Investment Program for the Environment and Natural Resources (PNIERN). Ministry of Environment and Forest Resources (MERF): Lomé, Republic of Togo.*

3 *In-depth study on the dynamics of wood energy use in Togo; 2017*

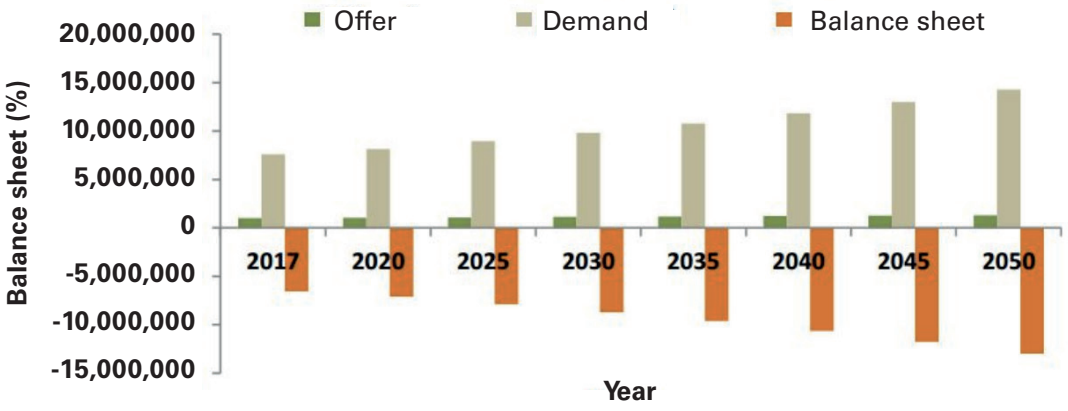


Figure 6: Summary of the supply / demand balance of wood energy for the period 2017-2050 (BAU scenario)

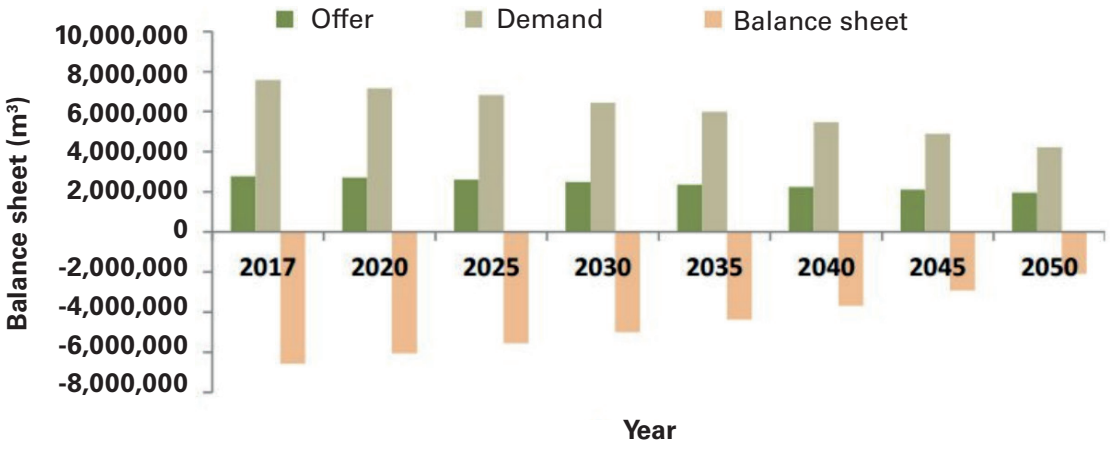


Figure 7: Summary of the supply / demand balance of wood energy for the period 2017-2050 (Proactive scenario)

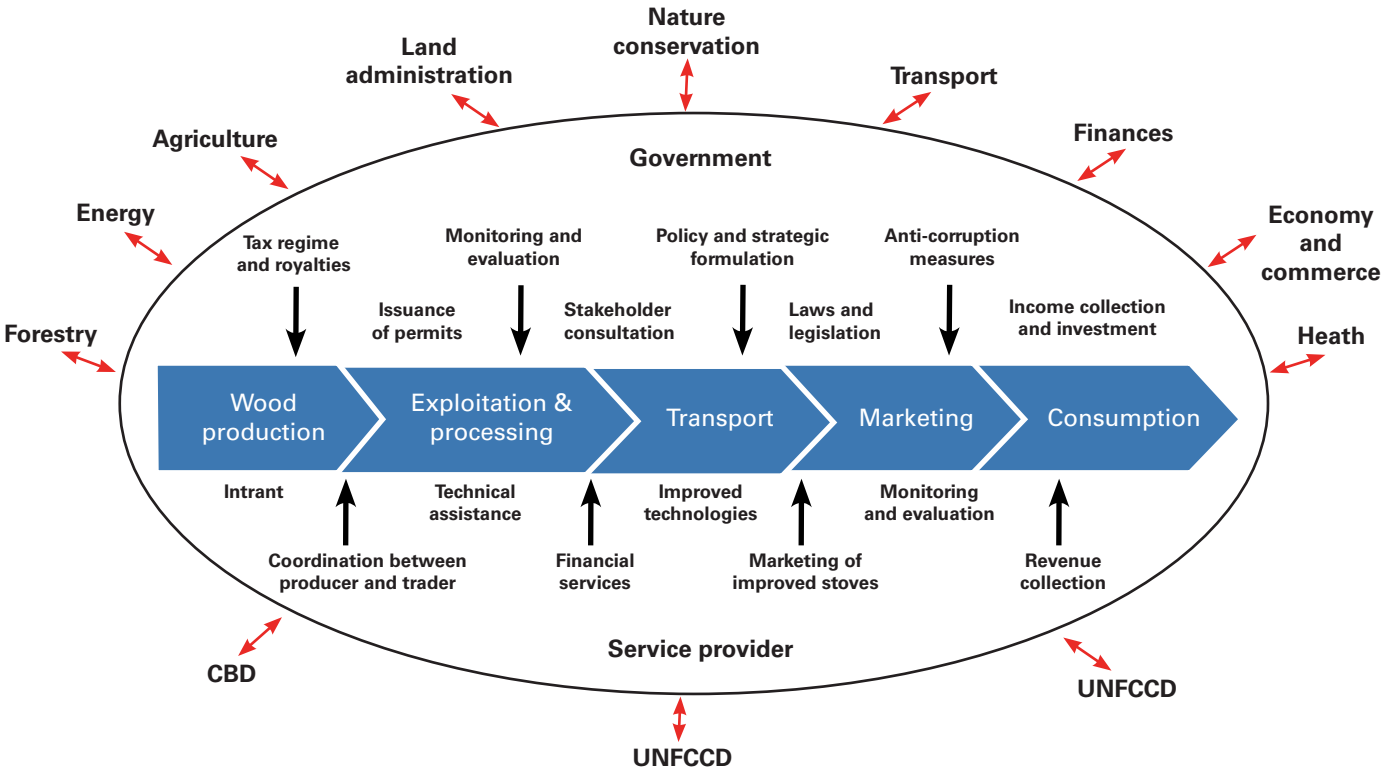


Figure 8: Sectors and main interventions in the wood energy sector in Togo

1.5.4 Non-Timber Forest Products (NTFPs)

Non-timber forest products are of plant and animal origin. Although reliable statistics on production and demand do not exist for this sector, it can be estimated that overall the rate of coverage of demand by national production is still satisfactory and does not require significant imports. However, in the absence of restoration and regeneration measures, non-timber resources are becoming scarce in certain sub-sectors.

NTFPs of plant origin are rich in species for traditional medicinal, fodder, food, cosmetic, etc. use. Thus, the bark, leaves, roots of several plants are used in traditional pharmacopoeia and in socio-cultural rites. The work of Yapi and Sessi (1997) estimated the production of medicinal plants at 15.000 tons per year of which 3.000 tons are marketed. The most frequent uses of NTFP of plant origin are: (i) Food products (vegetables and fruits); (ii) Pharmaceutical and toxic products (leaves, bark and roots); (iii) Fodder products (leaves); (iv) Aromatic and cosmetic products (root, bark, leaves); (v) Biochemical and other products: (Kapok, Gums, Resins, Tannin); (vi) Toothpicks; (vii) Vegetable sponges; (viii) Traditional mats; (ix) Broom trays, cages, vegetable baskets and fans; (x); (xi) Fodder; (xii) Vine. These forest species in Togo are either consumed domestically or traded nationally or even internationally.

NTFPs of animal origin are made up of all living or dead wild animals or specimens from these animals. They populate mainly national parks (Kéran and Fazao), forest reserves (Oti and Mandouri), wildlife reserves, gallery forests and natural formations in mountainous areas, river valleys (Mono and Oti) and protected areas in Togo. It is impossible to give an exhaustive picture of the animals found in Togo. Nevertheless, we can distinguish mammals, reptiles, birds, insects, fishes, etc.

1.6 POLITICAL, LEGAL AND INSTITUTIONAL CONTEXT

1.6.1 National and sectoral strategy orientations in synergy with the REDD+ process

1.6.1.1 National Strategic Directions

Togo has been engaged in a process of developing Vision 2030 since April 2014 and the National Development Plan (PND 2018-2022) which integrate the Sustainable Development Goals (SDGs), particularly SDG 13 «Take urgent action to combat climate change and its impacts» and SDG 15 «Preserve and restore terrestrial ecosystems, by ensuring their sustainable use, sustainable forest management, combating desertification, halting and reversing the process of land degradation and halting the loss of biodiversity». The overall objective of the NDP is to structurally transform the economy for strong, sustainable, resilient, inclusive growth that creates decent jobs and improve social welfare. Other existing sectoral policy and strategy documents that are in synergy with the REDD+ focal areas are presented by sector below.

1.6.1.2 Forestry sector and climate change:

At the national level, Togo has several policy and planning documents to guide actions for sustainable management of forest resources. The strategic orientation framework for the management of forestry issues is governed by two fundamental documents:

(i) the Forestry Policy Declaration adopted by Decree No. 2011-002/PR of 5 January 2011; and

(ii) the 2011 National Forestry Action Plan (PAFN, 2011-2019).

The Forest Policy Statement adopted by Decree No. 2011-002/PR of 5 January 2011 has as its vision «to achieve a forest cover of 30% by 2050, which fully covers its [national] needs for woodfuel, conserves its biodiversity and ensures sustainable protection of areas at risk and wildlife habitats». To achieve this vision, 5 strategic lines of action have been identified:

(i) promotion of sustained forestry production;

(ii) restoration of degraded stands and conservation of biodiversity;

(iii) development of new forestry partnerships;
(iv) improvement of the institutional, legal and legislative frameworks of the forestry sector; and

(v) development of forestry research.

Its ambition is to make the forestry sector a sector for sustainable development and the fight against poverty, and is making a definitive shift towards the transfer of State prerogatives to local authorities and individuals (natural or legal persons, rural or grassroots groups or communities that do not fall into the category of local authorities) by enshrining their full and effective responsibility. As far as the 2011 National Forestry Action Plan (PAFN, 2011-2019) is concerned, it is based on five (05) strategic axes, each broken down into components, including strategic Priority 2 on «Restoration of degraded stands and conservation of biodiversity»; this Priority includes components relating to: «Participatory management of vegetation fires»; «Participatory management of wildlife and protected areas» and «Promotion of sustainable management of wetlands».

Other policies or strategies related to forestry are as follows:

(i) the National Environmental Action Plan (PNAE) of 23 December 1998: It takes into account environmental issues in development policies and programs, including compensatory reforestation;

1 Le Plan national de développement (PND) est le référentiel des actions de développement du Togo qui succède à la SCAPE, arrivée à échéance en 2017.

(ii) the National Strategy for Vegetation Fire Management (SNGFV) of 2010 for a horizon of 2020, provides guidelines on the management of utility fires, with a view to preserving biodiversity, combating land degradation, and mitigating the effects of climate change;

(iii) the National Strategy for Information, Education and Communication (IEC) on the Environment in Togo of September 2010, which aims to raise awareness among the population in order to involve them in reforestation activities, maintenance and protection of forest plantations of the State, communities and even private individuals;

(iv) the 2009 National Strategy for Capacity Building for Environmental Management, which focuses on strengthening environmental awareness in the management of the negative effects of climate change, biological diversity, and the fight against desertification and land degradation;

(v) the 2007 National Strategy for the Conservation, Restoration and Sustainable Management of Mangroves in Togo, which aims at strengthening legal and institutional capacities for the sustainable management of mangrove ecosystems and associated wetlands;

(vi) the 2009 National Strategy for the Reduction of Risks and Natural Disasters in Togo, which aims at reducing risks and natural disasters and strengthening capacities (technical, managerial, material, financial, etc.) for the management of mangroves and associated wetlands;

(vii) the 2009 National Strategy for the Reduction of Risks and Natural Disasters in Togo, which aims at reducing risks and natural disasters and strengthening capacities (technical, managerial, material, financial, etc.) for the management of mangroves and associated wetlands

(vii) the National Strategy for Sustainable Development (SNDD) validated in 2011 has among other strategic orientations to consolidate economic recovery and promote sustainable production and consumption patterns;

(viii) the National Strategy for the Implementation of the United Nations Framework Convention on Climate Change (UNFCCC) in Togo validated in 2005 and updated in 2010;

(viii) the National Reforestation Program for 2017 (PNR 2017-2021) which plans to contribute to the effort to increase national forest cover by 7% in 2021;

(ix) the Strategic Investment Framework for the Management of the Environment and Natural Resources (CSIGERN) 2018-2022;

(x) the National Forest Investment Program (PNIF); and

(xi) the National Biodiversity Strategy and Action Plan (SPANB) 2011-2020 of Togo.

1.6.1.3 Key Sectors Related to Forestry

Current policy and strategy documents in key forestry related sectors are as follows:

Agriculture Sector

- The agricultural policy 2016-2030 adopted on December 30, 2015, has the vision of promoting «modern, sustainable and high value-added agriculture for national and regional food security, a strong, inclusive, competitive economy and generating decent and stable employment by 2030». The objective is to contribute to accelerated economic growth, poverty reduction and improved living conditions, while ensuring social inclusion and respect for the environment. This document covers 4 main areas. The third area deals with «factors that contribute to the prevention and mitigation of climate change-related effects (greenhouse gases GHG, soil and environmental degradation ...)»;

Mining and energy sector

- The vision of the energy sector policy drawn up in May 2017 is: «to ensure, by 2030, that the entire population has access to clean, quality, competitive energy that preserves the environment by doing everything possible to develop an efficient and sustainable energy supply system based on public and private, individual and collective initiatives capable of promoting Togo's economic and social development;"

- The mining policy document is currently being prepared.

Land-use planning sector

- The national land use planning policy, adopted in September 2009, takes into account the environment, particularly forest resources.

Urban planning and housing sector

- Togo's national urban planning and housing policy, validated on October 1, 2014, has as its vision that: «by 2040, Togo's human settlements will be true centers of sustainable development in a context of effective decentralization and good governance."

- The urban planning sector has also adopted a strategy for green spaces and monuments in the city of Lomé. Urban forestry and the planting of public road alignment plantations occupy an important place in urban development plans;

- In addition, a national housing and urban development policy is being drawn up.

Water and sanitation sector

- The National Water and Sanitation Policy (PNEA) has set itself the vision that «By 2030, Togo's water resources will be known, mobilized, exploited and managed in such a way as to guarantee equitable, sustainable and affordable access to efficient water and sanitation services for the entire population and for all uses, in a protected environment, contributing to the sustainable development of the country». Its overall objective is to contribute to the sustainable socio-economic development of the country, through the satisfaction of the needs of all water users, in a healthy living environment, taking into account the preservation of the environment, social equity and the mitigation of the effects of climate change.

- In addition, the National Action Plan for Integrated Water Resources Management (PANGIRE) of July 2010.

Transportation Sector

- The transportation sector is governed by:

(i) a National Transport Development Strategy for Togo adopted in December 2013 that does not integrate the environmental dimension; and

(ii) a National Transport Policy document that is pending adoption.

Industry Sector

- The current industrial policy of the Togolese government aims to develop and sustain an integrated national industry that is internationally competitive, environmentally friendly and capable of significantly improving the standard of living of its population by 2030;

Health sector

- the national health policy adopted in September 1998 has as its main objective to improve the population's access to health care; this document does not take into account the forestry sector either in its foundation and vision or in its strategic orientations. However, the environment is taken into account in its objective 4 «to promote health in an environment favourable to health». However, this reference to the environment is particularly oriented towards sanitation and makes no reference to the forestry sector ;

- the National Health Development Plan (PNDS) 2017-2022 which takes into account the environment in its axes 4 and 5.

Research sector

- research policy is under development ;

Tourism Sector

- The National Tourism Policy was drawn up in June 2008; this document integrates the environment and forest resources into its objectives. The aim of the national tourism policy is to promote a diversified tourism, respectful of the environment, the quality of life and cultures, guaranteeing economic growth.

Culture Sector

- The culture sector has a cultural policy document of Togo and a national and ten-year strategic plan of cultural action for the period 2014-2024. The cultural policy document integrates the environmental dimension, particularly in its chapter 3 on «sectors and areas of cultural events. In chapter 5 several actions are identified in favor of the environment: inventory of all practices and taboos for the preservation and protection of the environment and biodiversity, and the valorization of traditional knowledge and practices. Unfortunately, the national and ten-year strategic plan for cultural action in Togo (2014-2024) does not integrate the environmental dimension.

Education sector

- The Education Sector Plan (PSE) 2014-2025) does not explicitly include forestry; however, school canteens use wood energy for cooking, which is a strong argument for promoting wood energy reforestation in policy documents for this sector.
On the whole, the degree to which environmental issues, and forestry in particular, are taken into account in the policies initiated by the Government varies greatly and their levels of implementation are relatively low. In addition, the policies currently being drawn up provide opportunities to integrate forestry.

1.6.3 Legal Framework

1.6.3.1 International commitments made by Togo

In terms of international commitments related to the REDD+ process and adaptation to climate change, Togo has ratified the three conventions resulting from the Rio Summit. These are:

(i) the United Nations Framework Convention on Climate Change (UNFCCC), ratified on March 8, 1995;

(ii) the Convention on Biological Diversity (CBD), ratified on September 14, 1995; and

(iii) the Convention to Combat Desertification (CCD), ratified on September 15, 1995.

In addition to the ratification of the Rio Conventions, a series of agreements related to the environment and climate change, among others, have been ratified since 2004:

(i) the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer;

(ii) the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;

(iii) the Stockholm Convention on Persistent Organic Pollutants ;

(iv) the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade;

(v) the Kyoto Protocol on Climate Change;

(vi) the Cartagena Protocol on Biosafety; and

(vi) the Paris Agreement.

Togo has also signed other conventions at the international level. These are the Convention on International Trade in Endangered Species of Wild Fauna and Flora (C.I.T.E.S.) and the Convention on Wetlands of International Importance especially as Waterfowl Habitat. It is also worth noting the existence, at the sub-regional level, of the Convergence Plan for the Sustainable Management and Use of Forest Ecosystems in West Africa.

1.6.3.2 National legal corpus related to forestry

The management of forest resources at the national level is based on a legal framework defined by the Togolese Constitution of 14 October 1992, the laws and regulatory texts relating to the environment and forest resources and the key related sectors.

• Togolese Constitution of 14 October 1992

The current constitution enshrines the citizen's right to a healthy environment, as well as other rights more or less directly related to the environment. To this end, the Togolese Constitution has raised the environmental issue to the rank of a constitutional value and places on the State the fundamental obligation to protect the environment. The Constitution is therefore the primary legal tool serving as a framework for the development of actions conducive to the conservation of biodiversity in general and the conservation of forests in particular.

• Legislation related to forestry

The two main pieces of legislation governing forestry are Law No. 2008-005 of 30 May 2008 on the Framework Law on the Environment and Law No. 2008-009 of 19 June 2008 on the Forestry Code.

The Framework Law on the Environment sets the general legal framework for environmental management and states in Article 3 that «Togolese citizens have the right to a healthy environment and have a duty to contribute to its preservation and improvement, since the Togolese environment is a «national heritage» that is an integral part of the «common heritage of humanity». This law therefore recognizes that the effective implementation of actions to safeguard the environment requires the involvement of the population (Articles 24, 25 and 26); hence the importance of the partnership that must exist between the State, local authorities, associations and NGOs in environmental matters. It has the merit of having taken into account the fundamental principles of the Rio Declaration of 1992 and placed particular emphasis on participatory management. The Forestry Code is essentially devoted to the management of flora and fauna in Togo. The aim of the Code is to «define and harmonise the rules for the management of forest resources in order to achieve a balance between ecosystems and the sustainability of the forest heritage». The Code contains relevant provisions not only for the management of state forests but also for forests belonging to private individuals. It should also be noted that four (04) implementing texts on community forestry have been adopted. These include Order N°060/MEFR/SG/DRF of 13 June 2016 defining the procedure for the creation or allocation and management of community forests, and Order N° 057/MEFR/SG/DRF of 13 June 2016 establishing the framework for a simple management plan for community forests, Order No. 058/MEFR/SG/DRF of June 13, 2016 setting out the framework for the community forests agreement and Order No. 059/MEFR/SG/DRF of June 13, 2016 setting out the framework for the community forests charter.

In addition, the decree setting up the national fund for forestry development is currently being revised with a view to making it more operational and effective. This fund enables the State to support private initiatives within the framework of the development of privately-owned woodlands. The existence of this fund thus constitutes an opportunity for financing private plantation initiatives and community forests, or even local authorities.

With these texts, the forestry administration is reinforced in its role as forest police and is given a new role, that of advising local authorities and private individuals on sustainable forest management. This orientation has many consequences for the methods and tools of work of forestry agents.

Major challenges need to be met in order to define a coherent framework for encouraging, channelling, approving and controlling future forest management initiatives by decentralised local authorities (CTDs) and private individuals. One important provision mentioned in these texts is that «all State forests must be subject to a management plan approved by decree by the Council of Ministers» since «this management plan defines the objectives assigned to the forest or afforestation and specifies the methods of exploitation». These texts also stipulate that the State must assist private individuals in their investment, management and improvement projects for their woodlands through subsidies, loans and tax incentives.

Consequently, the current forestry law considers three different statuses: the State's forest estate, the forest estate of local authorities and the forest estate of private individuals.

Despite the adoption of the framework law on the environment and the forestry code, several planned regulatory texts have been slow to emerge. Furthermore, several forests and protected areas are only considered to be classified de facto because there is no legal instrument that legally enshrines their existence. The text relating to the special status of the body of water and forestry agents has not been adopted. In the new code, repressive measures are not clearly defined in relation to infringements. The ranges of fines are not proportional to the degree of infringement or damage caused to forest resources.

In addition, other constraints to enforcement include insufficient coordination of environmental management actors, non-compliance with legal and regulatory provisions by certain forestry officials and, above all, corruption among certain officials and decision-makers. These factors influence the rational management of forest resources. The lack of mastery by the majority of forestry officials of the texts adopted and the insufficient knowledge of these texts by other stakeholders have a major influence on the management of forest resources.

- **Regulatory texts related to the sustainable management of forests and forest plantations in Togo.**

The main regulatory texts for the protection and sustainable management of forests and forest plantations in force in Togo relate to the decrees and orders below.

Decree n°2017-040/PR of 23 March 2017, specifies the procedure, methodology and content of environmental and social impact studies. This decree sets out the list of works, activities and planning documents that are subject to a prior impact study to assess their effects on the environment. It contributes effectively to the protection of forests, sensitive areas, wetlands and protected areas. Decree n°2011-142/PR regulating the import, export, re-export and transit of timber forest products requires approval for all import, export, re-export and transit operations. This decree makes it possible to implement certain provisions of the Forestry Code and to protect forest species through conservation acts.

Decree No. 2009-092/PR of 22 April 2009 on the organisation and functioning of the National Forest Development Fund (FNDF) sets out the organisation and functioning of the National Forest Development Fund. The resources of this fund are «exclusively allocated to the financing of operations for the protection and development of forest resources» through the elaboration of forest management plans in the permanent forest estates of the State, local authorities and private individuals. Unfortunately in practice, the resources of this fund are not always used in accordance with the above-mentioned objectives.

Decree No. 2009-302/PR on the regulation of utility and early fires has the merit of providing a legal basis for actions to prevent and limit the damage caused by wildfire to private forests and plantations. However, it is still very inadequate from the point of view of the contradictions and silence kept on important aspects relating to fires. Within the framework of the vegetation fire prevention mechanism, the decree refers only to early fires. It does not provide for incriminating behavior in protected areas or private estates, which are likely to trigger fires. There is also a lack of accountability and involvement of local authorities.

Order No. 002/MEFR of March 25, 2004 defines the methods of application of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Togo. It is noted that almost all of the actions are more oriented towards the protection of wildlife species than those of flora. From this it appears that Togo does not have a specific law on CITES as recommended by the Convention. Furthermore, the carrying out of studies on wild flora species at the national level provides a database of the different existing species. On the basis of such studies, actions could be undertaken to enhance the value of community forests which are home to important species of flora threatened with extinction.

Order n°041/MEFR/SG of 05 December 2011 regulating the import, export, re-export and transit of timber forest products. The provisions of this decree specify the conditions necessary to obtain the required authorisation. Service Note n°295/MEFR/SG/DAC/DBL of December 11, 2006: Within the framework of the exploitation of State teak plantations, it is required that 15% rebates be paid to the populations living near the State forests. This note sets the distribution of tax revenue at 75% for the special account of the Ministry in charge of forest resources and 25% for the Public Treasury. In reality, part of the forestry tax revenue is paid into the Public Treasury, while another part is managed by the forestry administration, notably ODEF, which reinvests it into the sector. Prefectures, through their town halls, collect loading taxes on wood products from their areas in application of the law on decentralisation.

These different legal texts may inspire the adoption of incentive measures, such as, among others, the partial or total exemption of certain taxes related to the exploitation in favor of communities or owners of private plantations.

• Land tenure legal framework in relation to sustainable forest management in Togo.

The legal framework for land tenure in Togo is characterized by customary practices and the provisions of modern law.

Togolese customary land law is based on regular practices that are established as rules and that are organized and maintained over the years. These practices were introduced into modern law inherited from colonization, as a basis for access to and appropriation of land. Three essential customary practices confer the right of ownership on its holder. These are the right to land by life exploitation, the right to land by donation of a land estate, and the right to land by occupation and development (exploitation) of the land. However, these customary practices are currently encountering difficulties insofar as members of each clan are proceeding with the subdivision of properties that used to be common for private use or sale, which is a source of land insecurity for those involved in reforestation.

Modern land tenure law comprises a set of legal texts, most of which are inherited from colonization. The Togolese Constitution of 14 October 1992 enshrines the right to property. It can only be infringed upon for legally recognized public use and after fair and prior compensation. No one may be dispossessed of his property except by virtue of a decision taken by a judicial authority. The Land Code adopted by the National Assembly in June 2018 will remove the constraint on the operationalisation of property rights, which is necessary to promote the extension of forest areas. The adoption of the present land code repeals the provisions of the decree of July 24, 1906. However, its effective implementation is conditioned by the setting up of the organs provided for and the adoption of implementing decrees. As stipulated in article 716 of the new code, the procedures initiated under the decree of 24 July 1906, before its publication in the official gazette, will apply for the next five years on a transitional basis.

The Decree of 24 July 1906 on the organization of the land tenure system in French West Africa enshrines the legal dualism in land tenure matters, recognizing the coexistence of customary and modern land tenure law in Togo. This is both a strength and a weakness at the same time, since customary land tenure law continues to be applied alongside modern land tenure law whose forms, procedures and costs make its application difficult. Indeed, for the legal security of their properties and possible requests for internal or external support, the decree requires landowners to have a land title. Nowadays, although the procedures for obtaining land titles have been simplified and the costs have been reduced, the difficulties persist because most farmers are not familiar with the procedures of the new reforms.

Moreover, through the provisions of Ordinance No. 12 of February 6, 1974 establishing the land and state land tenure system, the land that has remained unexploited is the property of the State, of which it constitutes the national land estate. Uncultivated land is land that has not been cultivated or developed for more than ten consecutive years. Mere deforestation is not considered as an act of development. Contrary to the land reforms introduced elsewhere in Africa after independence, the Togolese land reform, inaugurated by the ordinance of 6 February 1974, did not carry out a wholesale nationalization of land. The inadequacies and shortcomings of the 1974 ordinance were taken into account in the new code by the National Assembly in June 2018.
The question of the organisation of land tenure is essential for any initiative for reforestation and sustainable forest management, as well as for applications for subsidies, aid and the benefits of carbon credits. Indeed, the granting of a credit requires guarantees and the guarantee par excellence is the real estate security. Secured real estate transactions are therefore a guarantee that reassures national and international investors.

• Legal framework of the main related sectors

Agriculture and livestock sector

- Decree No. 77-165 establishing the Interministerial Commission for Land and State Reform.
Mining and energy sector

- Law n° 2011-008 of May 05, 2011 relating to the contribution of mining companies to local and regional development.

- Law n°96-004 relating to the mining code of the Togolese Republic modified by law n°2003-012 of October 14, 2003;

- Decree N° 2016-064/PR 11/05/2016 on the creation, attributions, organization and functioning of the Togolese Rural Electrification and Renewable Energy Agency

- Interministerial Order No. 038/MME/MCIA of March 23, 2007 on accounting for energy sources consumed in Togo;

Water sector

- Law No. 2010-004 of June 14, 2010 on the Water Code is the basic text for the management of the water sector. This code sets in its article 1 «the general legal framework and the basic principles of integrated water resources management (IWRM) in Togo» and «determines the fundamental principles and rules applicable to the allocation, use, protection and management of water resources».

Land-use planning sector

- Law n°2016-002, of January 4, 2016, on the framework law on land use planning ;

- Decree No. 2010-005/PR of January 21, 2010 on the National Commission for Development and Spatial Planning.

1.6.4 Existing consultation and steering frameworks related to climate change and the REDD+ process

The main existing frameworks for consultation and steering on climate change are:

The National Commission for Sustainable Development (NCSD) and the Local Commissions for Sustainable Development (LCSD): Created by Law N°2008-005 of May 30, 2008 on the framework law on the environment and established by decree N°2011-016/PR of January 12, 2011, the National Commission for Sustainable Development (NCSD) is the consultation body responsible for monitoring the integration of the environmental dimension in development policies and strategies. It ensures the respect and implementation of international conventions relating to the environment ratified by Togo and the national sustainable development strategy. It is composed of representatives of public and private institutions, local authorities, NGOs and other legal entities. It is deconcentrated at the regional and local levels. These are the Local Commissions for Sustainable Development (LCSD), notably the Regional Commissions for Sustainable Development (RCSD), the Prefectural Commissions for Sustainable Development (PCSD) and the Communal Commissions for Sustainable Development (CCDD). The operationalization process of the CCSD is underway and 36 PSDCs are already established and operational with the support of this REDD+ readiness project. They are the relays for consultation of stakeholders in the REDD+ process at the regional, prefectural and grassroots community levels. In the grassroots communities, coordination of actions is ensured by Village Development Committees (VDCs) or Neighborhood Development Committees (NDCs), which are federated at the cantonal level into Cantonal Development Committees (CDCs).

The institutional set-up for implementing the Green Climate Fund in Togo: The Directorate of Environment plays the role of the designated National VCF Authority. It was set up by order N° 0078/MEFR/SG/DE of June 20, 2017 and ensures, among other functions, the issuance of the letter of no objection for the submission of projects and the institution to be accredited and ensures the application of access modalities and procedures.

The National Committee on Climate Change (NCCC) established on April 28, 2005 by order N°011/MEFR. It comprises 4 bodies: the plenary committee; the committee bureau; the technical commission; and the technical secretariat. This committee is the framework for information, consultation and monitoring of the implementation of the national policy on climate change, the UNFCCC and all related instruments including the Kyoto Protocol. The committee is composed of representatives of public, private and civil society institutions.

Coordination Committee for the process of developing nationally determined planned contributions (CPDN): The institutional framework for steering the process of developing CPDN in Togo was established by interministerial decree No. 002/MEFR/MMEFPD of 14 August 2015 on the creation, organization and functioning of the coordination committee for the process of developing nationally determined planned contributions. A national committee for monitoring the implementation of the NDCs was also created.

The Technical Committee for Coordination of the Process of Integrating Climate Change Adaptation: Established by interministerial order N°008/14/MPDAT/MEF/MEFR of July 21, 2014, the Committee's mandate is to coordinate the process of integrating climate change adaptation into planning and budgeting in Togo.

The Institutional Framework for the preparation of the Third National Communication on Climate Change (TNCCC): It includes the Steering Committee, the TNC Project Coordination and the multidisciplinary team. As far as the steering committee is concerned, it was set up as part of the process of preparation of the Second National Communication on Climate Change (DCNCC) by Ministerial Order N°04/METRF of February 1, 2008, and steered the preparation of the TNCCC.

1.6.5 Existing consultation and steering frameworks related to climate change and the REDD+ process

The main actors involved in the REDD+ process are as follows:

• The institutions of the Republic, in particular the Presidency of the Republic, the Prime Minister's Office and the National Assembly;

• The Ministry of Environment, Sustainable Development and Nature Protection (MESDNP) is the lead ministry for the REDD+ process, National Communications on Climate Change and Nationally Determined Contributions (NDCs). Its main technical services involved in the REDD+ process are:

- The Directorate of Studies and Planning (DEP) is in charge of monitoring the implementation of strategies and programs for the preservation of the environment and forest resources. It is also in charge of mobilizing external resources in conjunction with the structures of the Ministry of Development Planning and Cooperation, as well as the Ministry of Economy and Finance.

1 *MERF, 2016 «Diagnostic analysis of the political, legal, institutional and human frameworks and mechanisms for implementing the incentives provided for in the Forestry Code for the implementation of the national reforestation programme»; Programme TCP/TOG/3502 (PNR).*

2 *Subdivision means the parcelling out of land holdings*

- The Directorate of Environment (DE) is the implementing agency for the UNFCCC and all instruments. As such, it is in charge of, among other things, monitoring the implementation of the national policy on climate change, coordinating the implementation of plans and strategies in the fight against climate change. It also ensures the role of the designated national authority for the GCF.

- The Forest Resources Directorate (DRF) is the Centrale service that deals primarily with forest resources within the Ministry, namely logging, reforestation, transport of forest products, protected areas, sustainable management of forests and forest plantations.

- The Forest Resources Inspectorate (IRF) is responsible for controlling the exploitation of forest resources;

- The Directorate of Administrative and Financial Affairs (DAAF) is responsible for the administration and finance of the Ministry;

- The National Environmental Management Agency (ANGE): intervenes in environmental and social assessment, policies, plans, strategies, programs and projects;

- The Office for the Development and Exploitation of Forests (ODEF) houses the REDD+ process coordination unit, is the delegated project owner of the REDD+ project and manages the State's plantations.

• Coordinating and sectoral ministries, especially those responsible for: economy and finance; development planning and cooperation; environment, sustainable development and nature protection; agriculture, animal and fish production; grassroots development, handicrafts and youth; infrastructure and transport; higher education and research; trade, transport, industry, private sector development and promotion of local consumption; social action, the promotion of women and literacy; territorial administration, decentralization and local communities; security and civil protection; mines and energy, cities, urban planning, housing and public health; health and public hygiene; justice; national education, water, rural equipment and village hydraulics.

• Research and support and advisory institutions, such as the Togolese Institute for Agricultural Research (ITRA), the Institute for Technical Advice and Support (ICAT) and public and private universities in Togo.

• Civil society actors have set up consultation platforms that enable them to carry out concerted and coordinated actions and participate effectively in the REDD+ process. These are:

(i) the National Council of Civil Society Organizations for Sustainable Development (CNODD), which is the national NGO platform on REDD+ with branches at the regional level;

(ii) the Consortium Femmes REDD+ Togo (CF-REDD+ Togo), which is a national platform of women's organizations; and

(iii) the Platform of Private and Community Forest Owners of Togo (PFPC), which brings together the Association of Private Forest Owners for the Preservation of Natural Resources (Afrique verte Togo): AVT), the Association of Private Planters of Togo (APPT) and the Community Forest Network of Togo (RFCT).

Youth also participate in the REDD+ process through the National Youth Council (CNJ), with branches at the regional and prefectural levels. Disabled people also participate, through the Togolese Federation of Associations of Disabled People (FETAPH) and the national organization for accessibility, work and employment of disabled people in Togo (ONATEPH-Togo).

• Private sector actors (timber sector union, association of private reforesters/planters, the national working group on sustainable forest management), the Large Forest Companies (GEF) are also involved in the REDD+ process, as well as the network of tree nurseries in Togo (RPT) ;

• Local authorities and traditional chieftaincy;
the umbrella organizations and platforms of grassroots organizations in the various sectors, represented by the Togolese Coordination of Farmers' Organizations and Agricultural Producers (CTOP) as their national platform and CROPPAs (Regional Coordination of Farmers' Organizations and Agricultural Producers) as platforms at the regional level.

1.7 INITIATIVES CONSTITUTING STRENGTHS AND OPPORTUNITIES FOR THE REDD+ PROCESS IN TOGO

1.7.1 Strengths

On the legal and regulatory level

Concerned about the sustainable management of its forests, Togo has signed conventions at the international and national levels. Thus a number of legal and regulatory provisions aimed at reducing the continuous deforestation and degradation of forest resources by internationalizing the Multilateral Environmental Agreements (MEAs). Indeed, the provisions of the Togolese Constitution guarantee the protection of natural resources; in addition, Togo has adopted, among others, the Forestry Code (Law N°2008-009 of 19 June 2008) with a view to reorganising the sector for the integrated, participatory and sustainable management of forest and wildlife resources and a framework law on the environment (Law N°2008-005 of 30 May 2008); all these measures in force are provisions in favour of the protection of biodiversity and the development of plant cover.

Other specific initiatives in favor of the REDD+ process are the following:

(i) existence of the Forestry Code whose provisions enshrine the concept of private forest estates;

(ii) ratification of international conventions and agreements relating to forest resource management (ITTO, ATO, CBD, RAMSAR, UNCCD, ABS, UNFCCC) allowing the mobilization of resources and technical means to the various structures involved in reforestation at the national level;

(iii) adoption of the new Family Code which facilitates women's access to land;

(iv) adoption of the texts on Environmental and Social Impact Asessments (ESIAs) and the need to obtain a certificate of environmental and social compliance before the start of work since 2006, which is a regulatory provision conducive to the restoration of mining sites that have been exploited;

(v) signature of the Paris Agreement on September 19, 2016 and the favorable vote in the National Assembly on the ratification of this agreement on May 23, 2017;

It should also be noted that in order to create the conditions for countries to take full advantage of the available financing opportunities, the Green Climate Fund (GCF) has put in place a preparation process through which countries can benefit from financial support. At the national level, the preparation process was launched in March 2017, in order to facilitate the mobilization of financial resources, and has made it possible:

(i) to propose the legal framework for the establishment of the Fund's governance bodies, in accordance with the Fund's guidelines;

(ii) to organize a series of training workshops on the procedures for accessing the Fund and preparing projects according to the Fund's model frameworks; and

(iii) to prepare and adopt the country program.

At the level of forest management policy and strategy framework

Strengths in terms of policy framework and forest management strategy include the following:

(i) availability of policy documents, plans, strategies and programmes relating to forests providing information on the State's policy on forest management;

(ii) carrying out a national forest inventory which has made it possible to identify the forest potential for better guiding decisions;

(iii) awareness-raising activities carried out among the population for the protection of forest ecosystems, the safeguarding of the environment and reforestation;

(iv) existence of a community forestry management manual proposing a mechanism for securing land tenure and sustainable resource management.

At the institutional level

The following initiatives are noteworthy:

(i) the existence of a ministerial department in charge of forest resources with decentralized services in the different regions and prefectures of the country;

(ii) the existence of a national forestry research center;

(iii) the existence of the National Forestry Development Fund (FNDF) and the National Environment Fund (FNE) which can finance forest protection, conservation and production activities;

(iv) institutional reforms in the energy sector through the creation of the Togolese Rural Electrification and Renewable Energy Agency (AT2ER) in 2016, to support its policy of developing energy services based on «access to energy for all»; this new institution is in its operational phase and will be responsible, among other things, for implementing the solar energy development programme (PROVES);

(v) the private sector's enthusiasm for reforestation;

(vi) the commitment of actors such as NGOs and associations to reforestation to increase the country's forest cover;

(vii) the structuring of planters into groups, associations and federations to coordinate all actions and make them more effective through the synergy of resources and the design of joint projects;

(viii) existence of public, private and community media organizations (television, audio visual, print and online media) whose capacities have been strengthened within the framework of recent projects for the sustainable management of natural resources;

(ix) adoption of the Land Code by the National Assembly in June 2018.

1.7.2 Opportunities

One of the greatest funding opportunities is the creation of the latest financial mechanism among the Multilateral Environment Funds, the Green Climate Fund, under the United Nations Framework Convention on Climate Change. This fund aims to make available to developing countries 100 billion US dollars per year from 2020 for the financing of programs and projects to reduce greenhouse gas emissions and adapt to climate change, particularly in the Least Developed Countries (LDCs), including our country Togo. Other opportunities are as follows: existence of a number of climate funds including the Global Environment Facility (GEF);

(i) availability of Technical and Financial Partners (TFPs) to accompany the State in the development of the forest sector and other related sectors;

(ii) existence of other funds for financing projects and programs for mitigation, adaptation and sustainable development including GCCA;

(iii) growth of legal mechanisms to encourage reforestation;

(iv) existence of certification mechanisms for products from sustainably managed forests, a source of added value;

(v) existence of the REDD+ mechanism at the global level;

(vi) development of the carbon market as a source of financing.

In addition, the country hopes to install 300 mini-solar power plants in PPP mode (public-private partnership) and strengthen the Cizo (off-grid) coverage by connecting 555.000 households via kits. The ambition is also to connect 800.000 households to the existing electricity grid, either by extending the network to nearly 1.000 localities or by densifying the network. To meet this demand for additional energy, Togo will develop projects for the production of renewable electrical energy (solar and hydroelectricity, in particular); this will have a positive impact on reducing the pressure on the use of wood energy.

CHAPITRE II

DIAGNOSTIC ANALYSIS OF DEFORESTATION AND FOREST DEGRADATION IN TOGO

This chapter aims to provide a comprehensive analysis of the drivers, determinants and issues of deforestation and forest degradation in Togo and addresses the following themes to contribute to this analysis:

(i) Anthropogenic sources of GHG emission/absorption related to forests and land use change and impacts;

(ii) Historical analysis of forest cover in Togo;

(iii) Mapping of land use and land use change;

(iv) Spatial and temporal analysis of the causes of deforestation and degradation;

(v) Prospective analysis of deforestation;

(vi) Descriptive analysis of the causes of deforestation and forest degradation;

(vii) Challenges to be addressed.

BOX 3: DEFINING THE CONCEPTS OF DEFORESTATION AND FOREST DEGRADATION

Deforestation literally represents a transitional phenomenon that leads to the transition from a «Forest» state to a «non-Forest» state. According to the definition of the forest accepted within the NFI, several types of disturbance can lead to the phenomenon of deforestation: (i) Reduction of the area of a forest plot below 0.5 hectares; (ii) Reduction of the percentage of cover below 10%; and (iii) Reduction of the height of trees below 5 metres and not having the capacity to do so in situ ;

Degradation, on the contrary, does not imply a state of transition leading to an area being considered as non-forested. Thus degraded forests remain forests. Forest degradation can therefore take place through the following 3 mechanisms:

(i) Reduction of the area of a plot that does not fall below 0.5 hectares;

(ii) Reduction of the percentage of cover but which does not fall below 10%;

(iii) Reduction of the height of trees below 5 metres without them being able to reach this threshold again.

It should be noted that forests can undergo sequential dynamics of degradation and then deforestation. Prolonged pressure on a forest, or continuous degradation on the same piece of forest can lead to a situation of deforestation. Thus, quantifying the phenomena of deforestation and, what is more, degradation can be very complex. While deforestation can be reliably apprehended thanks to the technological progress made in recent years, degradation remains a relatively thorny issue as long as it can involve subjective criteria and multiple dimensions (economic, ecosystemic, etc...) and its characterisation is not binary.

2.1 ANTHROPOGENIC SOURCES OF FOREST-RELATED GHG EMISSIONS/ REMOVALS AND LAND-USE CHANGE AND IMPACTS

2.1.1 Forestry and other land use: main sources of GHG emissions in Togo

Anthropogenic emissions and removals by sources and sinks of GHGs not controlled by the Montreal Protocol estimated in 2013 under the First Biennial Update Report on Climate Change (BUR), cover direct gases (CO2, CH4, N2O) and indirect gases (NOx, CO, NMVOCs and SOx) in the Energy, Industrial Processes and Product Use (IPUP), Agriculture, Forestry and Other Land Use (AFOLU) and Waste sectors. These emissions by gas in 2013 are as follows:

- Direct GHG: CO2: 9,669.830 Gg; CH4: 126.406 Gg and N2O: 16.899 Gg;
- Indirect GHGs: CO: 1033.910 Gg; NOx: 21.055 Gg; NMVOCs: 39.015 Gg and SO2: 3.096 Gg.

Overall, the AFOLU sector emitted in 2013, approximately 17108.5 Gg of CO2, 105.5 Gg of CH4 and 16.4 Gg of N2O as direct GHGs.

Of these global emissions, the forestry and other land use sub-sector dominates the emissions with 17095.5 Gg of CO2, 53.1 Gg of CH4 and 15.47 Gg of N2O, respectively almost 100% for CO2, 50.3% for CH4 and 94% for N2O. The main key sources of CO2 emissions in the Land Use, Land Use Change and Forestry (LULUCF) sector are: loss of living biomass due to the conversion of forest land to cropland: (51%); woody biomass removal from forest land (39%) and tillage on cropland (10%).

2.1.2 Socio-economic and Forestry Impacts of Climate Change

Climate projections made within the framework of the TNCCC show that all natural ecosystems, i.e. natural forests and wooded Savanes, would no longer exist by 2100.

The increase in the surface area of managed ecosystems cannot be achieved without an incursion into forests and savannas. In the future, Togo will have to face increasing needs for wood and other non-wood forest products. The reduction in the supply of plant and forest products and thus in the supply of towns and cities may lead to social tensions, even socio-political crises, loss of income for those involved in the timber sector and land degradation. This would compromise the country's 2011 policy statement which aims to extend the country's forest area to 30% of the total surface area by 2050. It should also be recalled here that the disappearance of natural areas would not only be due to land conversions as a result of human activities. These losses have also been associated with the desertification process which threatens the whole of West Africa.

At the socio-economic level, there will also be a decrease in the contribution of forestry to national GDP. Other effects would be as follows:

(i) Loss of forest land with no (or limited) possibility of recovering vegetation cover;

(ii) Shortage of wood, all sectors combined (mainly energy wood, timber and service wood);

(iii) Increase in greenhouse gas emissions due to the disappearance of CO2 storage sinks;

(iv) Loss of biodiversity;

(v) Loss of wetlands with loss of fisheries production.

2.2 HISTORICAL ANALYSIS OF FOREST COVER IN TOGO

The historical analysis of forest cover in Togo was made on the basis of the results of the interpretation of aerial photos 1976 - 1985 compared with those of RapidEye 2013-2014 and Landsat 1988- 2015 images, carried out by MEFR in 2017, as part of the process of developing the REDD+ strategy in Togo. According to the established typology, remote sensing data processing allowed to obtain the surfaces of the different land use categories in Togo at the different dates of the study. They also make it possible to assess land use changes during the different periods covered by these data. The processing and interpretation stages of the aerial photos are recorded in figure 9.

Annex 5 presents tables of forest area changes from 1976-1985 to 2013-2014 based on the interpretation of historical aerial photos and recent RapidEye satellite images. Annex 6 shows the changes in forest area from 1988 to 2015 based on interpretation of Landsat satellite images.

The interpretation of these various remote sensing data has provided important information on the evolution of Togo's forest cover for the period from 1976 to 2015. The results reveal, on the whole, a downward trend in the national forest cover.

Figure 9: Steps for processing and interpreting aerial photos

Phases	Implementation activities	Steps / Comments on activities
Phase 1	Inventory and reception of aerial photograph negatives	A total of 4.557 negatives were received, i.e. 140 kg of boxed packages and transported by DHL to the photogrammetry laboratory in Germany. The packs of negatives have been labeled specifying the number and numbers of negatives contained in each pack
Phase 2	High resolution scanning	Reorganization of photos according to the flight plan and the air missions carried out. - Reduction of artefact deposits by specific cleaning of the negatives due to the poor conservation of these negatives - Scanning of the negatives at very high resolution at 1200 dpi (Dot per Inch), the intensity of the output image of which is recorded in 8 bits, i.e. 256 levels of gray, then compressed in «Tiff» format
Phase 3	Geo-referencing and ortho-rectification	The photographs ortho-rectified by the nearest neighbor method then become traceable. thus allowing the realization of a mosaic
Phase 4	Assembly of geo-referenced photos into continuous mosaics	- Constitution of a geographic continuum - Mosaic of the various image tiles with iterative correction of any shifts along the suture lines - Application of radiometric equalization - Definition of a grid allowing the division of the image mosaic into treatable scenes
Phase 5	Interpretation of orthophoto scenes	- Development of the interpretation key - Numerical segmentation of scenes using the «Berkley Image Segmentation Tool» (BIS) software - Visual interpretation of images in a free GIS environment (AGIS) - Field verification and validation of the interpretation - Analysis of changes on the crossing of data from the interpretation of orthophotos and RapidEye images

2.2.1 Analysis of forest dynamics using aerial photos and RapidEye images

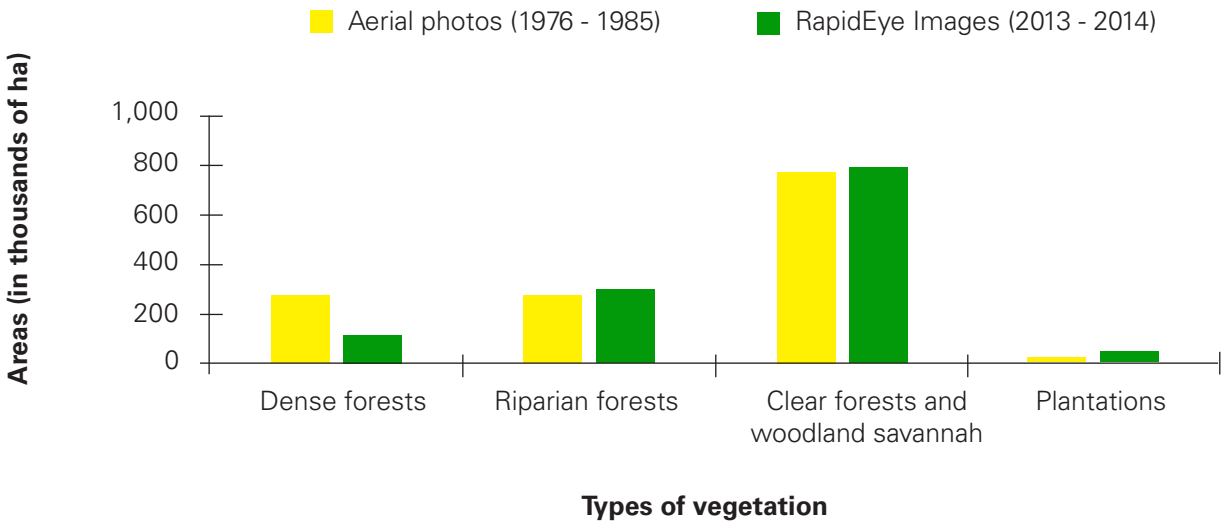
The analysis of forest dynamics is limited to the area simultaneously covered by aerial photos (covering 90.17% of Togo) and RapidEye satellite images (covering 100% of Togo, i.e. 90.17% of the national territory (referred to hereafter as «common interpreted area»), varying from 82.25% for the Centrale Region to 95.61% for the Kara Region. The differences with the results published by the Programme Appui au REDD+-readiness and forest rehabilitation in Togo (ProREDD) of MEFR with the support of the GIZ are due to this constraint, which does not make it possible to give an opinion on the historical forest cover of 560.125 ha of land and its evolution.

At the national level

On the basis of the «interpreted common area» of 90.17% at the national level, it appears that Togo had an estimated forest cover rate of 25.30% of the national territory between 1976 - 1985. This rate of forest cover decreased by 48.805 ha to 24.39% between 2013 - 2014 (Figure 10).

Analysis by forest stratum shows that between the period 1976 - 1985 and that of 2013 - 2014, dense forest cover decreased by 157.990 ha to 118°035 ha between 2013 - 2014, a regression rate of 25.29°%. This regression can be attributed to the conversion of these forests to agricultural land and open forests through logging. At the same time, there has been an increase in the area of open forest and wooded savannah, which stood at 786.045 ha, i.e. an increase of 1.42% between the two periods, corresponding to 10.968 ha. As regards plantations, a craze for reforestation was noted between the two periods. This craze has increased by more than 100% the area of plantations, which was 19.405 ha between 1976 - 1985, to 47.756 ha between 2013 - 2014. An increase was also noted in the evolution of the area of riparian forests. In fact, this forest stratum, which occupied 229.468 ha between 1976 - 1985, has seen its surface area increase to 301.334 ha up to the period 2013 - 2014, which corresponds to an increase of 31.32 %.

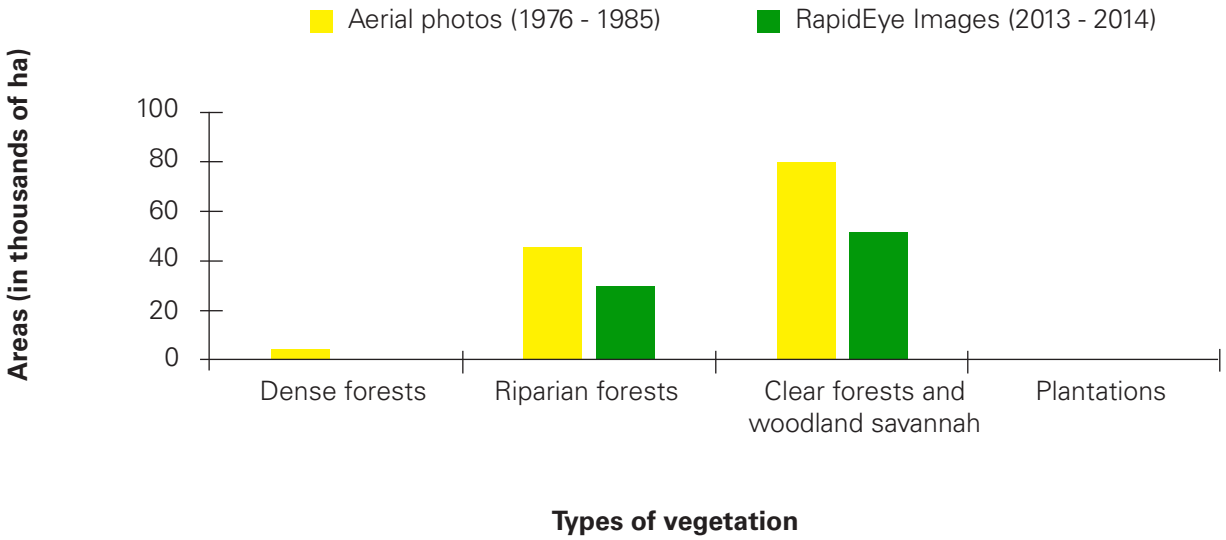
Figure 10: Evolution of forest strata in Togo during the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images



In the savannah region

In the savannah region, the variation in forest cover was estimated at 48.198 ha, representing a regression rate of 37.35 percent between the periods 1976 - 1985 and 2013 - 2014. All the forest strata have seen their surface areas decrease in this region. This situation can be explained by the adverse effects of climate change, given its geographical location. Indeed, it is the most exposed region of Togo because it enjoys a Sudano-Sahelian climate. The forest stratum that has been most affected by this reduction in area is that of open woodland and wooded savannah which has lost about 29.496 ha of its surface area between 2013 - 2014 compared to the period 1976 - 1985. This change corresponds to a rate of decrease of 36.80%. This is followed by riparian forests (32.68% loss of area). Even dense forests whose presence is marginal, in terms of area, have seen their surface area decrease by 93.13% compared with 27.48% for plantations (Figure). It should be recalled that the «interpreted common area» of the region for the two types of remote sensing data concerned by this analysis is 89.69%.

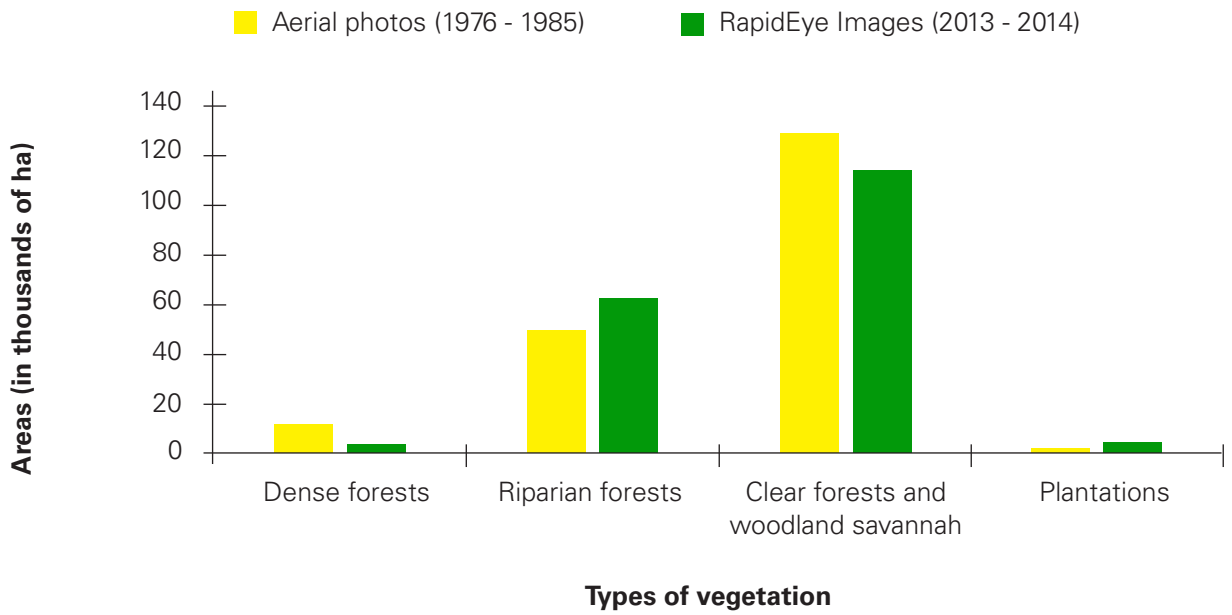
Figure 11: Evolution of the surface area of forest strata in the savannah region between the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images



In the Kara region

Based on the «interpreted common area» of the region (95.61%), it can be seen that, contrary to the savannah region, in the Kara region, there are gains in the evolution of certain forest areas between the periods 1976 - 1985 and 2013 - 2014. This is the case for riparian forests and plantations. In fact, these 2 forest strata have seen their surface area increase by 14.692 and 745 ha respectively to reach 64.321 and 1.219 ha between 2013 - 2014. On the other hand, there has been a decrease in the areas of dense forests, which were in fact less important in the region, and open forests and wooded savannas. These decreases in area were estimated at 8.584 and 11.937 ha respectively (Figure 12). However, the Kara region is the region where the loss of forest area is the least pronounced (2.68% in relation to the forest area between 1976 and 1985).

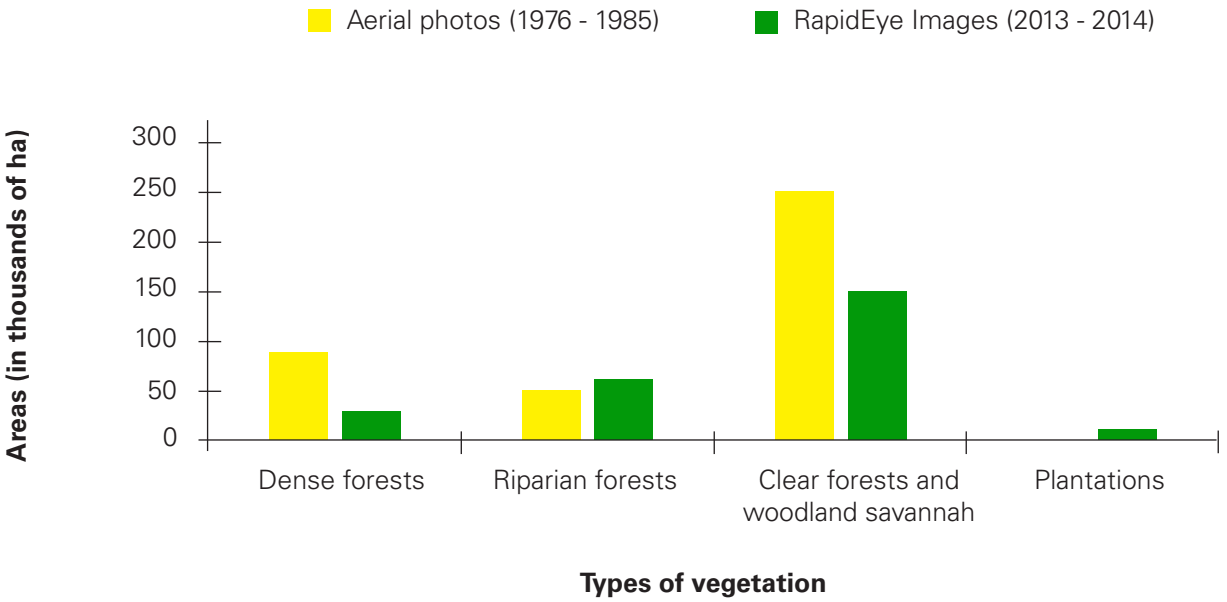
Figure 12: Evolution of the surface area of forest strata in the Kara region between the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images



In the Centrale region

On the basis of the «interpreted common area» (82.25%), there is a significant loss of open forest and wooded savannah area in the Centrale region. This loss is estimated at 78.134 ha. The same applies to dense forests (65.144 ha). These 2 strata bring the average loss of forest area in the region to 26.32%, i.e. in absolute figures the greatest decrease in forest area in any region in Togo between the period 1976 - 1985 and the period 2013 - 2014. On the other hand, there has been an evolution in the area of riparian forests (43.26%), with the beginning of a craze for reforestation and, therefore, the appearance of plantations whose area is estimated at 9.468 ha between 2013 - 2014 compared to 17 ha between 1976 -1985 (Figure 13).

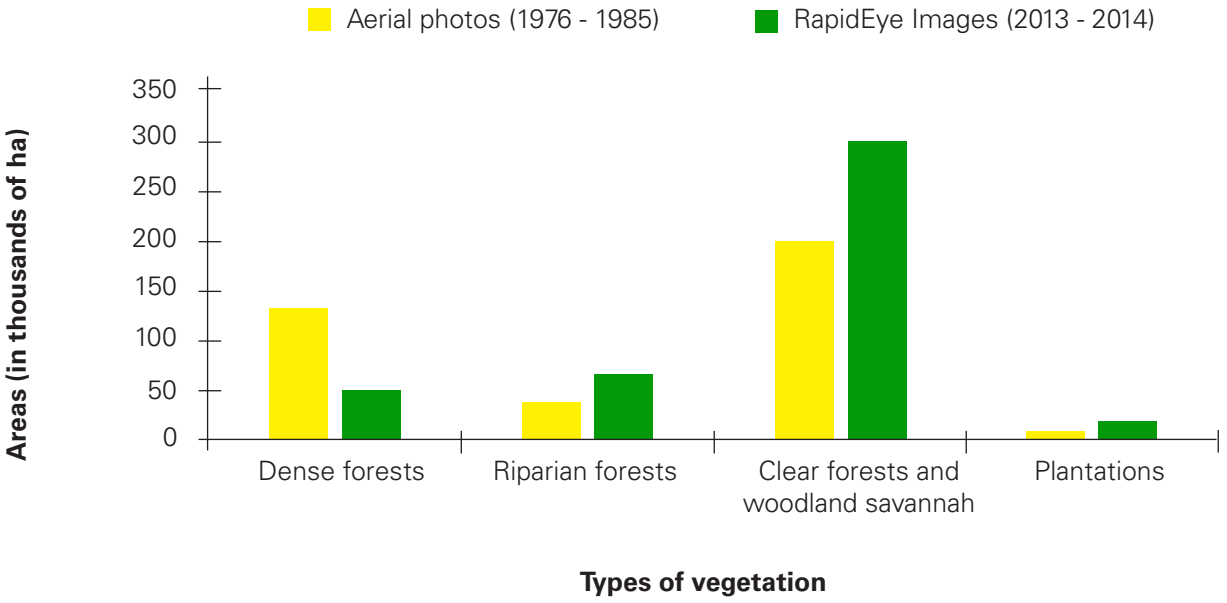
Figure 13: Evolution of the area of forest strata in the Centrale region between the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images



In the Plateaux region

In the Plateaux region, where the «interpreted common area» is 94.35%, it can be seen that apart from the dense forests which have suffered an estimated loss of area of 68.845 ha between the periods 1976 - 1985 and 2013 - 2014, the other forest strata have experienced positive changes over time that would result from the degradation of the dense forests. In fact, there has been a gain in surface area in the order of 44.284 ha of riparian forests and 91.720 ha of open woodland and wooded savannah. This was also the case for plantations which saw their surface area increase to 23 573 ha compared to 6°084 between 1976 and 1985 (Figure 14). These various positive variations give the region an estimated forest cover rate of 31.42% in relation to the regional surface area.

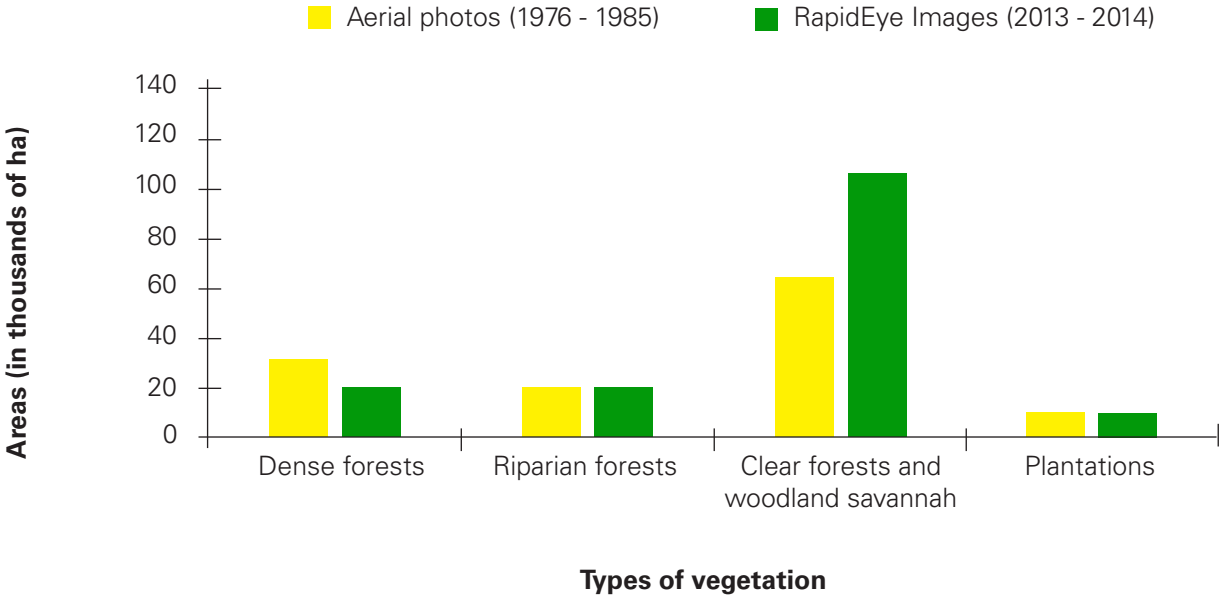
Figure 14: Evolution of the area of forest strata in the plateau region between the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images



In the maritime region

As in the upland region, notwithstanding the loss of dense forest area (35.15% of the initial area), the maritime region has benefited from a gain in forest area for the other strata, namely riparian forests (5.04%), open forests and wooded savannas (49.90%) and plantations (6.69%) (Figure 15). This evolution in the region's forest area corresponds to a rate of variation of +20.40%, i.e. a gain of 29.647 ha between the years 1976 - 1985 and 2013 - 2014, the largest % increase among the 5 regions of the country.

Figure 15: Evolution of the surface area of forest strata in the maritime region between the periods 1976 - 1985 and 2013 - 2014 according to aerial photos and RapidEye images.



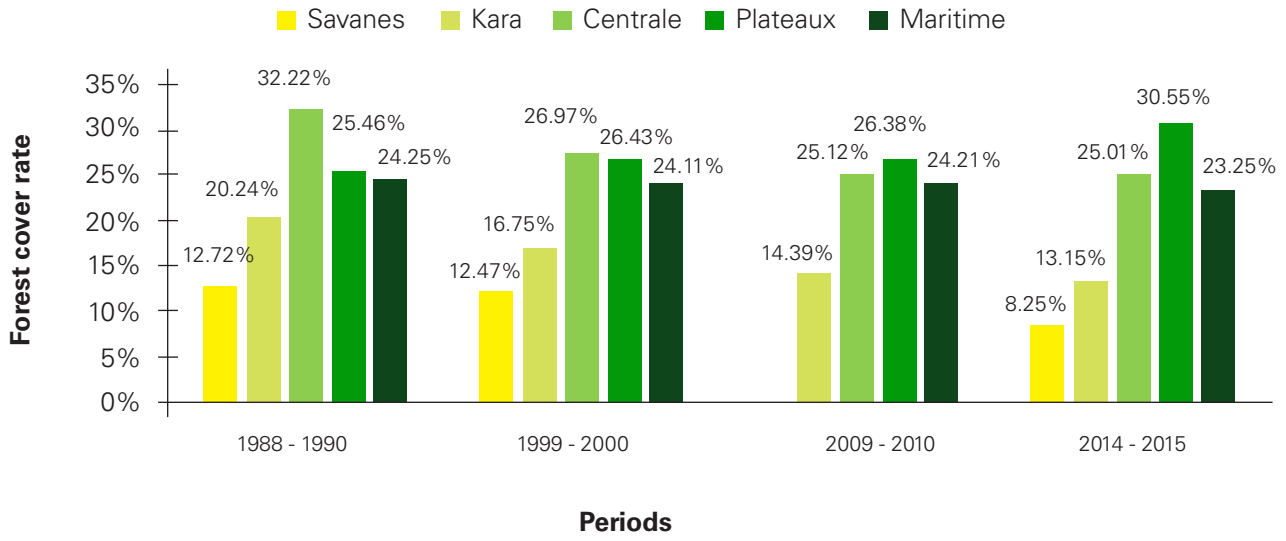
2.2.2 Analysis of forest dynamics using Landsat images

It should be recalled that these images cover the periods: 1988 - 1990 (3 years); 1999 - 2000 (2 years); 2009 - 2010 (2 years); and 2014 - 2015 (2 years). Given that it was not possible to find cloud-free Landsat images covering the savannah region for the 2009 - 2010 period, it is not possible to make a statement on the forest area of this region and consequently of Togo for this period. Between the 3 periods for which data are available for the whole country, namely 1988 - 1990, 1999 - 2000 and 2014 - 2015, the rate of forest cover in Togo was respectively 23.89%, 22.20% and 21.53%. According to these figures, the national forest cover decreased between 1988 and 2015 by 134.832 ha.

At regional level, the Centrale region had the highest forest cover rate until 2001, when its potential diminished. In fact, its forest cover rate, which was 32.22% between 1988-1990, fell to 26.97% between 1999-2000. Moreover, this regression continued during the periods 2009 - 2011 and 2014 - 2015 to reach respectively 25.12% and 25.01% of its surface area. In contrast to the Centrale Region, the plateau region has seen an increase in forest cover over time. Its forest cover rate has increased from 24.25% of its total area during the period 1988 - 1990 to 30.55% in 2014 - 2015. This increase can be explained by the integration of sustainable practices, notably agroforestry, in the region.

Interpretation of Landsat images also reveals a regression in forest area in the savannah region, where the rate of forest cover fell from 12.72% between 1988 - 1990 to 8.25% in 2014 - 2015. The same is true for the Kara region where the forest cover rate has declined over these different periods. In fact, its forest cover rate, which was 20.24% between 1988-1990, fell to 13.15% in 2014-2015 after falling to 16.75% and 14.39% respectively between 1999-2000 and 2009-2010. Figure 16 illustrates the evolution of the coverage of the regions during these periods of analysis.

Figure 16: Evolution of forest cover in the regions of Togo between 1988 and 2015 according to Landsat images



2.2.3 Conclusion

Analysis of regional dynamics shows an upward trend in forest area in the upland region. The apparent increase in forest area in the maritime region according to the RapidEye 2013 - 2014 data is probably due to the insufficient spatial resolution of these satellite images which did not allow the distinction between palms and trees. As a result, palms, which are mainly present in this region, were included in the different forest types when the RapidEye images were exploited, whereas they could be classified as non-forest when interpreting the aerial photos. At the level of the 3 other regions (Kara, Centrale and savannah), all the data analysed confirm the decrease in forest cover. This regression in forest area is particularly pronounced in the Centrale region.

Analysis by forest stratum shows that, contrary to riparian forests which are distributed throughout all regions of the country and which seem to be the best conserved forest strata, the trend is towards the disappearance of dense forests in the savannah and Kara regions during the period 1976-2014. The same is true for open forests and wooded Savanes which are losing ground in the savannah, Kara and Centrale regions. The greatest loss is seen in the Centrale Region. As for plantations, they have been an option for increasing forest cover for many years in the Maritime Region, and more recently in the Plateau Region. The Centrale Region began by partially compensating for the loss of area of its natural forests through reforestation, while the savannah region has seen its plantations decline.

The analysis of these 3 types of data has not been without difficulties. First of all, ortho-rectification of negative copies of aerial photos was made difficult by the absence of data relating to the optical chamber for the majority of these photos. Second, most of these photos had very low contrast. In addition, the presence of artifacts on these photos, related to their poor conservation, made interpretation very difficult. These different situations did not allow for the interpretation of the entire national territory. In addition, the difference in spatial resolution between the aerial photos and the RapidEye images slightly biased the results, because it did not allow to appreciate in the same way the differentiation of vegetation types.

2.3 LAND USE AND LAND USE CHANGE MAPPING

The analysis of the dynamics of land use and land-use change in Togo has allowed the related maps to be drawn up. The methodology used combined the participatory approach, based on stakeholder consultation and satellite image processing. The participatory approach consisted first of all in the identification of stakeholders at the local level, and secondly in the consultation of these same stakeholders through individual interviews and the organization of focus groups during workshops in the regions. Data processing consisted of triangulating the individual opinions collected from local experts in focus groups to highlight the consensus at the level of each region. Then, the elements of regional consensus were in turn triangulated to arrive at the first elements of the national consensus on the causes of land use change. This is a multisectoral approach that used data and interventions from several sectors of activity to explain the changes that have occurred in a territory.

Satellite image processing allowed the analysis of the dynamics of land use change through the production of the 2005, 2013 and 2017 land use map. The various satellite images used are from the Sentinel-2, Landsat-7 and Landsat-8 sensors. All satellite images (Sentinel-2, Landsat-7 and 8) are downloaded in Geotiff format and geometrically ortho-rectified in the WGS84, UTM 31N projection and datum system.

To ensure the quality of the results from the various satellite image processing processes, different data sources were used: (i) national forest inventory plots (IFN); (ii) GPS points of State plantations and (iii) field control points.

The mapping results are illustrated in the following figures: Figure 17: Land use map of Togo in 2017; Figure 18: Land use map of Togo in 2013; Figure 19: Land use map of Togo in 2005. The areas in hectares and the proportions of land cover strata by region, as well as the areas in ha and proportions of the binary forest/non-forest map for the years 2017, 2013 and 2005 respectively are shown in Annex 10.

It should be noted that the list and definitions of the land use classes retained in the framework of the REDD+ process in Togo and the link with the forest code of Togo are recorded in Annex 7.

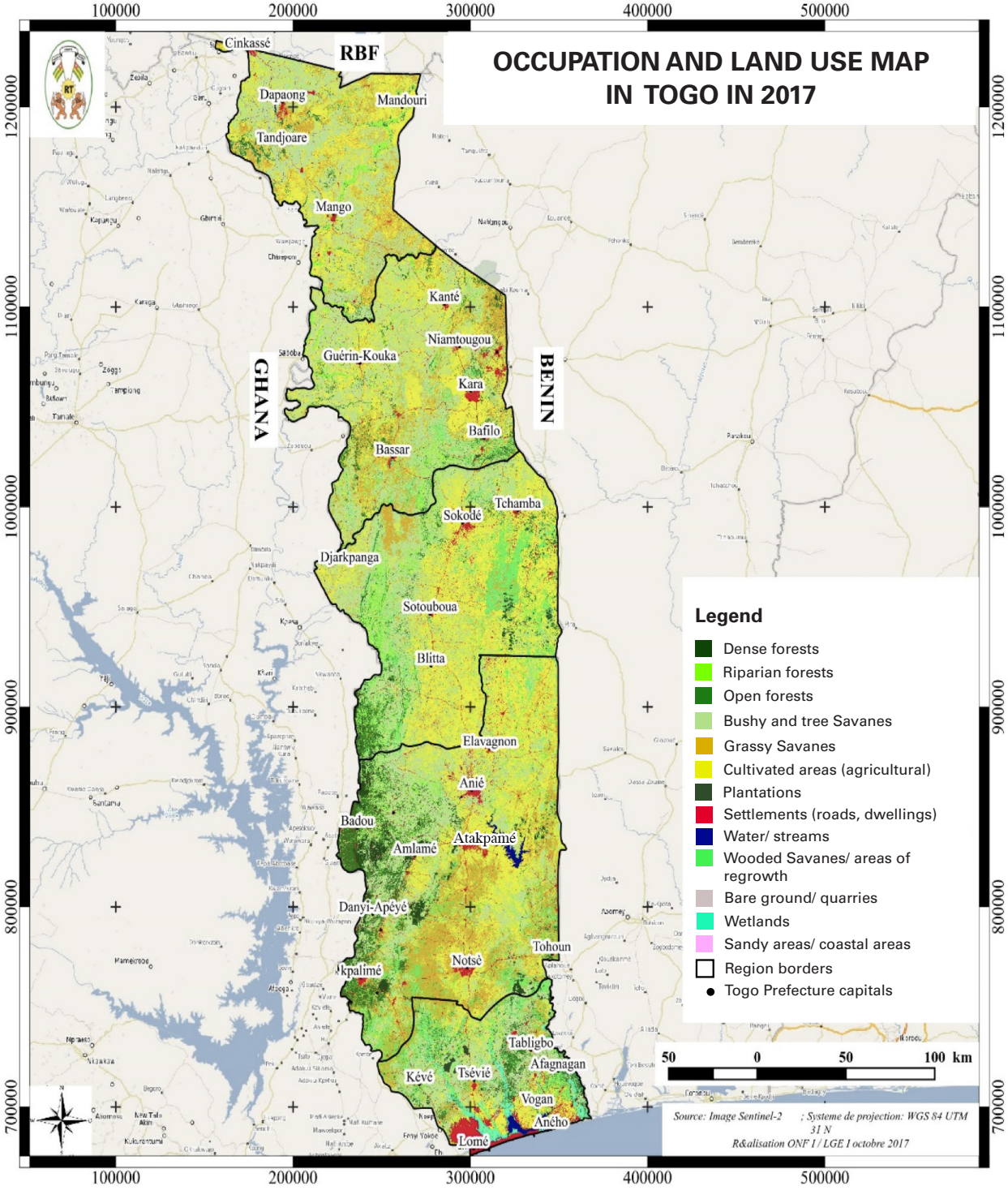


Figure17: Map of land occupation and use in Togo in 2017

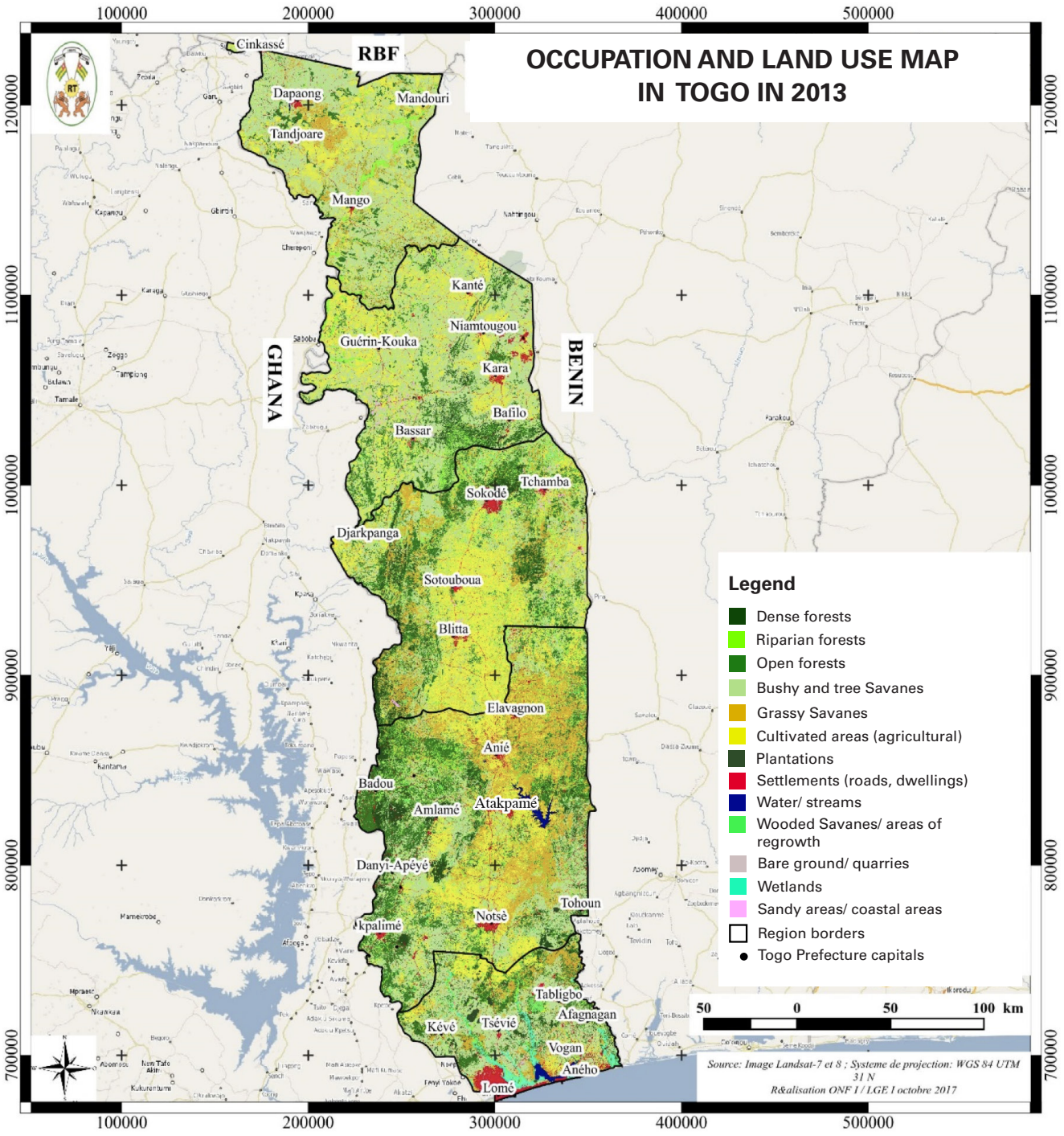


Figure 18 : Map of land occupation and use in Togo in 2013

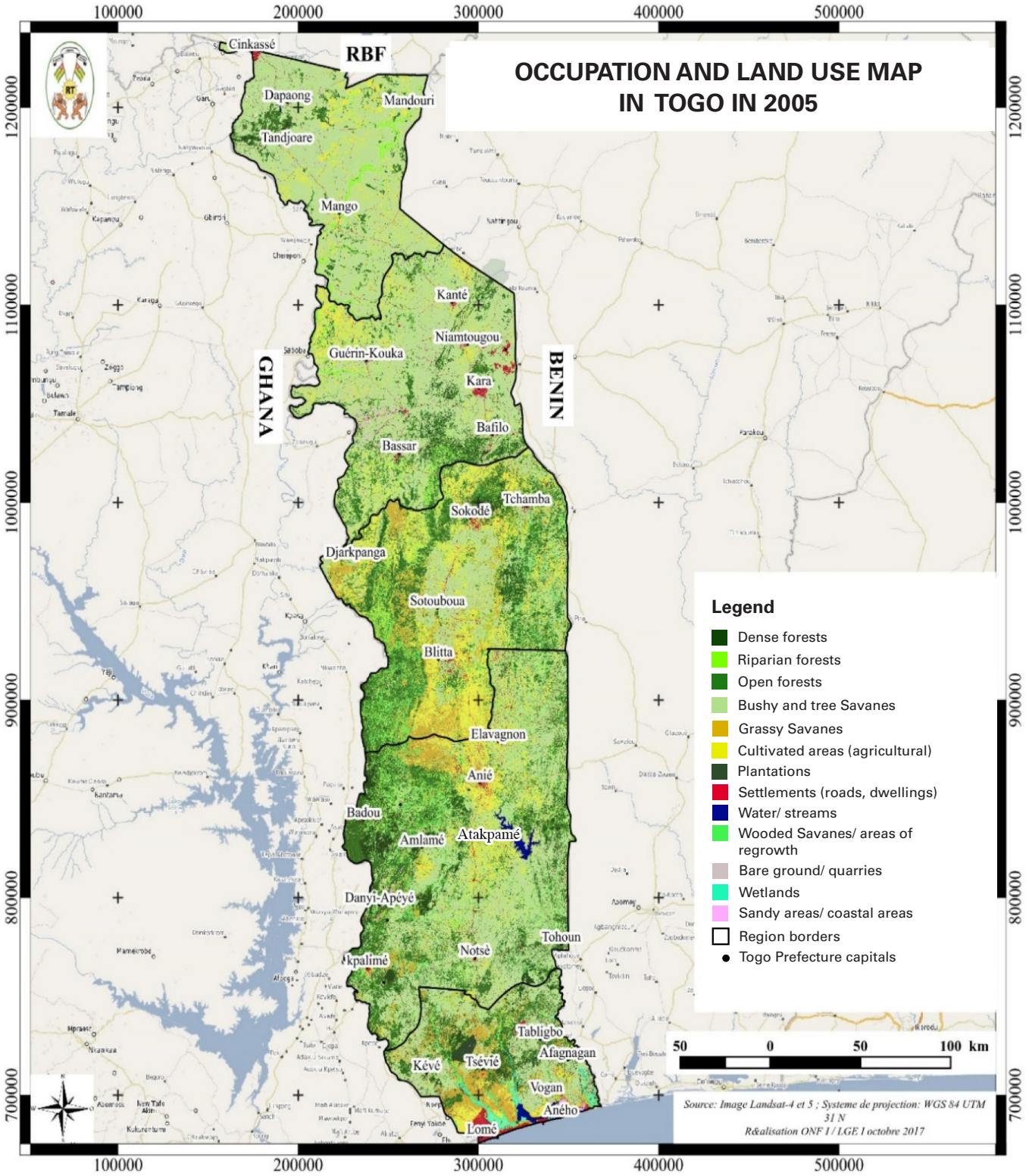


Figure 19 : Map of land occupation and use in Togo in 2005

2.4 SPATIAL AND TEMPORAL ANALYSIS OF THE CAUSES OF DEFORESTATION AND FOREST DEGRADATION

The spatio-temporal analysis of deforestation and forest degradation in Togo was carried out in 2017, over the period 2005-2017, as part of the process of developing this national REDD+ strategy. The analysis consists in studying both temporal and spatial dynamics of deforestation and degradation. To analyze the temporal dynamics, several statistical measures were compiled to account for changes in the structure and characteristics of disturbed forest areas. The analysis of spatial dynamics was carried out using the production of heat maps («hot spots»). These enabled the spatially explicit identification of the areas that have suffered the most disturbance and have thus contributed to a large extent to deforestation and forest degradation in Togo since 2005.

The spatio-temporal analysis of deforestation and forest degradation carried out in 2017 shows that agriculture is developing on the periphery of human infrastructures and urban centers and as a priority. Thus, while population growth stimulates urban sprawl, it also stimulates the need for agricultural amenities and encourages the development of agricultural zones on the urban periphery.

These growing urban peripheries thus push back farming areas, especially in the surrounding savannah areas, which in turn push back and replace forest areas. Savannah areas represent a process of forest degradation driven by the population's need for supplies, especially wood (fuelwood, timber, etc.) but also for livestock rearing and transhumance.

Thus, if at first sight the progression of savannah is the main direct cause of forest encroachment, it should be noted that agricultural development is in fact the primary cause of the progression of new savannah areas. Thus the spatial pattern of the deforestation and forest degradation process in Togo can be schematized as follows (fig. 20):

Figure 20: Spatial dynamics of schematic occupation changes

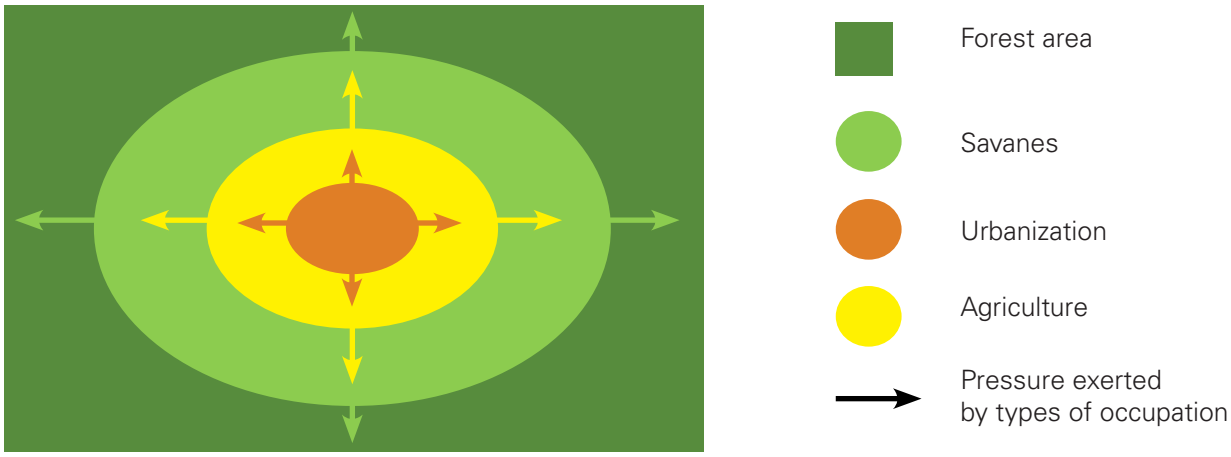
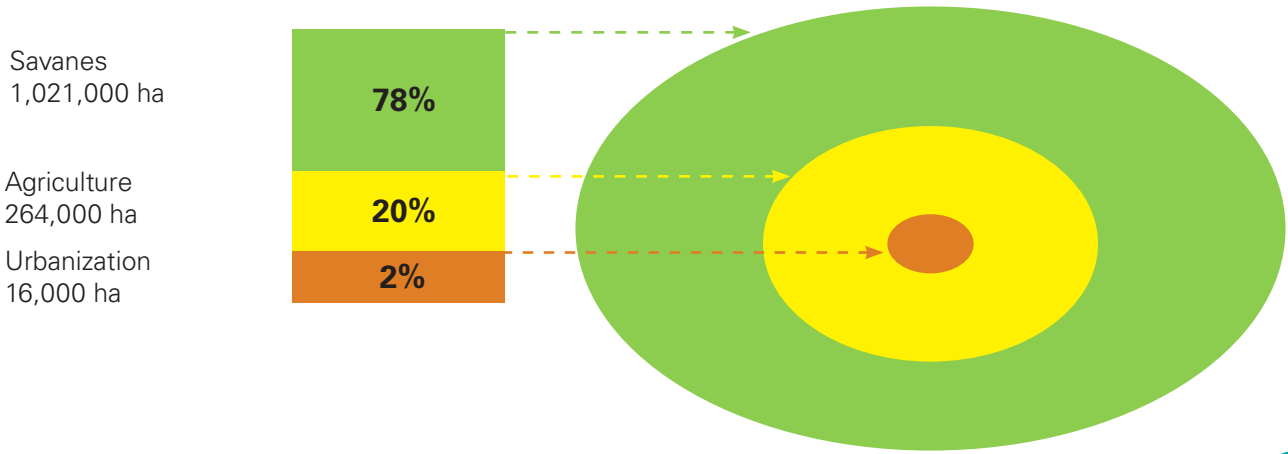


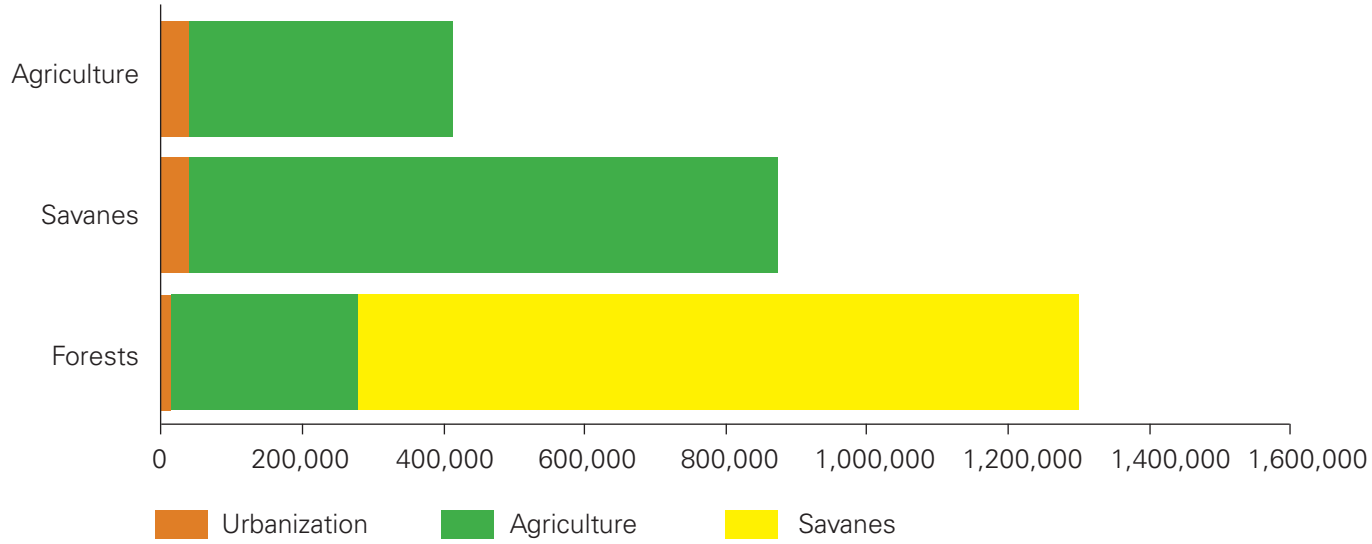
Figure 21: Causes of deforestation by type of occupation by direct footprint on the forest over the period 2005-2017



The dynamics of change in land use has made it possible to establish two distinct hierarchies in the explanatory part of each of the causes of deforestation and forest degradation in Togo. The first consists in measuring the historical spatial footprint of each type of land use on the forest. In this schema, the evolution of the Savanes has clearly been the main cause of forest disturbance in Togo and it can be deduced that the uses made of the savannah, i.e. the removal of wood for energy or construction, as well as, depending on the region, livestock rearing and transhumance, are directly responsible for nearly 78% of deforestation and degradation over the period 2005-2017. Next comes agricultural development, whose footprint on former forest areas today represents only 20%. And finally, the footprint of urban infrastructure development accounts for a very marginal share of the loss of forest cover (2%).

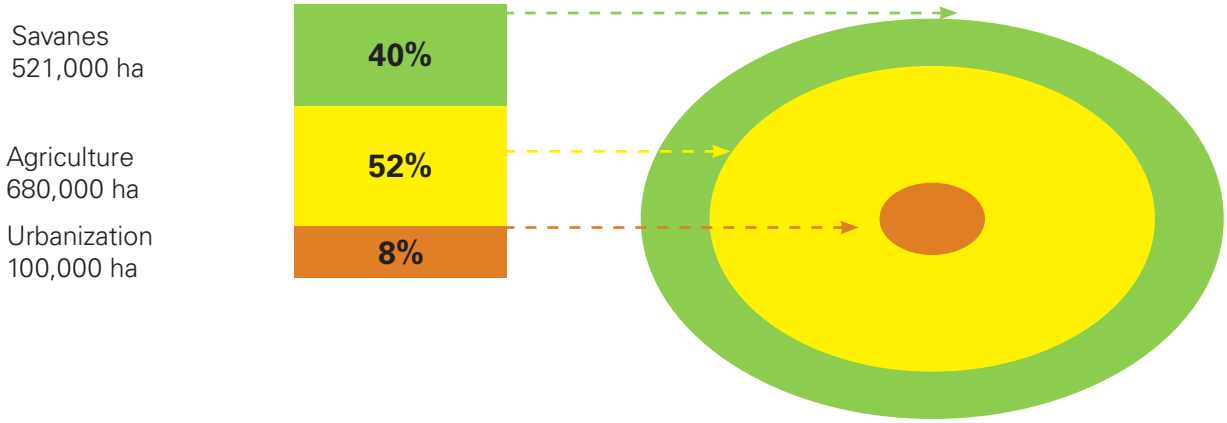
The second systemic approach, undoubtedly the most relevant and consistent with the results of the consultation process, consists in assessing the dynamics of interactions between occupations (urban to agricultural and savannah, agricultural to savannah, etc.) in order to estimate the relative and indirect impact of each on forest loss in Togo. To this end, the types of occupation have been prioritised according to the scheme previously illustrated. Urban development is thus given priority over agricultural development, which in turn has priority over savannah development. By thus crossing the evolution of land use types in relation to each other, spatial encroachment between uses is obtained as shown in Figure 22.

Figure 22: Gross Changes by Occupancy Type in hectares of Initial Occupancy (2005-2017



It has been estimated that over the period 2005-2017, more than 40,000 hectares of agricultural and savannah land have been pushed back by urban development, while agriculture has pushed back nearly 830,000 hectares of savannah, even though the latter only nibbled away 370,000 hectares of agricultural land. Consequently, nearly 460,000 hectares of forests that have been spatially encroached upon by the savannas can be indirectly attributed to the evolution of agricultural land on the savannas. Following this process, we then obtain the following diagram 23.

Figure23: Causes of deforestation and degradation by type of occupation by direct footprint on the forest (2005-2017)



As a result, the main spatial cause of deforestation and degradation in Togo is agricultural development with 52%, followed by wood harvesting and livestock breeding resulting from conversion to Savanes representing 40% and finally urban development with 8%. **Agricultural development thus remains the main cause of deforestation in Togo, ahead of timber harvesting and livestock farming, which constitute the transition to savannah occupations. On the contrary, urban sprawl only explains a small part of the area of forest disturbed (<10%). Nevertheless, the urban development observed in all regions of Togo proves that population growth is dynamic and remains the main underlying cause of deforestation by driving the expansion of agricultural land on the one hand and feeding the ever-increasing demand for wood on the other.** The model of deforestation and forest degradation in Togo is therefore a complex chain of causal chains whose links are dependent on each other. This suggests that Togo's national REDD+ strategy should treat this as a whole in a multi-sectoral approach in order to effectively combat deforestation and forest degradation.

The mapping of the spatial and temporal analysis plates of deforestation and forest degradation illustrating the forest disturbance hot spot maps for the savannah, Kara, Centrale, plateau and maritime regions is given in Annex 9.

2.5 PROSPECTIVE ANALYSIS OF DEFORESTATION

IThe expected causal relationships between the introduced spatial factors and changes in land use have been described here. Once each of the regional models was estimated, a prospective simulation exercise was conducted for each of the regions. This exercise aims to provide spatially explicit indications of likely deforestation trajectories in order to identify the future challenges that each region will face in the coming years. To carry out these simulations, the following was selected:

(i) a simulation period of 10 years, with an annual increment for each simulation. This made it possible to account for the annual evolution of disturbances over the next 10 years until 2028;

(ii) an annual change level for each type of land use that is set according to a «business-as-usual» scenario. The hypothesis adopted here is therefore to project a level of change for each land use type that is similar to that observed during the previous period 2013-2017.

2.5.1 On a national level

The compilation of simulation results for each region suggests an alarming rate of deforestation and forest degradation in Togo over the next 10 years. Indeed, if the rate of increase in urbanization, agriculture and savanna recorded over the last decade continues, all the remaining forests in Togo should be disturbed either by deforestation or degradation. Driven by sustained population growth, the galloping urbanization of Togo's different regions should increase demand for agricultural commodities and wood products. The spread and densification of agricultural areas in the Centrale corridor of Togo is one of the assumed trend effects, if measures to reverse this trend are not quickly taken. It should be noted that agricultural expansion, in addition to spreading directly on the forests, is likely to lead to the retreat of areas for livestock rearing and wood supply, whether for energy consumption or the need for timber for construction, in forest areas that are still preserved. In addition to spatial retreat, supply areas will become scarcer and with a trend towards a reduction in the area of savannah in Togo over the next 10 years. In sum, this simulation exercise reinforces the results of the consultation process conducted as part of the study on the causes and consequences of deforestation and forest degradation carried out in support of the process of developing the national REDD+ strategy, with emphasis on the primary role played by agricultural development in the disturbance of forests in Togo.

As a result, land will become scarcer throughout the country and beyond, leading to the disappearance of forests in the relatively near future. The dynamic of land use change will probably lead to increased competition between uses and, in short, between users, with the risk of aggravated social conflict, which can already be detected in certain regions, notably in the savannah region to the north. The complexity of land tenure dynamics and thus of deforestation and forest degradation processes in Togo, which have been revealed by this study, shows the need, in the framework of the preparation of Togo's national REDD+ strategy, to carry out actions according to an intersectoral approach on the key sectors identified here, agriculture, forestry and energy and other related sectors.

The following paragraphs present for each of the regions the results obtained from the model estimation and the description of the implications on forest cover of the prospective simulations carried out. In addition, foresight simulation exercises contain, by their nature, a significant amount of uncertainty. The results of these simulations must therefore be taken with caution and discernment, especially for interpretations at a very local scale. Nevertheless, these results remain highly useful for identifying global future trends, particularly when they have been estimated on the basis of past observations and as an extension of historical trends, as is the case here.

2.5.2 Savanes region

According to the simulations, the Savannah region shows a clear progression and densification of agricultural areas, especially along the main river, but also in the North. It is clear that agricultural development is one of the main and most immediate challenges of the region.

Indeed, its galloping development is leading to strong competition with the Savanes which, due to lack of land availability, are expected to shrink after penetrating the still existing forests. The latter disappear even before the end of the simulation period. In fact, the simulations suggest a progression of savannah in the forest of about 15.000 hectares per year up to 2024. Beyond that, the forest areas disappear and thus limit the development of savannah. Thus, we can clearly observe the dynamics of disturbance in riparian forests along the Oti River, which should be the most threatened in the periods to come.

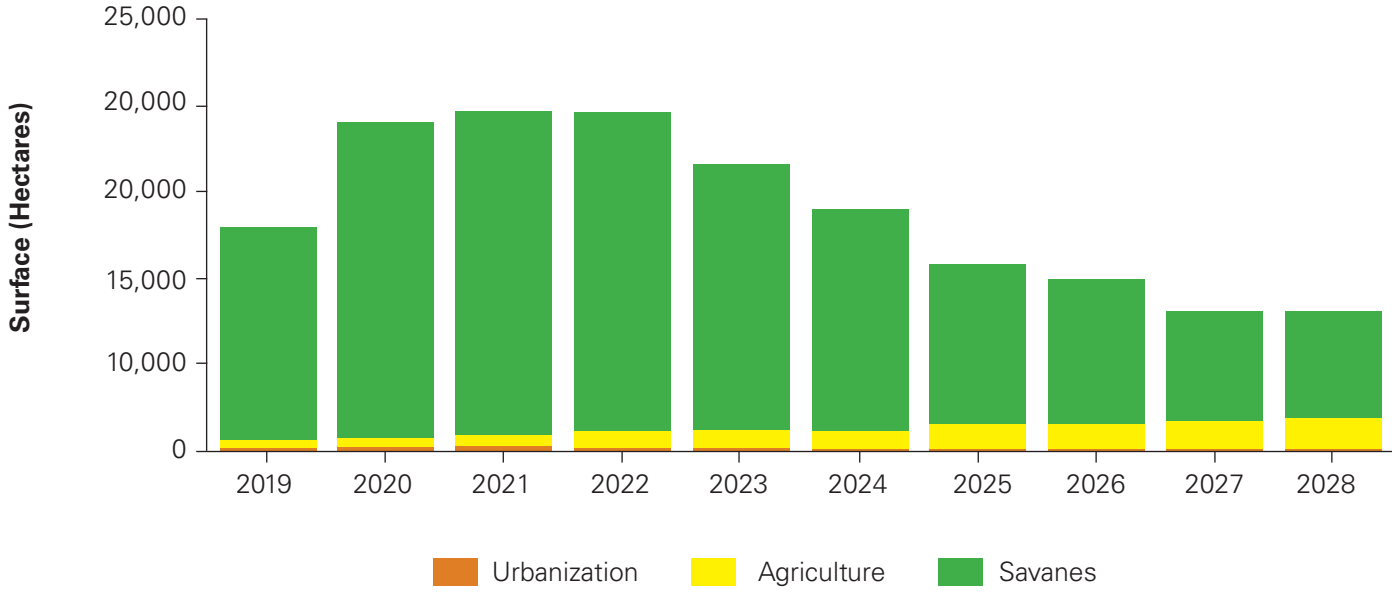
Note that the Oti-Keran-Mandouri protected area, although historically resistant, begins at the end of the simulation period to give way to agriculture after being invaded by the savannas. Thus, the pressure driven by land scarcity will probably be too strong to sustainably prevent agricultural development in natural protected areas.

2.5.3 Kara region

In the Kara region, over the entire simulation period, a clear progression of the savannah zones in the south of the region is observed. These largely penetrate into the protected area zone and contribute to a large extent to the disturbance of the remaining forests in the region.

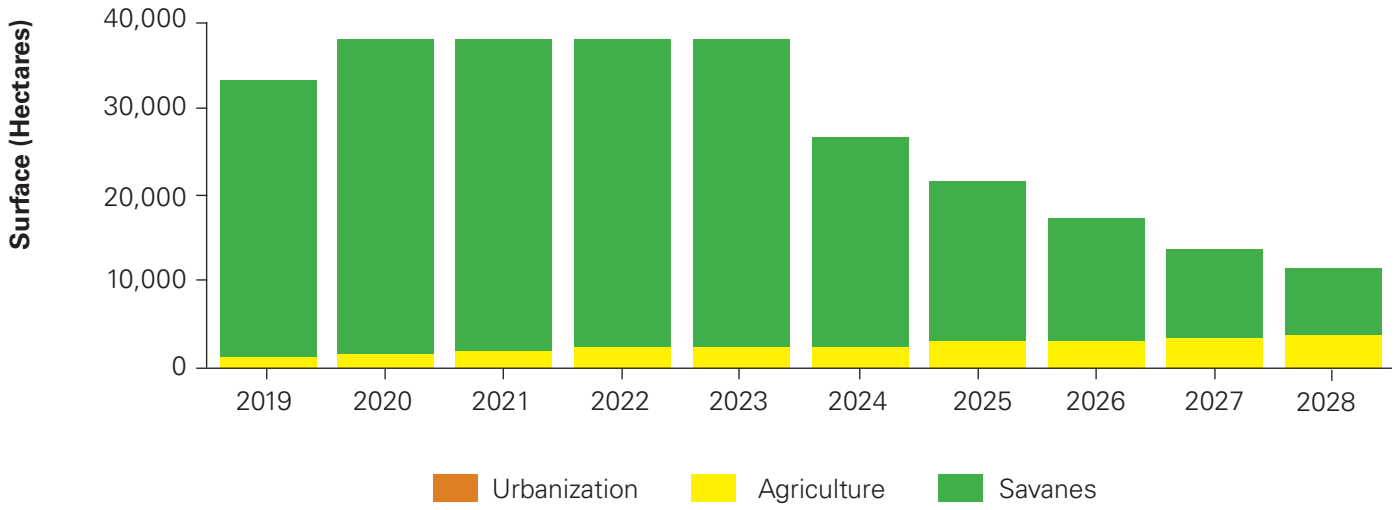
They will thus make significant progress on forests until 2025, contributing to an average annual loss of about 30.000 hectares. It should be noted that beyond this period, the increasing scarcity of forest areas should limit the advance of savannah, which should even decline in favour of agricultural development. In fact, agriculture is progressing and densifying at a sustained pace in the north of the region, in areas where agriculture has historically been present. The pressure of agricultural development on the forests is increasing over the period 2019-2028 and is expected to spread throughout the

Figure 24: Distribution of disturbed forest areas by type of occupation (2019-2028 / Savannah Region)



region.

Figure 25: Distribution of disturbed forest areas by type of occupation (2019-2028 / Kara Region)

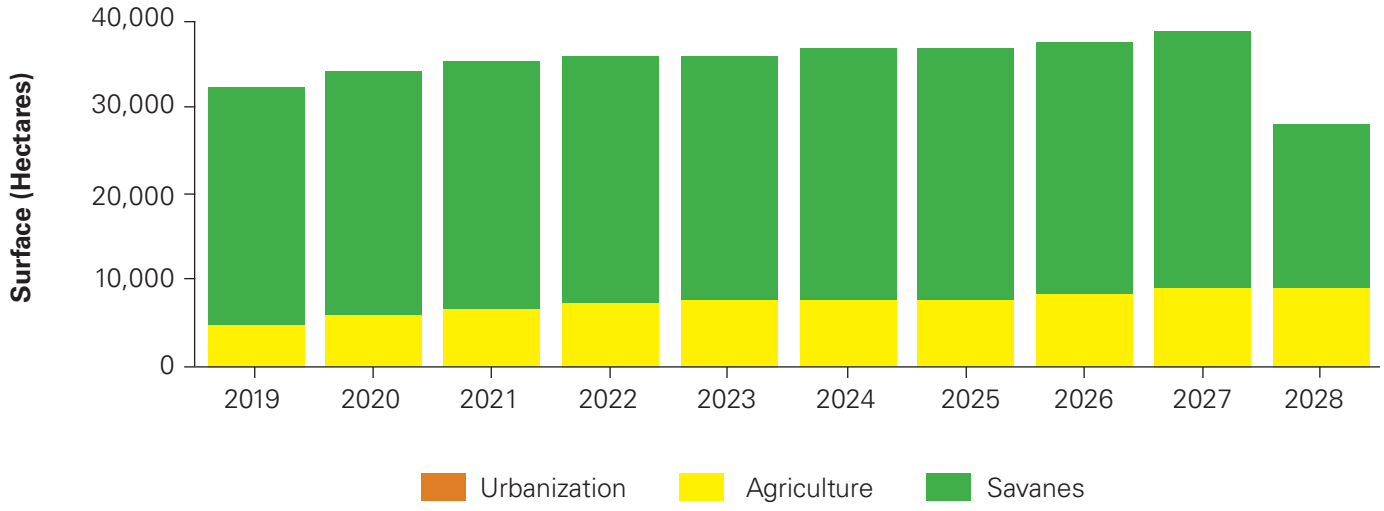


2.5.4 Centrale Region

The Centrale region presents a land use simulation profile similar to the Plateaux region. There is a clear spreading and densification of agricultural areas as an extension of the Plateaux region agricultural corridor. This has the immediate effect of pushing back the development of savannah to the west of the region and thus represents the majority of forest disturbances that could be recorded in the coming years. Nearly 30,000 hectares of forest annually will be disturbed by the advance of the savannas over the 2019-2028 period.

It is also noted that the Abdoulaye Wildlife Reserve seems to constitute a clear barrier to agricultural progress. Nevertheless, the brake seems much weaker against timber harvesting and the advance of the savannah. Also, in relation to the results of the simulations, if the pace continues, the reserve should be occupied almost exclusively by savannah, contributing to the disappearance of forests in this zone.

Figure 26: Distribution of Disturbed Forest Areas by Land Use Type (2019-2028 / Centrale Region)

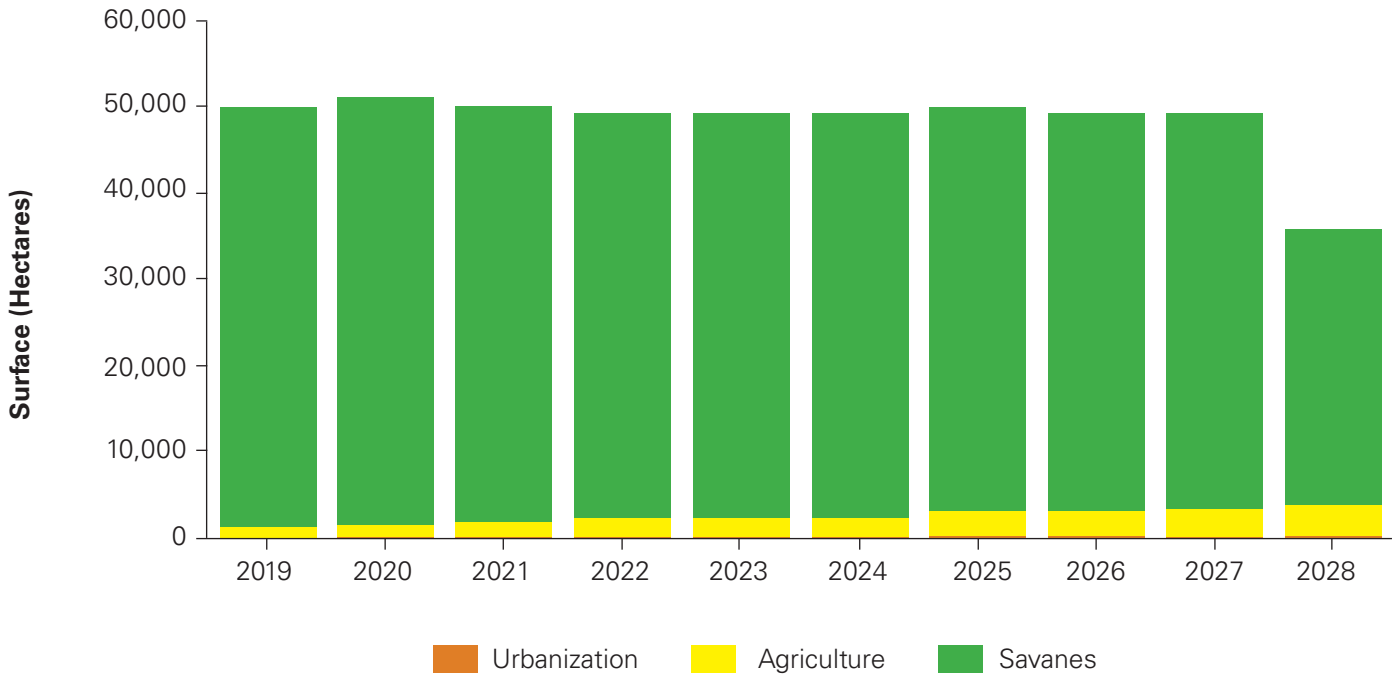


2.5.5 The Plateaux Region

In the Plateaux region, the results of the simulations show a strong development of agricultural activities, and a clear densification of the agricultural transition corridor detected over the historical period. In addition to directly disturbing the forests to the tune of 7.000 hectares per year on average, the simulated agricultural development in the region drastically pushes the savannah areas to the west of the region, in the mountainous areas where the forest is now the densest.

Thus, the risk in the years to come is that there will be a decline in wood supply basins caused by agricultural development and thus a sustained rate of forest disturbance linked to savannah dynamics of nearly 40.000 hectares per year. However, beyond 2027, the increasing scarcity of forest areas and increased competition with agricultural development should lead to the shrinking of savannah areas.

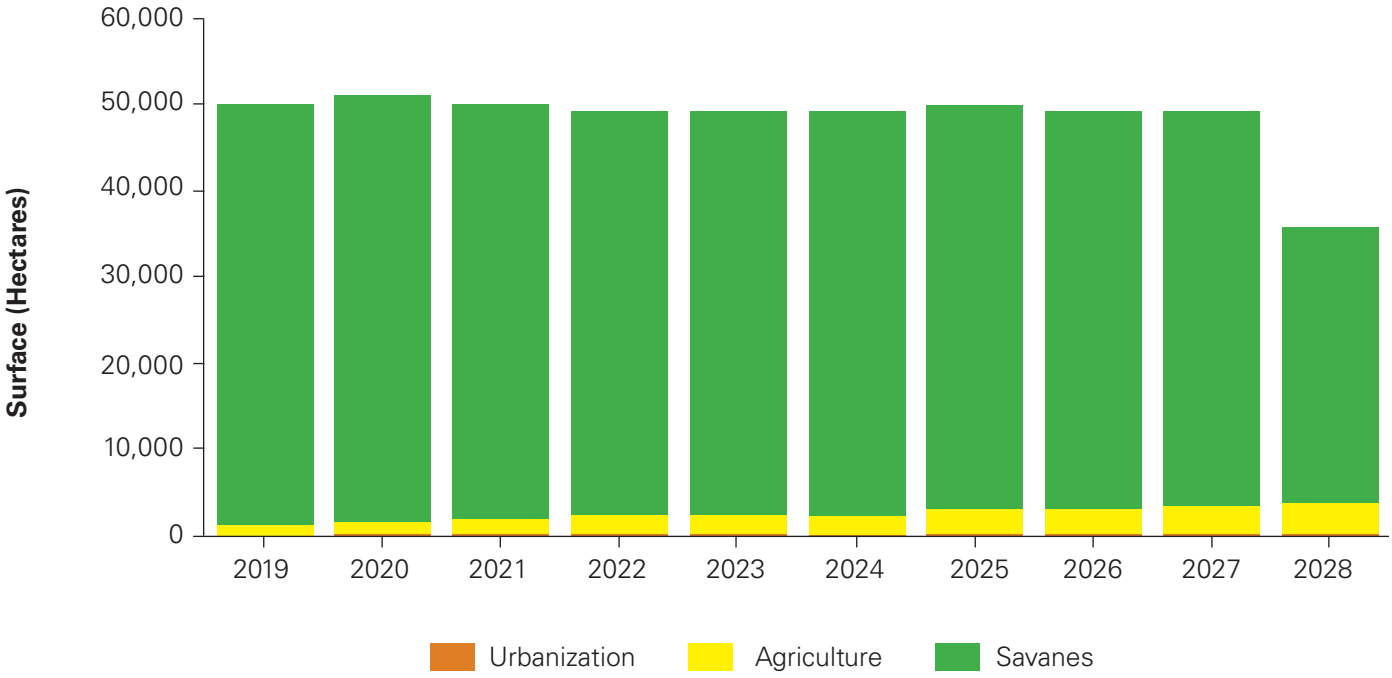
Figure 27: Distribution of disturbed forest areas by type of occupation (2019-2028 / Plateaux Region)



2.5.6 Maritime Region

The Maritime region is the only region where the direct encroachment of forests by agriculture is greater than that of the savannas. The level of forest disturbance is relatively low (4.000 hectares per year) due to the low level of forest cover in the region. The savannah is not expected to grow and is even expected to decline in the coming years due to the scarcity of available land and especially forests. The simulations rather indicate a spread of agricultural activities in the north-western part of the region and a densification of certain agricultural areas in the center of the region.

Figure 28: Distribution of disturbed forest areas by type of occupation (2019-2028 / Maritime Region)



The urban changes are focused on the simulation as an extension of the agglomeration of Lomé towards the North-West. We also observe a growing urban sprawl east of the coast. This rapidly growing area encroaches on historic agricultural areas, which has the effect of pushing back the development of new agricultural areas in the north of the region.

2.6 DESCRIPTIVE ANALYSIS OF THE CAUSES OF DEFORESTATION AND FOREST DEGRADATION

Avant de décrire les causes et facteurs de déforestation et de dégradation des forêts au Togo, il est proposé dans l'encadré 4 ci-après, une note explicative des concepts de causes directes et indirectes dans le contexte de la REDD+.

BOX 4: DEFINITION OF THE CONCEPTS OF DIRECT AND INDIRECT CAUSES

According to the usual analytical framework developed by Geist and Lambin (2002), two levels of causes of deforestation and degradation are distinguished: direct causes and indirect or underlying causes. Generally speaking, direct causes are at the local level, whereas causes tend to be all the more indirect as they originate at national or even supranational levels.

Direct causes of deforestation can be understood as activities that directly aim at converting forests to alternative land use (e.g. agricultural conversion). The main characteristic of a direct cause is that it results from the deliberate choice of local stakeholders to effect a change in land use. This deliberate action by local stakeholders nevertheless responds to the opportunities and constraints created by factors occurring at different scales, generally understood as the underlying causes.

Indirect or underlying causes thus underlie the proximal or direct causes of deforestation and degradation, but are different in nature. Indeed, while proximal causes are the result of a decision-making choice, underlying causes influence the decision making itself. For example, economic policies taken at the national level can be influenced by market conditions and international policies before influencing the behavior of local actors with regard to the land use changes that will be achieved. Finally, there is also the notion of mediating factors that play a role in linking the underlying causes to the direct causes. For example, if one assumes that a rising population growth will lead to an increase in demand for agricultural products followed by an expansion of commodity prices, then the latter can be described as mediating factors between the underlying demographic cause and the direct cause of agricultural expansion.

2.6.1 Direct causes of deforestation and the degradation of forests

2.6.1.1 Inefficient farming practices and livestock systems

According to the results of the local consultations conducted in 2017 as part of the REDD+ process cross-referenced with the 2005, 2013, and 2017 map analyses, agriculture remains the primary cause of land tenure and land use changes in all regions of the country, with the exception of the maritime region where it is the second cause of changes. Indeed, according to the estimates resulting from the analyses, the agricultural areas have more than doubled between 2005 and 2017, from 697020 ha in 2005 to 1664084 ha in 2017. Agriculture is also the cause of more than 50% of the disturbances recorded in forest areas over the same period. The practice of an extensive farming system with low inputs is at the origin of a very low productivity agriculture requiring expansions on more fertile land, notably wooded savannah or forest land. In addition, the irrational and abusive use of unregistered pesticides, especially herbicides, is also a concern. Agricultural activity is practiced by more than 80% of the rural population, the majority in the country. Livestock breeding and slash-and-burn agriculture are also part of this agricultural system, which often involves uncontrolled fires that can be devastating for the surrounding vegetation. The increase in agricultural land over the 2005-2017 period is more spectacular in the Plateau regions and the Centrale region where climatic conditions are favorable to activity. Agricultural expansion meets the growing needs of a constantly increasing population.

The expansion of agriculture and the savannah happens to the detriment of the country's wooded areas. As a result, forest cover is diminishing considerably and could be entirely threatened within the next twenty years or so. This in turn will lead to a reduction in Togo's carbon sequestration capacity.

Local people, especially farmers, use fire extensively to clear farmland, renew pastures or burn crop residues to increase soil fertility. Fires lit during the growing season can reduce fuel accumulation and reduce the risk of further incidences. However, tens of hectares of forest, woodland and savannah are lost each year when farmers lose control of fire activity. Many communities do not have the means to extinguish these fires or to assess the causes of the problem. These fires are particularly devastating for poor people, as the forest resources on which they depend are irreparably damaged, further trapping people in poverty. Nevertheless, for rural people, fire is a cheap and effective tool for growing crops, controlling pests and diseases, increasing honey production, and hunting wild animals. However, without adequate control, these fires can endanger the lives and livelihoods of communities by burning homes, fields and forests.

Agroforestry is currently practiced on 12% of agricultural land and by 22% of farm households, however its potential is not sufficiently developed. Thus, the potential for development of the activity is very important in view of the available land. The development of agroforestry, if it could integrate food crops, should mainly favor particularly adapted cash crops (e.g. coffee, cocoa, cotton, etc.).

Every year, several hundred thousands of cattle cross the country without respecting transhumance corridors, even entering protected areas. They cause overgrazing, destruction of crops and forests. The problem of transhumance affects all regions of the country, but half of the transhumant livestock population is concentrated in the Savannah region. Transhumants often come from neighboring countries such as Burkina-Faso and Benin.

In addition, the low level of access to productive resources is one of the causes of extensive agriculture, a source of deforestation and forest degradation.

The main problems identified in this component can be summarized as follows:

- Slash-and-burn agriculture and misuse of unregistered pesticides;

- Extensive agriculture and farm fragmentation;

- low valorization of agro-forestry potential in production systems ;

- low valorization of agricultural production

- Inefficiency of the system of breeding and transhumance

2.6.1.2 Inefficient management of forest ecosystems and mechanisms for increasing the forest heritage

Due to climate change and socio-cultural practices, Togo's forests are increasingly threatened by wildfires. Burning is a common practice used by rural populations, especially to clean and cultivate fields and to hunt game. Thus, in Togo uncontrolled fires are an important factor of forest degradation. These forest fires lead to significant tree mortality and even to the disappearance of forests. Three other essential causes are thought to be at the origin of uncontrolled fires:

(i) lack of knowledge and neglect of the consequences of fires as well as the weak mobilization of local communities to curb the phenomenon;

(ii) lack of measures and means for the prevention, monitoring and control of wildfires at the local level; the weak capacity of fire brigades to fight wildfires and the warning system is outdated, poorly equipped, inefficient and lacking in monitoring;

(iii) fires are also used by herdsmen to ensure the regeneration of grazing land.

Forest massifs are sensitive to any ecological imbalance caused by human activity. However, many ecosystems and forest areas in Togo have been impacted by human activities over the last few decades and are now severely degraded. Beyond the forests themselves, the forest landscapes have lost part of their environmental, economic and climatic functions. The degradation and destruction of these forest landscapes accentuates unusual climatic phenomena: scarcity of rainfall, prolonged dry season, rise in temperature, drying up of rivers, accelerated water erosion with as a consequence a significant reduction in agricultural yields.

In addition, the various programmes carried out within the framework of sustainable forest management over the last twenty years in Togo have made it possible to make significant progress in the field of participatory forest management and particularly protected areas. This has enabled the initiation of a real transfer of competence to local communities that should be promoted and strengthened within the framework of the national REDD+ strategy. Nevertheless, as shown by the historical and prospective analyses of deforestation and degradation conducted in the framework of the development of the present national REDD+ strategy, protected areas are expected to be increasingly threatened in the coming years due to increased population pressure in the surrounding areas and increasingly limited land availability. Indeed, the gradual disappearance of forest ecosystems has led populations to fall back on fragile and protected ecosystems, such as mountain slopes, sacred and community forests, mangroves and other wetlands, and river relics. As a result, these fragile ecosystems are beginning to experience worrying degradation that will probably be irreversible if nothing is done. Urban sprawl is one of the direct causes of the dynamics of deforestation and forest degradation in Togo. Urbanization leads to a decline in agricultural areas at the expense of forests and eventually leaving vast areas of savannah near the cities with no value. However, green spaces in urban areas are scarce and threatened by urban pressures themselves.

Moreover, the lack of development and transformation of forest resources is one of the induced causes of degradation in the sense that populations, communities and private operators do not perceive or badly perceive the economic potential offered by forests in the long term. As a result, forests are exploited in an anarchic and unsustainable manner, which reduces the potential for wealth creation offered by forests every day.

Poverty and the living conditions of local populations, particularly in rural areas, is an underlying cause of deforestation and forest degradation in Togo. However, the lack of structuring of the supply chains, the low efforts and knowledge in terms of processing of products harvested in this way do not allow these activities to be considered as a viable alternative to improve living conditions and incomes.

The lack of access to credit is also an important cause in the incentive offered to the population to turn to alternative income-generating activities.

It is also noted that the mechanisms to ensure governance of forest resources has not always involved the local communities who have felt expropriated; as a result, there has been anarchic exploitation of resources, as the authority of the State has weakened following the various socio-political crises that the country has experienced.

The main problems at the root of inefficient management of forest ecosystems and the mechanisms for increasing the forest estate can be summarised as follows:

- Lack of appropriate mechanisms for the preservation and restoration of natural and sacred forests;

- Insufficient protection and conservation systems of carbon stocks in protected areas;

- Low motivation for private, community and family reforestation;

- Scarcity and threat of green spaces in urban areas;

- Failure to develop the economic potential of forests;

- Low capacity of local mechanisms for fighting wildfires;

- Poverty and degradation of the living conditions of local communities involved in sustainable forest management;

- Lack of an endogenous and participatory mechanism for sustainable forest management;

- Weight of revealed/imported religions, especially for the conservation of sacred forests.

2.6.1.3 Low level of reclamation of mined sites and infrastructure rights-of-way

The mining sector and the development of road infrastructure constitute an important part of the economy and contribute significantly to the development of the country. Indeed, Togo has significant mineral resources including mono- and polymetallic deposits, traditionally mined gemstones such as diamonds and gold, and radioactive minerals. Phosphate, limestone, iron, crystalline dolomite and building materials constitute the bulk of the mining products currently exploited in the country. Togo is the third largest phosphate producer in sub-Saharan Africa and the fifth largest in the world, and thus supplies nearly 40% of the country's export earnings on a level playing field with clinker and cement.

Finally, recently, the ore mining activity has turned towards the extraction of hematite, while chromite, manganese and bauxite remain relatively little exploited for the moment, but constitute important potential reserves for the country and its future development. The sector's contribution to GDP has increased from 33 billion in 2005 to 91 billion in 2015 (PRBA, 2016).

Unfortunately, this sector of the economy is causing significant degradation of forest ecosystems. The opening up of mining sites, the search for materials for the construction of roads and tracks and the tracing of road rights-of-way to be developed are accompanied by the abusive and anarchic felling of trees and thus contribute to the disappearance of certain forest massifs. Moreover, when poorly managed, mining and material exploration activities can also have significant effects beyond the site, notably through the discharge of drainage contaminated by sediments, chemicals and metals.

In the end, little land restoration effort is undertaken after mining sites are mined, making it impossible to regenerate forest ecosystems. In fact, after exploitation, the soils have a highly disturbed profile and their erosion by run-off water shows that they are infertile to agriculture and not very conducive to natural regeneration. This has the effect of accentuating the scarcity of fertile land and thus has a retroactive effect on the proximal causes of deforestation, particularly agricultural deforestation.

At the national level, mining quarries (metal and non-metal) are estimated at 5.500 ha in 2010 (TNC, 2015). However, taking into account the external effects generated by these operations, it is estimated that the environmental impact of these activities would affect different ecosystems on nearly 95.000 ha. All this shows the magnitude of the impact of mining on forests and justifies the integration of this issue in the framework of Togo's national REDD+ strategy. Nevertheless, it should be noted that since 2006, a clear improvement in the legal and regulatory framework of activities has been observed, in particular with the adoption of the texts on Environmental and Social Impact Studies (ESIA) and the need to obtain an environmental and social compliance certificate before the start of work. However, these provisions are struggling to be effectively implemented.

2.6.1.4 Abusive exploitation of forest resources for wood energy purposes

Population growth and rapid urbanization also lead to an increase in energy needs, induced by the growing production of charcoal and firewood. The exploitation of wood, especially the extraction of wood for energy purposes, is one of the main causes of the advance of savannah (non-forest class) over forests. This is considered a major cause of forest disturbance in Togo. In fact, more than three-quarters of domestic energy sources still come from the use of woody biomass (charcoal and firewood). In addition, charcoal production is carried out with low yields and the sector is dominated by informal activities.

Indeed, wood energy in the form of charcoal is used by more than 80% of the urban population and 17% of rural households. However, the sector is mostly fed by informal activities. This limits the competitiveness of the formal sector and slows down the structuring of the sector, which could be beneficial to the sector and thus largely contribute to reducing the pressure on forest resources.

Urbanization and population growth necessarily call for a growing need for energy. The sources of energy used by the populations are: firewood and charcoal. Initially, wood is taken from forest or wooded savannah areas for the production of charcoal or firewood. If only small quantities are taken, and not regularly, this zone remains wooded (forest or wooded savannah) even though it is disturbed by the removal of wood. If, on the other hand, if harvesting is repetitive with high intensities, the areas lose their wooded cover and are totally converted into savannah or agricultural land, implying a change in occupation or use of the land. According to the results of the consultations, the latter phenomenon is observed in Togo in more than 80% of cases. This phenomenon is explained and accentuated by the growing need to supply Togo's major cities, where the population is very heavily dependent on biomass to cover its energy needs (particularly charcoal).

Moreover, under current supply and processing conditions, biomass energy yields are very low. The lack of investment and access to more efficient conversion technologies curbs the energy coefficient of biomass and leads to a significant «waste» of the forest resource. Consumption patterns and technologies are also limited, with improved stoves still not widespread, despite some initiatives to promote these tools.

Most of the time, supplies are made by «wild collection». Distance and ease of access to sources of supply remain the main criteria for the selection of harvesting points. Nevertheless, with the current harvest dynamics, the sources of supply are becoming more distant, which increases the cost of access to this energy. Thus, while the need for energy increases, supply becomes more complex with the dynamics of forest degradation. This situation leads to a scarcity of energy resources, soaring prices and thus an ever-increasing incentive to increase harvesting in hitherto relatively unspoiled forest areas.

In addition, due to the acceleration of the urbanization phenomenon, carbonization has increased. Current carbonization processes have low yields of around 15 to 30%. These processes, which are not very efficient, cause enormous losses of green wood of around 85%, which is not conducive to sustainable management of the vegetation cover. Until now, there have been no or very few initiatives in Togo aimed at forest plantations for energy purposes. Consequently, the only source of supply currently available comes from natural forests, which partly explains the dynamics of forest degradation in Togo. Thus, a national program to promote energy-oriented reforestation projects could be supported by the national REDD+ strategy.

Nevertheless, even today, the use of modern renewable energies (such as solar or wind power) is still in its infancy and is limited to a few projects for the installation of solar water heaters in maternity wards and hotels and photovoltaic panels observable on the roofs of some houses, religious representations and railway stations. In addition, despite the economic advantages of using gas over charcoal, many households are still reluctant to switch to gas. Among the obstacles to the development and diffusion of this type of energy, it can be observed that a majority of households question the safety conditions related to the use of butane gas and also doubt the capacities and efficiency of gas stoves. Moreover, domestic butane gas supplies remain problematic and the costs of acquiring equipment are still high. Households that have adopted gas as a domestic energy source are often discouraged by repeated gas shortages.

As far as timber and service timber is concerned, population growth also leads to important needs for human settlements (building materials, furniture, electrification).

The main problems can be summarized in three categories:

- Inexistence of sustainable supply and consumption mechanisms for traditional energy and service wood ;

- Weak development of modern renewable energies;

- Low level of development of conventional energies, especially LPG; and

- Low use of substitute materials for service wood.

2.6.2 Indirect or underlying causes of deforestation and forest degradation

The indirect or underlying causes of deforestation and forest degradation are summarized below.

2.6.2.1 Lack of land use planning control

Population growth with the expansion of urban centers or galloping urbanization is a major cause of changes in land occupation and use. This cause is found in first place in the maritime region. Indeed, over the period 2005 - 2017 in the maritime region, urban areas have seen their surface area double from 30600 ha in 2005 to 64710 ha in 2017. In the other regions of the country, this cause is in second place among the causes of change of occupation and land use. The need for living space due to the increase in population leads to the installation and construction of houses in an anarchic manner, without any planning and development plan for urban centers. Thus, the analysis of the cartographic data shows a horizontal increase of the big cities and the historical urban centers of the country, but also the appearance of the new living areas. These new settlements are being built without an urban development plan and in areas that are not conducive to urban settlement. According to the results of stakeholder consultations, this situation is causing serious social problems in their localities, as there is no respect for land tenure with double and triple land sales systems.

In the absence of the implementation of a land use planning policy and a solid land tenure system, land use dynamics are more responsive to short-term economic trade-offs in the choice of location for activities. As a result, the implementation of activities is unplanned and inefficient at regional and national levels and, above all, is generally at the expense of natural resources, particularly forests. In short, Togo is experiencing an imbalance, due to the increasing spatial distribution of populations, natural resources and economic activities. Despite the adoption of a national land use planning policy (NLUP) in 2009 and a framework law on land use planning in 2016, Togo has not been able to significantly reduce regional disparities and spatial and structural imbalances for harmonious and sustainable development. The main reason is related to a lack of implementing legislation to effect the NLUP and the national and regional land use planning schemes, which are not yet operationalized.

The main factors which are at the origin of the non control of the regional planning can be grouped in two categories:

- Low level of observation and spatial planning of the territory ;

- Obsolescence or non-existence of master plans;

- The non-existence of an integrated and decentralized land management mechanism based on SDGs

2.6.2.2 Land insecurity

Among the underlying causes of deforestation, there are also factors related to land tenure. Indeed, Togo suffers from a deficient land tenure system that leads to unauthorized installation or exploitation of new land, land grabbing, and development of habitat and agricultural areas that is anarchic in some regions. The phenomenon is all the more important as the scarcity of available land is worsening. This phenomenon has even spread in regions that have the particularity of having a protective legal status as revealed by the cartographic analyses conducted in the framework of the current REDD+ process (example of protected areas). Thus, in order to sustainably reduce deforestation and degradation dynamics, Togo needs to reform and strengthen its land tenure system.

Togo is facing growing demographic pressure which accentuates the dynamics of land occupation and land use change and the associated risks of social conflicts and environmental degradation.

Indeed, land tenure in Togo is currently the source of numerous disputes throughout the country (multiple sales, land spoliation, anarchic occupation of land, expropriation, etc.). This land tenure issue in Togo is the result of the obsolescence of the texts governing this area in view of the current socio-economic challenges. In fact, until the adoption of the new land code by the National Assembly in June 2018, the land law applied was that of 1974, and is characterized in particular by the non-harmonious coexistence of customary law and modern law. The existence of this duality in land tenure is often a source of legal insecurity regarding land tenure. Also, the absence of a sound and effective land information system greatly limits the prospects for land tenure implementation. The other land tenure problems identified, which the implementation of the new land tenure code would help to mitigate, are as follows:

- the incompatibility between certain customary practices and plantation activities ;

- lack of knowledge and/or lack of control over land tenure legislation;

- the relatively high costs and lengthy procedures for obtaining land titles;

- the non-registration of the majority of the land being exploited;

- the demotivation of planters due to insecurity of land tenure; and

- the lack of land ownership by women in rural areas.

2.6.2.3 Low level of integration of the REDD+ dimension in planning and budgeting

In Togo, the implementation of certain sectoral policies affects forestry, and more particularly the economics of forestry development and the competitiveness of investments in the sector. For its part, the forestry sector interacts heavily with other economic sectors in the country.

The main problems identified in terms of policy and strategic framework are as follows:

(i) obsolescence of the strategic axes defined in environmental matters (National Environment Policy (PNE), National Action Plan for the Environment (PNAE) and weak integration of the REDD+ dimension in certain sectoral policies, etc.);

(ii) insufficient synergy between ongoing programs and projects;

(iii) low involvement of forest users, forest neighboring populations and grassroots communities in the elaboration of policy and strategy documents;

(iv) failure to take into account private forests in policy and strategy documents;

(v) insufficient inclusion of non-timber forest products and ecosystem services in national accounts;

(vi) absence of a clearly defined strategy on private forests; (vii) lack of awareness and understanding of policy documents by the populations and stakeholders;

(viii) insufficient implementation of policy documents;

The implementation of the national REDD+ strategy will therefore have an impact on all sectors of the country's economy, and in turn the sectoral orientations that will be taken will influence the effectiveness of REDD+ implementation. The main causes underlying the low consideration of the REDD+ dimension in planning are the following:

- Weak mastery of methodological tools and processes for integrating REDD+ into planning and budgeting;

- The novelty of the REDD+ process;

- Weak implementation of existing consultation frameworks for policy and strategy development and coordination; and

- Low stakeholder capacity.

2.6.2.4 Low level of ecological and ecosystem awareness of stakeholders

The degradation of the environment and the living environment is due not only to political, legal and institutional inadequacies, but above all to the behavior of the population with regard to their environment. The efforts made by the government and other stakeholders have not led to the building of sufficient ecological awareness resulting in a commitment to rational daily management of natural resources. Nevertheless, initiatives and events carried out each year in Togo that work in this direction are worth mentioning. This is the case, for example, of the tree day, dedicated to the protection of trees and the environment, which has been established and observed every year since 1977.

2.6.2.5 Low level of access to productive resources by women, youth and other vulnerable groups

Demographic weight and their active participation in development activities in all sectors of development, benefit only very little from the fruits of growth, including that resulting from the exploitation of forest resources. Moreover, women, youth and vulnerable people are the main actors in the destruction of forests and the main victims of deforestation and forest degradation.

The main causes are as follows:
- low representation of women and youth in decision-making spheres of management and revenue sharing in forest resource exploitation and other related activities ;

- lack of ownership and weak implementation of certain laws and regulations relating to land ownership and women's inheritance rights;

- weak technical capacity and low mastery of good practices in the management and exploitation of forest resources by women, young people and vulnerable people;

- low level of organization and management in relation to the development of forest resources;

- high incidence of poverty among women, youth and vulnerable groups.

2.6.2.6 Weak Institutional and Research Capacity

Factors that illustrate weak institutional and research capacity include the following:

At the institutional level:

(i) insufficient collaboration in the field between the MEFR and other institutions, particularly the institution in charge of agriculture and civil society organizations;

(ii) insufficient MEFR staff, materials and equipment;

(iii) insufficient and weak capacity in the decentralized structures of the MEFR in rural areas;

(iv) non-operationalization of the National Environment Fund (FNE);

(v) insufficient resources from the National Forestry Development Fund (FNDF) allocated to the promotion of the forestry sector;

(vi) low capacity of the national forestry research center due to insufficient financial, material and human resources;

(vii) slowness in the procedures leading to the registration of non-State forest estates with the MEFR;

(ix) difficulties in carrying out environmental and social impact asessments (Article 28 of the Forestry Code) prior to any forest management (silvicultural improvements, reforestation, health treatments);

(x) lack of development of public-private partnerships in the forestry sector.

One can also cite the constraints linked to the non-application of texts, notably those relating to the formulation of a plan for the rational development and management of privately-owned woodlands, integrated into the local area (Article 46 of the Forestry Code) and the support in terms of subsidies, loans and tax incentives that the State will have to grant to private individuals for any investment made by the latter, in order to motivate them (Article 50 of the Forestry Code). Furthermore, the implementing texts that should give details of the incentives have not yet been adopted.

At the financial level:

(i) difficulties in accessing long-term resources from banking and micro-finance institutions, whereas the return on investment in forestry operations is achieved over a long period of time;

(ii) the non-existence of financing mechanisms adapted to the forestry production cycle in terms of repayment schedules and even interest rate subsidies;

(iii) inexistence of insurance mechanisms to cover risks related to bush fires, animal raving and other vulnerabilities;

(iv) low capacity to mobilize traditional resources and climate resources, due to the lack of organization of planters and the lack of control over procedures for accessing existing sources of financing.

At the technical level:

(i) poor mastery of silvicultural technical itineraries (establishment of nurseries and plantations, maintenance and exploitation),

(ii) poor quality of plant material and strains of forest species;

(iii) lack of mastery of management techniques (health interventions, firebreaks, treatment of diseases, knowledge of maturity periods).

At the organisational level:

(i) the weak anchoring of associative life and of the basic principles that govern associations of planters and forest managers;

(ii) poor mastery of cooperative management tools, in accordance with the OHADA law on cooperatives;

(iii) the lack of a clear understanding of the role of the forest management bodies in the management of forests.

2.6.2.7 Inadequacy of the legal framework for natural resource management

Despite the efforts undertaken from a legal and regulatory point of view, certain shortcomings persist, including legislative gaps and a low level of enforcement of the texts in force.

In terms of legislative gaps:

(i) the Framework Law on the Environment does not take into account certain terms defined by the Forest Code (hunting zones, buffer zones, forest fires, etc.);

(ii) the Framework Law on the Environment does not explicitly provide for strategic environmental assessment, which is often confused with environmental and social impact assessment;

(iii) the absence of regulatory texts relating to reforestation, private forests (Article 25 of the Forest Code) and the forestry domains of local authorities and communities;

(iii) absence of texts implementing the Forestry Code concerning incentives to promote and encourage initiatives for the development of community forests and non-State plantations;

(iv) absence of a mechanism for conflict resolution and complaint management in the context of the development of community and private forests.

In terms of non-execution/enforcement or lack of knowledge of the texts:

(i) ignorance and lack of control of the regulations in force in forestry matters by the majority of planters;

(ii) poor dissemination of texts on forestry and the principles of forest management techniques in privately-owned forests;

(iii) poor application of existing texts;

(iv) absence of regulatory texts relating to privately-owned forests (Article 25 of the Forestry Code); (v) absence of regulatory texts relating to reforestation;

(vi) absence of regulatory texts relating to the forestry domains of local authorities and communities;

(vii) absence of legal texts relating to incentives to promote and encourage initiatives for the development of community forests and plantations in privately-owned forests;

(viii) absence of a conflict resolution and complaints management mechanism in the context of the development of privately-owned forests;

(ix) non-application of community directives and national texts on transhumance;

(x) failure to respect legislation on wildfires;

(xi) poor implementation of conventions and agreements that do not favour access to available financing for the promotion of the forestry sector.

2.6.3 Interactions between direct and underlying causes of deforestation and forest degradation in Togo

Figure 29 below illustrates the interactions between the direct and underlying causes of deforestation and forest degradation in Togo.

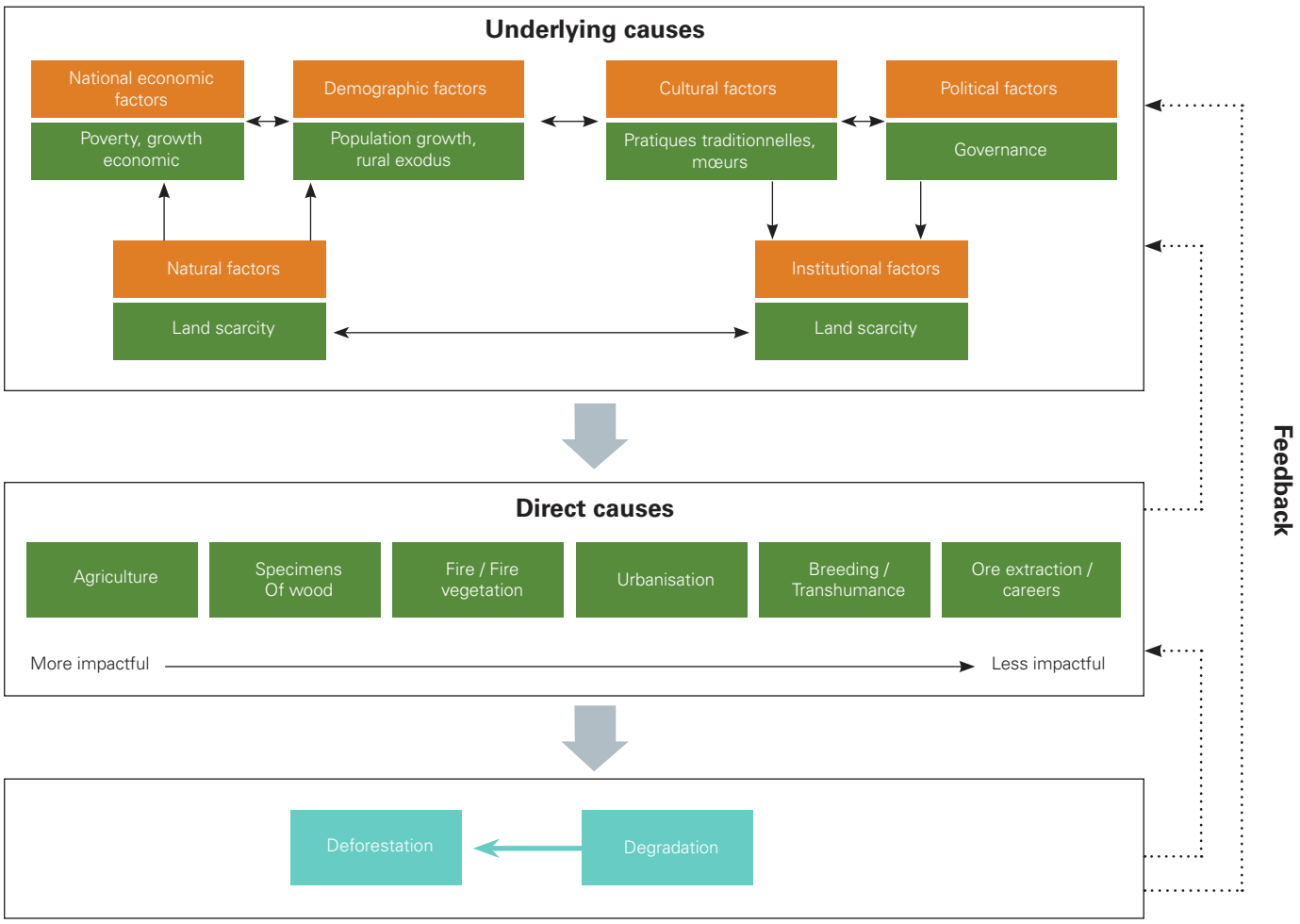


Figure 29: Illustration of the interactions between the direct and underlying causes of deforestation and forest degradation in Togo

2.6.4 Summary of the causes of deforestation and forest degradation by region

Figure 30 below shows and prioritizes for each region, the main direct causes of land-use change resulting from the results of the consultations conducted in the development of this strategy. As a result, the top three causes in descending order of importance by region are as follows:

- Maritime: 1/ absence of a land use plan; 2/ shifting agriculture; 3/ population increase ;

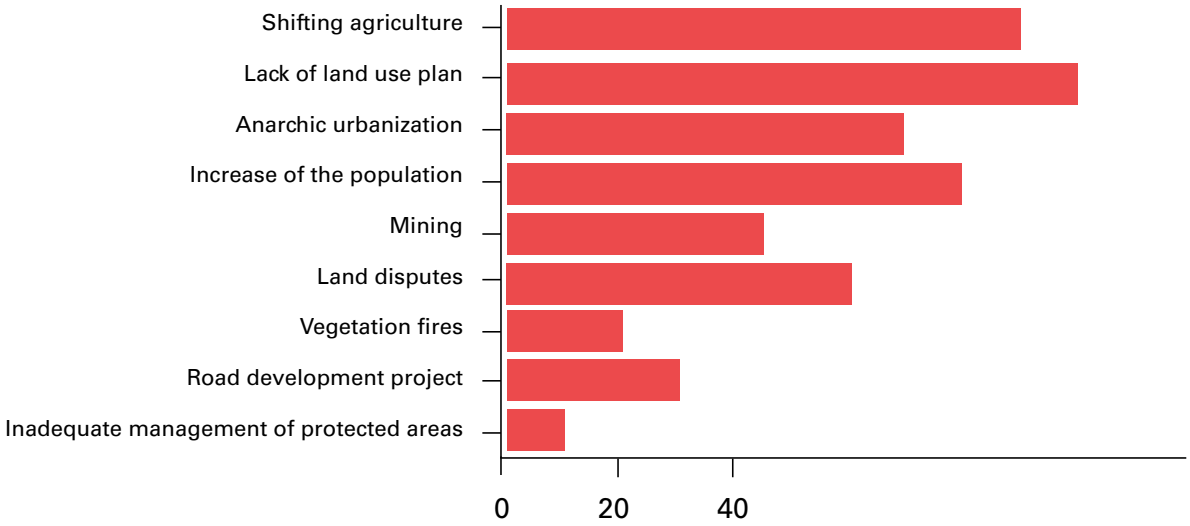
- Plateaux: 1/ shifting agriculture; 2/ poor management of protected areas; 3/ wildfire;

- Central: 1/ itinerant agriculture; 2/ population increase; 3/ vegetation fires;
- Kara: 1/ shifting cultivation; 2/ population increase; 3/ wildfires;

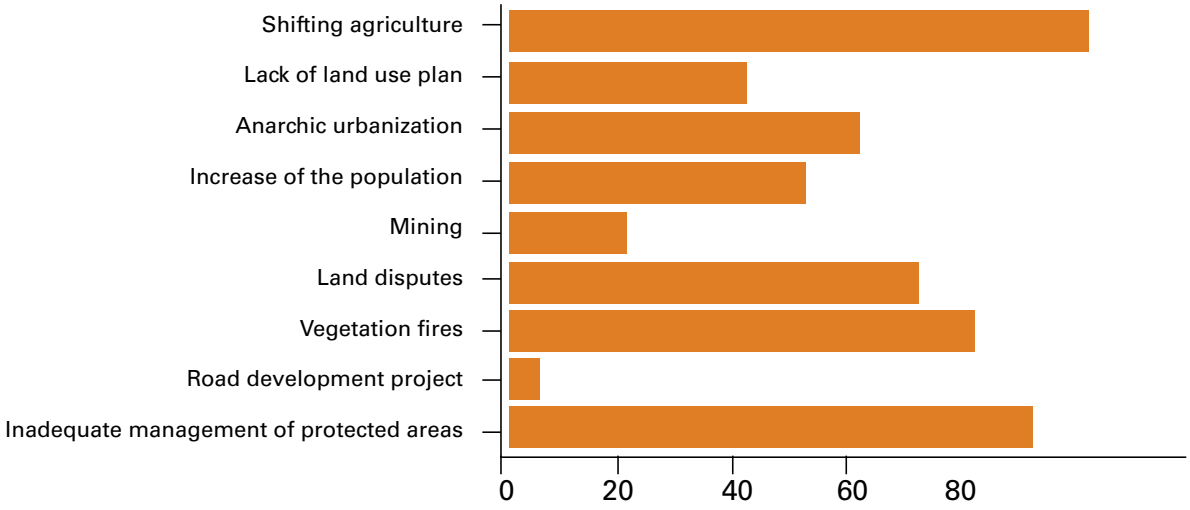
- Savannah: 1/ shifting cultivation; 2/ population increase; 3/ uncontrolled urbanization. Prioritization of actions at the regional level should take into account the order of precedence as shown in the graph below.

Prioritization of actions at the regional level will need to take into account the hierarchies as shown in the following chart.

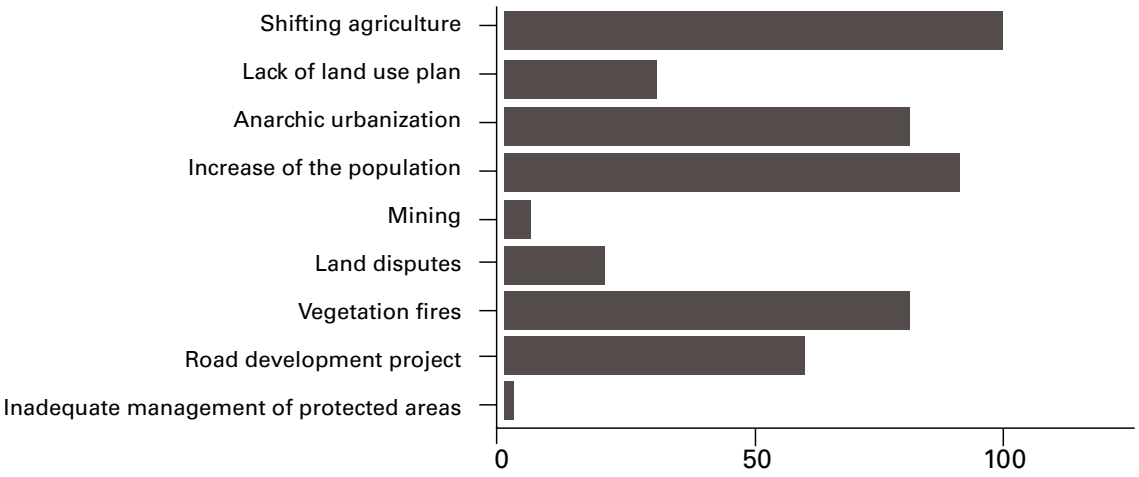
Figure 30: Summary of the causes of deforestation and forest degradation by region



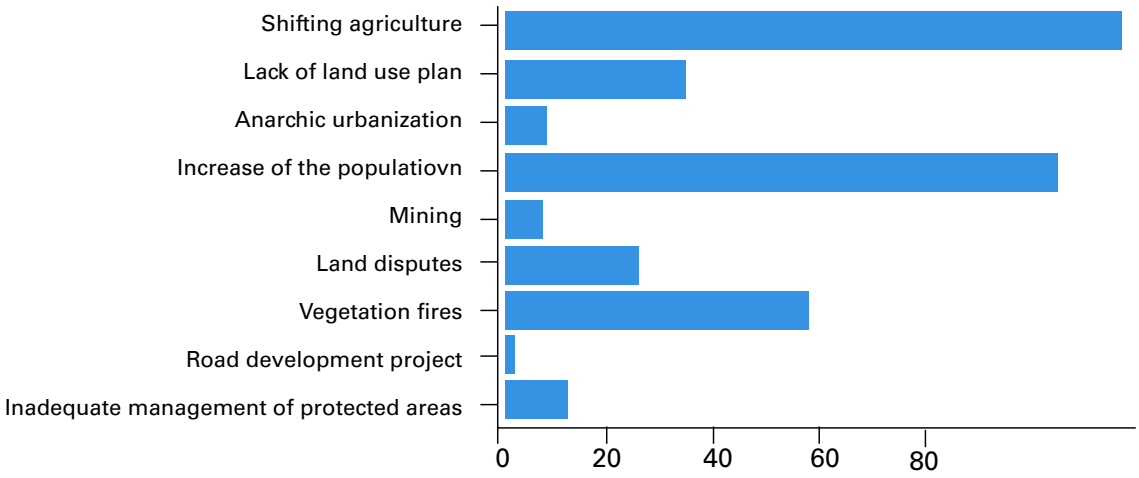
Maritime region



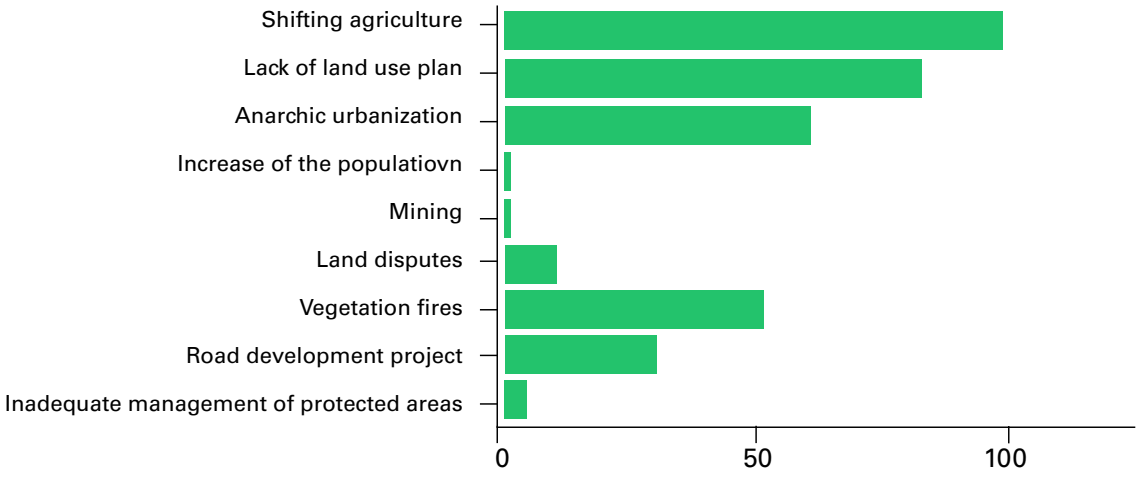
Plateaux region



Centrale region



Kara region



Savanes region

2.7 CHALLENGES

The main challenge to be addressed through the implementation of the national REDD+ strategy is to reverse the current land-use dynamics that are detrimental to forests while promoting economic development. Therefore, three major challenges have been identified:

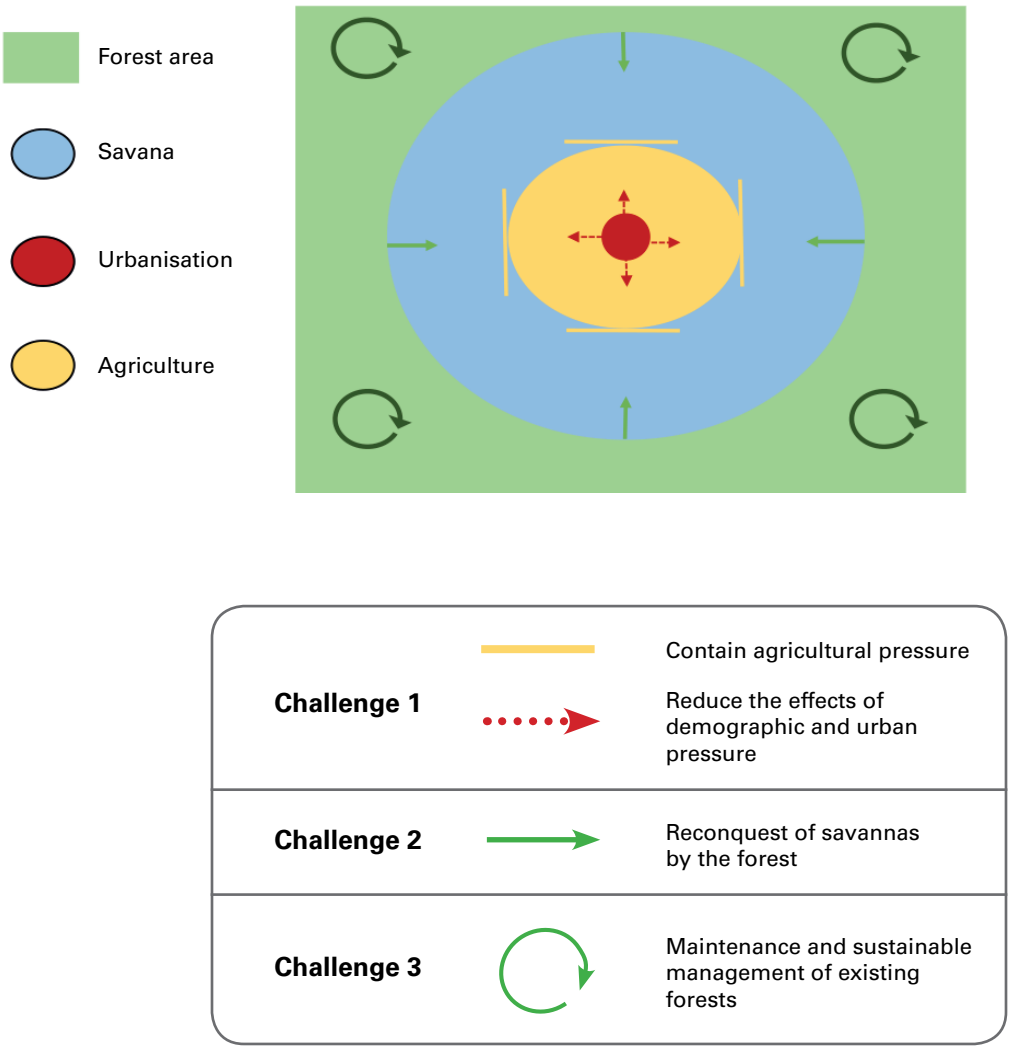
Challenge 1: To spatially contain agricultural pressure and reduce the effects of urban pressure, while promoting economic development **to reduce greenhouse gas emissions;**

Challenge 2: Reverse the process of forest degradation and savannah development in order **to increase carbon stocks;**

Challenge 3. To sustainably manage existing forests and increase the forest estate t**o conserve or even increase carbon stocks.**

These challenges aim at breaking with existing land use dynamics and their success should make it possible to reverse the trend of deforestation and degradation by initiating a reclamation of forest areas in the land use landscape in Togo, as illustrated below (Figure 31).

Figure 31: Diagram of territorial challenges to reverse the dynamics of deforestation and forest degradation in Togo



CHAPITRE III
ORIENTATIONS, PRIORITIES AND STRATEGIC OPTIONS FOR REDD+ IN TOGO

This section describes the strategic directions, options and actions needed to address the direct and indirect causes of deforestation and forest degradation analyzed above, which can best impact on increasing forest cover and carbon stocks, leading to the reduction of GHG emissions.

3.1 VISION, GUIDING PRINCIPLES AND OBJECTIVES

3.1.1 Vision

The vision of the Togolese government through the elaboration of the national REDD+ strategy is that by 2050, the emergence of a green and low GHG emission economy is effective, obeying the standards and principles of conservation and sustainable and participatory management of forest ecosystems, while ensuring the objectives of economic growth and poverty reduction, human and social development of local communities within a framework of social, cultural and gender equity. The strategic and technical tools of the REDD+ process are put in place and are operational for the benefit of the national and international community.

In this sense, REDD+ as a tool for sustainable development will support the country in achieving its objectives set out in the various policies and strategies (Figure 32). Thus, this vision of Togo's REDD+ strategy consolidates that of Togo's forest policy by 2050 and is in line with the country's overall vision expressed in the National Development Plan (NDP) 2018-2022 and the commitment to reduce GHG emissions in the Contribution document determined at the national level of Togo through the signing of the Paris Agreement. It is also consistent with the visions of the sectors constituting the main direct causes of deforestation, notably those of agriculture and energy.

Figure 32: visions en interactions avec celle de la stratégie REDD+ Togo

Vision of the National Development Plan (PND) 2018-2022

«To make Togo a middle-income nation economically, socially and democratically solid and stable, in unified and opened to the world». Its overall objective is to structurally transform the economy for strong, sustainable, resilient, inclusive growth that creates decent jobs and leads to improved social welfare. This transformation will be achieved through the implementation of 3 strategic priorities: **Priority 1:** Establish a logistic hub of excellence and a first-class business center in the subregion; **Priority 2:** Develop agricultural, manufacturing and extractive industries processing centers; **Priority 3:** Consolidate social development and strengthen inclusion mechanisms. This last priority has 16 outcomes, of which Outcome 12 is: Sustainable management of natural resources and resilience to climate change are ensured.

CDN Vision of Togo

«Commit to a proactive strategy for sustainable development and the fight against global warming and contribute to the objectives of the UNFCCC in order to limit the increase in temperature to 2°C by 2030. Depending on national means and priorities, Togo intends to achieve a reduction level of 11.14% of GHG (unconditional target) and 31.14% of GHG (conditional target).

REDD+ Vision of TOGO

Forest Policy Statement

«To reach a forest cover of 30% by 2050, which fully covers its wood energy needs, conserves its biodiversity and ensures sustainable protection of areas at risk as well as wildlife habitats». To achieve this vision, 5 strategic lines of action have been identified: (i) promotion of sustained forest production; (ii) restoration of degraded stands and conservation of biodiversity; (iii) development of new forestry partnerships; (iv) improvement of the institutional, legal and legislative frameworks of the forestry sector; and (v) development of forestry research.

Agricultural Policy 2016-2030

«A modern, sustainable and high value-added agriculture at the service of national and regional food security, a strong, inclusive, competitive economy that generates decent jobs and stable by 2030».

One of the 08 guiding principles behind this vision is «preservation of the environment and natural resources.

National Energy Policy

«Ensure, by 2030, access to clean, competitive, quality energy that preserves the environment for the entire population by doing everything possible to develop an efficient and sustainable energy supply system based on public and private, individual and collective initiatives capable of promoting Togo's economic and social development.

3.1.2 Guiding Principles

The 7 basic principles underlying Togo's national REDD+ strategy are as follows:

Principle of good governance: Compliance with standards of environmental, social and democratic good governance, including those contained in national commitments and multilateral agreements ;

Principle of coherence with international commitments: Contribution to the sustainable development policy, low carbon, climate resilient and consistent with commitments made under international conventions and agreements ;

Principle of integration into national policies: Need to make sustainable forest management one of the priorities in the country's national development policies, strategies and programmes;

Principle of ecosystem functions: The maintenance and enhancement of the multiple functions of forests, including the provision of benefits such as the conservation of biodiversity and other ecosystem services;

Principle of multisectoral integration: Promotion of multisectoral integration as a priority to avoid or minimize the adverse impacts of other sectors on forest ecosystems and biodiversity;

Incentive Principle: Promotion of incentives for actors contributing to the achievement of REDD+ results;

Equity and inclusion principle: Promotion of equal rights, gender equity and social inclusion taking into account regional specificities.

3.1.3 Objectives of the strategy

The overall objective assigned to Togo's REDD+ strategy is to reach a 30% forest cover rate by 2050, inducing carbon sinks and efficient carbon sequestration. It is broken down into the following specific objectives:

1. Conserve and strengthen the resilience of forest ecosystems, including the increase of carbon stocks and biodiversity ;

2. Stabilize and sustainably reverse deforestation and forest degradation and restore landscapes ;

3. Increase the reforestation effort to 7% of forest cover ;

4. Ensure sustainable and participatory management of forest and agroforestry ecosystems, guaranteeing the strengthening of the resilience of local communities to the effects of climate change and the improvement of their living conditions;

3.2 STRATEGIC AXES AND OPTIONS

Four strategic axes have been defined and each has been broken down into strategic options (Table 15) to address the direct and indirect causes of deforestation and forest degradation identified and analysed in Chapter II.

The approach underlying the implementation of the strategic options is as follows:

- the national approach integrating the dimensions of equity and valorization of the comparative advantages and specificities of each region ;

- the approach of concentrating actions at the level of vulnerable and priority areas for intervention, with a strong impact on the sustainable recovery of forest cover, on the basis of coherent investment programmes;

- the holistic approach which addresses all levels of intervention (national, deconcentrated, decentralized and local);

- the landscape approach, with the participation of grassroots communities.

Table 15: Fact sheet on strategic axes and options

Strategic Priorities	Strategic options
Priority 1: Promotion of an efficient agriculture with low impact on the forest	Promotion of sustainable agricultural production modes
	Promotion of agroforestry systems that consolidate carbon stocks
	Support the development of agricultural poles integrating the REDD+ dimension
	Support for the valorization of production and market access
	Promotion of an efficient management of livestock and transhumance
Priority 2: Sustainable management of forests and growth of the forest heritage	Support sustainable community forests management
	Preservation of existing forests and restoration of degraded landscapes
	Protection and conservation of biodiversity and carbon stocks in protected areas
	Implementation of the participatory vegetation fire prevention management system system
	Incentives for private, community and family reforestation
	Support for increasing carbon stocks in urban and peri-urban areas
	Promotion of the valorization and transformation of forest resources
	Improved livelihoods and sources of income for rural communities engaged in sustainable forest management
	Rehabilitation and reforestation of mining sites and other road infrastructure corridors
Priority 3. Reducing the pressure on wood energy	Sustainable supply and improvement of the efficiency of traditional energies transformation and combustion
	Development and promotion of modern renewable energies
	Promotion of alternative energies
Piority 4. Support for the implementation of cross-cutting actions to strengthen the REDD+ process	Implementation and operationalization of tools and mechanisms to enable better observation and planning of the territory;
	Promotion of integrated and decentralized management of land use planning based on Sustainable Development Goals (SDGs) ;
	Strengthen land tenure security
	Integrating REDD+ into planning documents and programs
	Information, education, communication and environmental awareness
	Strengthen access to productive resources for women, youth, people with disabilities and other vulnerable groups
	Strengthening institutional and research capacities
	Legal reforms

These options are in line with 8 of the 17 Sustainable Development Goals (SDGs), notably Goals 1, 2, 5, 7, 8, 12, 13 and 15. They also constitute a variation of 2 of the 3 strategic priorities of the NDP, namely priority 2, through the expected outcomes 1 and 5, and priority 3, through the expected outcomes 6, 10, 12 and 13.

3.2.1 Priority 1: Promotion of an efficient agriculture with low negative impact on the forest

The implementation of this priority will contribute to significantly reduce the impact of agriculture on forest degradation while actively participating in the government's desire to make the agricultural sector a pillar of Togo's economic growth and the country's food security objectives. This priority is broken down into the following strategic options:

3.2.1.1 Promotion of sustainable agricultural production modes

The assistance aims to reduce the propensity of producers to conquer new forest areas by supporting them in adopting innovative and efficient production systems that incorporate climate-resilient techniques and limit or even eliminate slash-and-burn agriculture, a major source of transformation into savannah landscape and deforestation.

The aim will be to promote innovative and high-performance agro-ecological practices that are resilient to climate change, which will be done through the support of producers in the adoption of integrated soil fertility management techniques (ISFM), the integrated management of fertility, water and pests by fungi approach (GIFERC), accelerated composting techniques using biofertilizers, organic soil amendments, and sustainable water management through the Integrated Water Resources Management (IWRM) approach, which constitute factors for improving soil structure, reducing soil degradation and thus stabilizing peasant farms. Water and soil conservation (WSC) and soil defense and restoration (SDR) techniques will also be promoted for the recovery and restoration of degraded lands in the target areas. Appropriate crop rotation and crop rotation techniques, the introduction of fertilizing plants and trees of economic value on farms, the promotion of organic agriculture, etc. will also be promoted.

Producers will also be supported in agricultural intensification methods, through improved access to improved seeds and environmentally friendly agricultural inputs, as well as the sustainable mechanization of their farms, particularly among neighboring farmers and land rights holders of forest formations. Support will be provided through the implementation of the following actions to improve soil productivity: support to the Togolese Institute for Agronomic Research (ITRA) for the production of quality basic seeds, support to seed producer organizations for the production of quality commercial seeds adapted to local conditions, improvement of sub-regional collaboration among seed sector stakeholders; facilitation of access to organic fertilizers and pesticides; support to farm mechanization taking into account soil structure.

Partial and total water control will also be promoted in order to make production more stable, efficient and resilient to climate change, through support for the implementation of the following actions: development of lowland areas; development of hydro-agricultural infrastructure for water control, particularly in rice, market gardening and fruit growing; support for the development of lowland areas and hydro-agricultural infrastructure.
The actions to structure and strengthen the capacities of farmers' organisations that will be supported, particularly those likely to have an impact on forest cover, will include, among others: support for the emergence of organizations of producers and other service providers; support for their structuring, in accordance with the provisions of the OHADA (Organization for the Harmonization of Business Law) law in force on agricultural cooperatives; support for their structuring into unions, umbrella organizations, federations or interprofessions capable of providing capacity building services to their members, improving access to factors of production and to the market; advisory support and awareness-raising on good agricultural practices that conserve the integrity of forests.

In addition to disseminating and training farmers on more suitable and efficient agricultural itineraries, the strategy will promote access to modern and adapted mechanized equipment and practices for production, conservation, storage and processing. Training activities will focus on the following themes: mastering the application of technical production and conservation itineraries; development of facilities; diversification of production; efficient management of slash-and-burn techniques; soil fertility management, installation of composting and manure pits; improved fallow practices; planting of crops without slash-and-burn; development of terrace crops with vegetation using forest species, agroforestry, management of wildfires.

In summary, the actions that will benefit from support under this strategy are as follows:

- Promotion of innovative, efficient and climate-resilient agro-ecological practices;
- Promotion of agricultural intensification (efficient improved inputs, reasoned fertilization) of farms in forest impact zones;
- Promotion of partial and total water control;
- Structuring and capacity building of farmers' organizations.

3.2.1.2 Promotion of agroforestry systems that consolidate carbon stocks

The objective of this strategic option is to regenerate the forest environment in savannah areas that have been neglected without valorization and to promote the integration of forestry into agricultural production systems.
It will be achieved through the implementation of a

national programme for the promotion of agroforestry in order to limit the propensity to encroach on new areas of forest. This program will be structured in two main components: the restoration of degraded land; and the promotion of agroforestry as an economically profitable and ecologically sustainable agricultural technique.

The agroforestry program will aim to:

(i) train and inform agricultural stakeholders on appropriate agroforestry systems and ensure the economic viability and sustainability of agroforestry production;

(ii) encourage the integration of agroforestry into the agricultural activities of rural populations;

(iii) support the establishment of nurseries in each ecoregion of Togo;

(iv) promote and popularize species adapted to each agro-ecological zone;

(v) promote species of multiple socio-economic and environmental value on farms. This requires a deepening of knowledge, particularly through the development of research and extension programs, pilot projects and the elaboration of technical and economic reference systems.

Financial efforts should be accompanied by technical support to encourage a large number of farmers to set up or develop agroforestry systems. This technical support should also be accompanied by the capitalization of knowledge and its dissemination. Also, in an approach to promote agroforestry, it is essential to set up actions to promote access and local supply of suitable tree seedlings.

The priority actions that would be undertaken can be summarized as follows:

- Support for the implementation of Research and Development Programs on agroforestry systems adapted to the different biophysical contexts in Togo and their functioning (e.g. promotion of the development of coffee, cocoa, palm trees under forest cover, cashew trees, néré, shea, etc.) ;
- Reinforcement and support for the establishment and monitoring of agroforestry systems ;
- Promotion of forest species with multiple socio-economic value on farms ;
- Support to producers for the acquisition of tree seedlings of local origin ;
- Support for capacity building of tree nurseries in each of Togo's ecoregions.

3.2.1.3 Support for the development of agricultural poles integrating the REDD+ dimension

The objective of this option is to support the initiation and implementation of REDD+ good practices in agricultural entrepreneurship promotion programs promoted by the government, in order to better leverage the different climate funds available. Thus, the REDD+ strategy will support ongoing initiatives in the agricultural sector aimed at creating agricultural poles, processing of agricultural products and development of commercial agriculture. These initiatives contribute to stabilizing farms through the application of all modern technical production packages that help maintain soil fertility and thus curb the propensity to conquer the soils of forest formations considered to be the most fertile. The REDD+ strategy will participate in the scaling up of all good practices that do not affect soil and forest resource degradation and will support all initiatives to strengthen forest cover in these agricultural growth poles.

It should be noted that the agropoles development project that will be the anchor of the agricultural growth poles aims at contributing to operationalize the strategy of structural transformation of Togolese agriculture for an inclusive growth aiming at poverty reduction, job creation and reduction of the country's dependency on food imports. The studies of environmental and social safeguards that will be conducted in the framework of the development of agro-parks will have to integrate the REDD+ dimension. In summary, the actions that will be supported within the framework of the strategy are the following:

- Support to the integration of the REDD+ dimension in initiatives for the creation and management of agricultural growth poles and development of commercial agriculture;
- Support for reforestation and land development, particularly in agro parks, agro-industrial units and planned agricultural development zones (ZAAP).

3.2.1.4 Support for the valorization of production and market access

The objective of this option is to generate additional income in the value chain for the benefit of producers, which would lead to a low propensity of producers to expand agricultural land on forest land. In fact, in order to ensure the smooth flow of products on the market and their competitiveness, it will be necessary to reinforce the structuring of the sectors, especially the commercial ones. This should include strengthening and consolidating the capacities of all the links in the value chain. The implementation of this action will be largely facilitated by the extensive network of agricultural groupings/cooperatives already existing in the country. The ongoing experiences conducted by the service enterprises for producer organizations (ESOPs) based on contractual pillars between an operator and the producer organizations It will be capitalized and scaled up.

At the level of this component, it will essentially involve the following actions:

• Capitalization and scaling up of ESOP models and other innovative models ;

• Promotion of small processing units for plant products and by-products;

• Support for packaging and marketing (labeling, market information systems, contractualization);

• Support for the economic development of forest products from agroforestry.

3.2.1.5 Promotion of an efficient management of livestock and transhumance

The aim is to promote sustainable livestock management systems and transhumance practices that do not affect the development and conservation of forest resources. These measures will allow the maintenance and increase of the vegetation cover, by reducing the wandering of animals and avoiding the more or less controlled fires that follow to accelerate the regrowth of vegetation. These actions will essentially consist of the following:

• Support for the elaboration of management plans and the development of improved pastures ;

• Support for fodder production ;

• Support for the stabilization of livestock systems, through the extension of habitat models and semi-improved animal pens;

• Improvement of animal productivity and health status, through training of village livestock auxiliaries (AVE), support for the organization of vaccination campaigns, raising awareness of animal vaccination, introduction of high-performance breeding stock adapted to local conditions, development of livestock ranches, development of infrastructure, equipment and animal watering sites;

• Raising awareness among transhumant herders and other stakeholders on compliance with the provisions in force and setting up a control mechanism;

• Tracing, vegetalisation and marking of transhumance corridors in a participatory and consensual manner;

• Participatory identification and development of transhumant animal parking areas;

• Training of herdsmen in techniques for pruning branches of foliage used as fodder for animals to promote regeneration;

• Installation of watering points for transhumant animals;

• Revision of transhumance agreement.

3.2.2 Priority 2: Sustainable management of forests and growth of the forest heritage

This objective will be implemented through nine strategic options, each of which will be broken down into specific actions. These strategic options will be implemented at local level with the involvement of local populations and communities in order to ensure the maintenance and preservation of the forests and to contribute to the general growth of the country's forest heritage.

3.2.2.1 Supporting Sustainable Community Forest Management

The objective of this option is to initiate and implement endogenous mechanisms for the sustainable management of forests and the sharing of revenues from their development and exploitation, which take into account the rights of stakeholders (landowners, operators, local communities). The various programmes and projects carried out within the framework of sustainable forest management over the last few decades in Togo have made it possible to make significant progress in the field of participatory management of community forests. This has led to a real transfer of competence to local communities that should be structured and strengthened within the framework of the national REDD+ strategy.

The latter should therefore provide innovative and consistent support to forestry and community conservation initiatives as the preferred management methods for forest resources and environmental services provided by Togo's forests. To this end, investments will be envisaged to provide technical and financial support to local communities to delegate sustainable and participatory forest management to them. Various activities could thus be supported technically and financially, such as the setting up of frameworks for inter-communal consultation on forest management methods that are within the jurisdiction of at least two communes, the development of community forest management plans, etc. This would also involve support for the effective capacity-building of the local administrations and groups involved, as well as support for the emergence of private operators.

Training activities in the mastery of the technical silvicultural itineraries of stakeholders will be conducted in the following areas: setting up plantations, maintenance and sustainable exploitation of forests; mastery of management techniques in terms of sanitary interventions, firebreaks, treatment of diseases, knowledge of maturity periods. In addition, mechanisms will be put in place for the involvement of local and regional authorities in the governance and management of forests and, among other things, to guarantee land tenure.
In order to structure all these approaches aimed at community forest management and the promotion of community forestry for the restoration of degraded forest

ecosystems, the national REDD+ strategy provides for the establishment of a specific regulatory framework for community management. One of the relevant avenues is the elaboration, specific to each community, of community charters for forest management. The charters developed could focus on the location of the forest landscapes concerned, the definition of the role of forests and the objectives of community management, the definition of the parties involved in forest management, their role and allocation. The charter could also define the composition of community forest management bodies and provide for the arrangements for dispute settlement and the rights and duties accorded to each stakeholder. The development of this option could be based on the experiences of the Integrated Land Disaster Management Project (PGICT) which contributed to the elaboration of the charter and the convention within the framework of the manual of procedures for the creation and allocation of community forests in the cantons of Agotimé-Sud, Alibi, Goubi, Bago, Kousoumtou, etc,.

The actions that will be undertaken under this option can be summarized as follows:

- Training of stakeholders in the mastery of silvicultural technical itineraries and sustainable forest management ;
- Support for the setting up and capacity building of community forest management structures;
- Support to local communities for the elaboration and implementation of local and communal development plans integrating REDD+;
- Support for the elaboration and/or implementation of community forest development and management plans;
- Support for the development and testing of community forest management charters;
- Support for land tenure security and official registration of community forests;
- Rehabilitation and protection of sacred forests which are sanctuaries for the preservation of customs and traditions;
- Development and implementation of community guides for REDD+ assessment and benefit sharing.

3.2.2.2 Preservation of existing forests and restoration of degraded landscapes

This strategic option aims to conduct operational activities that will ensure the restoration of degraded landscapes. The restoration of these landscapes, through the rehabilitation of both forests and trees outside forests, can indeed help to restore ecosystem services and landscape functionality, strengthen and stabilize land productivity and improve resilience to climate change. This work should be based on the participatory development of plans for the restoration, development and management of rehabilitated forests and landscapes. Forest management plans should be designed in accordance with technical standards set by the forest administration. Partnerships between the services of the forest administration and other private and community stakeholders should be strengthened to enable the long-term development of forest management and land use plans that are sustainable and consistent with the objectives of revitalizing the sector. Financial and technical support should be provided to local stakeholders and communities so that they can internalise the skills needed to restore and manage forest landscapes in an effective and sustainable manner.

The priority actions to be undertaken are as follows:

- Protection of the most fragile forest ecosystems (mountain slopes, river banks, mangroves...);
- Participatory elaboration of plans for the restoration, rehabilitation and management of forest landscapes ;
- Restoration of degraded forest landscapes supported by artificial enrichment with appropriate species, if natural regeneration is not sufficient;
- Protection and restoration of degraded natural community forests;
- Restoration of stream banks/water sources and replenishment of degraded gallery forests;
- Support for the reforestation of mountain slopes and uncultivated areas;
- Implementation of measures to guarantee the property and use rights of stakeholders;
- Reinforcement of the human, material and financial capacities of the various stakeholders.

This option will need to build on the other priorities and intervention options of the strategic framework, in particular to improve the institutional framework that will enable accelerated adoption of sustainable forest restoration practices, making planning and management processes more effective, supporting income generation and access to opportunities for smallholder farmers, improving rural livelihoods, and providing adequate social, economic and environmental incentives for increased restoration investments in the public and private sectors.

3.2.2.3 Protection and conservation of biodiversity and carbon stocks in protected areas

In order to stop or halt the degradation of forests within Togo's protected areas, the present national REDD+ strategy provides for means and activities to secure and protect forest areas that still have an ecological, environmental and climatic heritage potential (Wildlife Reserves, Classified Forests, Parks, Sacred Forests). The objective here is to ensure and maintain the systemic ecological role offered by existing forests and, as a priority, at the level of protected areas through sustainable and community-based management of these areas. This should notably ensure the maintenance and sustainability of the existing carbon stock. This intervention should be carried out in concert with local populations and private actors by carrying out the following actions in particular:

- Support for the requalification and securing of protected areas that do not yet have a legal status;
- Support for the elaboration and/or implementation of development and management plans for protected areas;
- Support for the economic development of forest ecosystems and the promotion of income-generating activities in order to improve the living conditions of populations living near protected areas (e.g. eco-tourism, NTFPs, medicinal plants);
- Establishment of an ecological monitoring system for protected areas;
- Reinforcement of local entities for monitoring and protection of protected areas;
- Reinforcement of state control in non-community protected areas.

3.2.2.4 Implementation of participatory vegetation fire prevention system

The implementation of a participatory vegetation fire prevention system will be based on an integrated approach and will reconcile the ecological stakes, the regulatory framework and the expectations of local communities. It applies to the entire upstream and downstream process of fire management, from monitoring fire outbreak and propagation parameters, forecasting, prevention, preventive information and promotion of a safety culture, monitoring and surveillance, fire fighting and rescue and, if necessary, the assessment of losses, damage and needs for the rehabilitation of burnt areas. This approach will facilitate the establishment of a community-based early warning system in the short and medium term. In the long term, this fire warning system could be integrated into the national strategy for the reduction of risks and natural disasters.

This option therefore aims to promote participatory fire risk management through the establishment of fire-fighting committees (monitoring and management) at the community level. These committees would be trained in all aspects of fire prevention and control. They would also be responsible for data collection and reporting on wildfires and their causes. Their main mandate would be to ensure that the spread of bushfires is effectively managed and controlled in order to eliminate or minimize their negative impact on the environment, and in particular on forest ecosystems. They will implement the provisions for vegetation fire control in collaboration with the deconcentrated technical services, raise awareness and motivate local populations and organizations to assist in fire detection, signalling and control. They will also mobilize local manpower for the installation and maintenance of fire breaks in areas ordered by the relevant services.

From an institutional point of view, fire management skills should be decentralized on the basis of the principle of subsidiarity. Nevertheless, the whole thing could be covered by the establishment of a Centraleized firefighting structure with operational autonomy to coordinate the capacities, actions and intervention planning of the various actors.

Beyond that, it would be advisable to carry out a vast program to raise the awareness of local populations to the problem of vegetation fire and to provide training in fire risk management and prevention. These measures would allow the interests of local communities to converge and also make the populations responsible for vegetation fire management.

In addition to the fire committees, several other bodies related to forest protection should also benefit from the actions proposed here. This is the case, for example: Transhumance Management Committees; Community Forest Management Committees; Local Environmental Protection Committees; Village Associations for the Management of Protected Areas (AVGAP).

The main actions that will be supported under this strategic option can be summarized as follows:

- Strengthening the enforcement of legislation on vegetation fires;
- Capacity building and support for the structuring of local committees for the monitoring and management of vegetation fires;
- Establishment and operationalization of monitoring and early warning systems around PAs (at local, regional and national levels);
- Development and implementation of a national program to strengthen the capacities of actors in the management of vegetation fires.

1 *which will make it possible to restore the ecological and productive functions of degraded ecosystems, on the basis of a multisectoral approach; the landscape being defined by the set of relationships between the actors concerned*

3.2.2.5 Incentives for private, community and family reforestation

This strategic option aims to put in place incentive mechanisms for reforestation by private and community stakeholders, whether for timber or fuelwood production, in order to reverse the trend of low motivation for reforestation. For this, there is a need for more knowledge to support the identification of the most promising species. Thus, within the framework of this option, a research programme should be planned to analyse and evaluate the most suitable species according to the biophysical contexts of the different regions and their economic, social and ecological interest. The main actions to be implemented under this option can be summarized as follows:

- Capitalization and dissemination of knowledge on tree species adapted to each ecoregion, with emphasis on local species ;
- Support for the professionalization of nurserymen specialized in the adapted tree species;
- Improvement of the legal and institutional framework that promotes lending conditions (including land tenure issues) by financial institutions (investment banks and micro-finance) to private planters/reforestation companies;
- Technical and financial support for the implementation of private, family and community reforestation initiatives;
- Support for the development and marketing of forest products;
- Support for the establishment and operationalization of a cooperative for the financing and sustainable management of private forests;
- Support for mapping, georeferencing and the definition of management and restoration models for private, family and community forests.
- Establishment of a plantation insurance mechanism.

3.2.2.6 Support for increasing carbon stocks in urban and peri-urban areas

The actions included in this strategic orientation aim at reforesting the savannah in urban and peri-urban areas and developing green spaces in urban and peri-urban areas.

Indeed, green spaces in urban areas play several roles and provide important non-material benefits (urban climate, aesthetics, education, leisure, well-being and spiritual value, etc.).

It should also be noted that green spaces promote the storage of pollutant emissions that are regularly abundant in urban areas and contribute to improving the daily environment of populations (reduction of respiratory diseases, etc.). Maintaining and creating green spaces therefore requires a proactive policy aimed at planning and developing urban spaces for this purpose and the establishment of conditions to secure existing spaces and to plan for them. Indeed, the expansion of cities does not always respect urbanization plans. The creation of public gardens and plantations along road axes are poorly planned, poorly managed and not maintained.

The creation of green belts around urban areas can significantly contribute to increasing the availability of wood products to improve the supply of wood energy and service wood, but also of non-wood products and environmental services (recreational and ecotourism activities, green lungs, biodiversity. The planting of trees along interurban roads will also increase forest cover and contribute to the aesthetics of towns and cities. This action can be implemented as part of a strategy to reclaim degraded areas by stimulating reforestation initiatives. Nevertheless, the creation of a peri-urban green belt must be the subject of specific planning and development. Indeed, peri-urban woodlands require major forest management efforts in order to ensure their intended long-term use. The control and monitoring of peri-urban woodlands must be effective because these areas are by nature subject to strong anthropic pressure. To this end, the involvement of local populations and communities in the planning, management, monitoring and control of peri-urban woodlands must be ensured.

Therefore, several tracks and activities should be explored further such as:

(i) the development and securing of green spaces;

(ii) the promotion of multi-use green belts in peri-urban areas (with a connectivity network of ecological corridors based on the green & blue grid concept and in synergy with the land use plan); and

(iii) the promotion of the recreational use of the forest.

The various actions that are planned are summarized as follows:

- Development of green belts and ecological corridors in urban and peri-urban areas;
- Promotion of urban and peri-urban street alignment plantings ;
- Development and restoration of wooded parks and urban green spaces;
- Control, monitoring and management of urban and peri-urban forests by involving the population.

3.2.2.7 Promotion of the valorization and transformation of forest resources

The objective of this approach is to generate additional added value through actions to transform and improve the quality of wood products, as well as to professionalize the actors involved downstream in the sector. However, the extent of the measures for adding value will depend on the forestry potential (forest resources and classes of exploitable wood diameters). Therefore, the national REDD+ strategy will contribute to structuring and strengthening the wood processing and value-adding sectors in order to add value to forest products, in order to participate in the sustainable management of forest resources in Togo while creating value and economic activity. In particular, this will be achieved through the legitimization/legalization and modernization of primary and secondary processing companies in the timber sector, improving the finishing of sawn products (drying, planing and packaging), and bringing them into line with national market requirements and international standards. The country's forestry stakeholders should also be encouraged to move towards forest product certification (e.g. FSC, etc.) in order to promote exports, thus increasing the value of the products sold and generating additional income at each link in the chain. Finally, in order to boost the sector, the strategy should encourage the emergence of new players with the development of woodworking professions and strengthen the capacities of processing structures to offer new products to the national and international markets. These activities should be undertaken in coordination with Togo's National Forest Action Plan.

Finally, Togo's forests abound in numerous non-timber forest resources and offer an opportunity for development based on non-timber forest products (NTFPs). These indeed play a substantial role in local and national economies. NTFPs are varied and abundant in most parts of Togo. They thus present a very interesting and sustainable leverage for economic development, the extent that these resources are renewable, but remain largely undervalued. The valorisation of NTFPs would particularly interest local populations by providing an income-generating activity and incite them to sustainable forest management.

Among the actions that should be undertaken, the priorities are the following:

- Implementation of measures to standardize wood products and production processes ;
- Support for the structuring of the wood products marketing chain and the market for wood products;
- Promotion and support for the diversification of wood products processing techniques;
- Promotion of certification and traceability of forest products;
- Adaptation of legislation and taxation in favor of small producers (artisanal harvesting) and processors;
- Support for the creation of small businesses in the wood sector.

3.2.2.8 Improved livelihoods and sources of income for rural communities engaged in sustainable forest management

The objective of this option is to initiate alternative income-generating activities aimed at improving living conditions and incomes and strengthening the resilience of local communities engaged in sustainable forest management and which will ultimately reduce poverty and stimulate their interest in protecting forest ecosystems. Today, agriculture is the main income-generating activity for rural populations and remains the main cause of deforestation, while opportunities to diversify and increase sources of income are numerous, particularly in forest landscapes. The national REDD+ strategy will support actions aimed at disseminating information on income-generating activities and will provide the technical and financial support necessary to encourage communities to become more involved in these activities. Among the income-generating activities that can be promoted while contributing to sustainable forest management are:

(i) activities related to forest products and

(ii) activities outside the forest.

Indeed, many forest products can be exploited in a sustainable manner and without impacting the vegetation cover and can thus contribute to providing an additional and diversified source of income for local populations. Among these activities, the exploitation and valorisation of wood and non-wood products can be identified. In Togo these activities are still mostly informal and not very structured. Also, these products harvested in the forest are little or not transformed, which limits the creation of added value for the communities. The REDD+ process will therefore support the structuring of forest product value chains and promote the artisanal processing of harvested products. This would provide local communities with alternative and sustainable sources of income based on forest products and could encourage them to better manage their forest assets.

Beyond forest products, several income-generating activities outside the forest can be undertaken by local populations and communities to enable them to increase their living conditions and diversify their source of income (e.g. beekeeping, market gardening, small animal husbandry, fishing, fruit arboriculture, green jobs, ecotourism, etc.). However, today these activities require initial investments that cannot be supported by local populations.

Under these conditions, the national REDD+ strategy will support activities that provide the necessary incentive conditions for the development of alternative income-generating activities, particularly for the most vulnerable (women, youth, etc.), which will ultimately reduce poverty and thus the pressure on forests. Thus, the improvement of livelihoods and sources of income of communities engaged in sustainable forest management has been integrated into the national REDD+ strategy. The main strategic actions that will be supported under this option are the following:

- Community capacity building and financial support for the development of alternative income-generating activities (NTFPs and other IGAs);
- Support for market access for production chains supported for the benefit of local communities;
- Support and assistance for the emergence and professionalization of production and service cooperatives;
- Promotion of green jobs and other innovative income-generating initiatives;
- Financial support and capacity building for the transformation and valorization of NTFPs.

3.2.2.9 Rehabilitation and reforestation of mining sites and other road infrastructure corridors

This strategic objective is to take measures to restore the eco-forest landscape of mining sites and other quarries, as well as the right-of-way of roads and trails developed at the urban level.
Therefore, the tracks of activities that can be undertaken within the framework of the strategy are located at each stage of a mining project (from the project feasibility study to the closure and restoration of exploited sites). REDD+ bodies that will be set up to promote inter-stakeholder consultation (populations, local communities, local and national public bodies and the private sector) should be involved during the concession issuance process to promote consultation and transparency and possibly identify alternatives to exploitation with all stakeholders. ESIAs should integrate the component of assessing emissions from deforestation and degradation and ensure that operators undertake actions (e.g. reforestation) to compensate for this negative carbon balance, without impacting the REDD+ results that will ultimately be obtained. During the implementation of the projects, the REDD+ process could mobilize its monitoring resources, notably through satellite imagery, and conduct an ad-hoc assessment of compliance with the exploitation plans initially declared. Finally, during the site closure phase, it would be necessary to advocate for the restoration of the exploited sites.

Most of these restoration efforts should involve reforestation activities with suitable species, in order to rapidly fix the damage made especially to the soil and attain restored forest landscapes.

The priority actions to be undertaken are as follows:

- Reinforcement of the legal framework for the management of mining sites, road rights-of-way and other quarries taking into account the REDD+ dimension;
- Participatory restoration of exploited sites;
- Compensatory reforestation of exploited sites and rights-of-way of developed roads;
- Monitoring and control of restoration activities.

3.2.3 Priority 3: Reduce the pressure on Wood Energy

This priority aims at safeguarding the forest coverage in Togo by reducing the consumption and, thus, the exploitation of wood energy (WE) and by more efficient charcoal production and consumption techniques, through the use of improved stoves, the professionalization of the charcoal production and sale chain including the adoption of carbonization and combustion processes that are ecologically more viable and economically more profitable. It also aims to reconstitute the forest canopy of mining sites after exploitation. Consequently, the strategic options identified, broken down into actions to reduce deforestation and forest degradation due to the consumption of wood energy, are as follows.

3.2.3.1 Sustainable supply and improvement of the efficiency of traditional energy transformation and combustion

This approach aims to promote actions that foster the availability of energy-oriented wood production and the efficiency of processing and energy consumption.
Availability: The first step will be to identify and evaluate the areas suitable for the establishment of plantations for the production of wood energy, and then to support the actors concerned in the elaboration of development and management plans for these areas. At the same time, there is a need to deepen knowledge to support the identification of the most promising species according to areas and demand. Thus, in the framework of this option, a research program is planned, aimed at analyzing and evaluating:

(i) the most suitable types of species according to the biophysical contexts of the different regions and

(ii) their efficiency for final energy use (essentially their calorific value).

In order to be viable, it will be essential to implement actions to promote access to and supply of trees that have been identified as the most suitable. Therefore, the development of tree nurseries in each of the ecoregions of Togo should be considered. Thus, the aim here would be to ensure a stable and homogeneous supply of local seedlings through the development of niche or larger scale tree nurseries and to accompany this program by supporting the structuring of local wood energy supply chains.

Transformation: Improving the efficiency of carbonization and combustion techniques is also necessary for a more rational and economical use of wood resources. The popularisation of improved carbonisation techniques and even research and development must be supported in order to promote the dissemination of technologies appropriate to the socio-economic and environmental context of each ecoregion. In the long term, this could involve the conversion of charcoal makers to other activities as lucrative as carbonization.

Consumption: If the supply can be ensured in a sustainable manner, it will be necessary in addition to support households and public and commercial services (hotels, gargotes, craftsmen, military camps, restaurants, school canteens, religious places) towards efficient consumption of traditional energy by promoting in particular the dissemination of improved stoves. Indeed, improved stoves allow substantial savings in charcoal and dry wood. Very often by the introduction of a ceramic insert that increases combustion efficiency and keeps the heat, improved stoves reduce charcoal consumption leading to energy savings of 30 to 50%. They also reduce the emission of carbon monoxide and fine particles that are very harmful to health.

The massive promotion of the use and diffusion of improved cookstoves requires first of all the identification of the most efficient improved cookstove technologies. This requires an inventory of existing improved cookstove production initiatives and a battery of tests to select those with the best energy efficiency and longest service life while remaining within an economically viable production cost. However, the mass production of improved cookstoves requires the identification of a pool of producers, whether professional or semi-professional, with the capacity to produce these technologies. The program should support part of the necessary investments, so that the selected producers can rapidly acquire adequate production capacities. In order to ensure significant penetration of these technologies throughout the country, technical and financial support should also be provided for the organization of commercial and distribution networks.

Moreover, the cost of an improved household is generally too high to be accessible to the greatest number. A financial mechanism should therefore be identified and put in place to encourage even the most modest consumers to buy an improved cookstove.

This may take the form of subsidies or purchase credits. It should be noted that consumer ownership of these cooking technologies is essential to ensure wide dissemination and sustainable use of improved cookstoves. Therefore, the program should be accompanied by an extensive awareness and training campaign on the use of these stoves (e.g. cooking classes).

In short, sustainable supply and improvement of the efficiency of the transformation and consumption of traditional energies should be a priority intervention of axis 3. The different actions that should be undertaken are:

- Capitalisation and dissemination of high calorific value forest species ;

- Support for the promotion and development of reforestation initiatives using wood as an energy source;

- Support for the structuring and professionalization of players in the wood energy sector;

- Popularization of improved carbonization techniques and capacity building of stakeholders;

- Promotion of improved stoves with a high potential for saving wood fuel and other cooking equipment (solar ovens and dryers);

- Support to operators for the semi-industrial production of improved carbonization and cooking equipment (solar ovens and dryers, improved stoves, etc.);

- Support to stakeholders for the marketing of wood energy products.

3.2.3.2 Development and promotion of modern renewable energies

The actions planned under this option aim to promote the production and massive use of alternative energy sources that do not compromise the future of the forests, in order to reduce the pressure of the energy sector on forests in Togo due to the predominance of the use of biomass energy, and in particular firewood and charcoal.

Access to energy services is today one of Togo's major concerns and an indispensable parameter in the country's development strategy and the achievement of the Sustainable Development Goals (SDGs). This concern must at the same time respond to the desire to preserve the local and global environment and to be able to adapt to future changes, particularly climate change, in order to ensure long-term sustainable development. This is why the national REDD+ strategy should fully integrate this aspect and accompany the national renewable energy development strategy. Indeed, the main objective pursued by the Togolese government in its energy policy is universal access to energy services.

In this sense, Togo joined the Sustainable Energy for All Initiative in 2012 and has thus developed its action plans in terms of renewable energy, energy efficiency and the Sustainable Energy for All Initiative (SE4ALL). This involves the development of different forms of energy and the implementation of appropriate strategies throughout the energy supply and final supply chain. The country is particularly committed to promoting renewable energy.

With the creation of the Togolese Rural Electrification and Renewable Energy Agency (AT2ER), the political will seems to be favourable and the country offers a favourable framework for the promotion and dissemination of alternative energies (hydroelectricity, solar, wind, biofuels, etc.). In addition, Law No. 2018-010 of August 8, 2018 on the promotion of electricity production based on renewable energy in Togo, reinforces this political will. In addition, the new electrification strategy is based on an optimal technological approach to facilitate access to electricity for all Togolese by 2030. The country hopes to install 300 mini-solar power plants in PPP mode (public-private partnership) and to strengthen Cizo (off-grid) coverage by connecting 555.000 households via kits. The ambition is also to connect 800.000 households to the existing electricity grid, either by extending the network in nearly 1.000 localities or by densifying the network. There is also a program for the construction of large solar power plants and a hydroelectric program.

The national REDD+ strategy will capitalize on this political will by carrying out activities to promote and modernize access to energy, notably through the promotion of renewable energies. In particular, noting that the cost of access to and installation of solar energy production equipment has considerably decreased in recent years, the national REDD+ strategy will promote and disseminate and facilitate access to these technologies to local communities, particularly in rural areas.
The national REDD+ strategy will also put in place support mechanisms for private and public initiatives aimed at identifying, producing and disseminating new energy recovery techniques (e.g. agricultural and livestock waste recovery, new energy production techniques, etc.) and their consumption. Indeed, biogas resulting from the anaerobic fermentation of organic matter can directly substitute natural gas for electricity production, cooking and heating. It can be produced through methanization units, family digesters and landfills equipped with a biogas trapping system. In addition, waste recovery is progressing well in Togo under the impetus of the University of Lomé's Waste Management, Treatment and Recovery Laboratory (GTVD), which should be recovered as part of the national REDD strategy.

Finally, as part of its monitoring activities, the REDD+ process, which will have a deep territorial anchoring, should be able to participate in the operationalization of a monitoring system for energy access and thus enrich the available information on the country's energy balance. The priority actions that will be promoted by the government are as follows:

- Promotion and popularization of briquettes made from harvest residues and other residues (forest residues, etc.) ;

- Promotion and valorization of biogas ;

- Support for research and development of new and renewable energies;

- Support for the production and dissemination of wind and solar energy;

- Tax incentives for the importation of renewable energy equipment;
- Development of mini networks for rural electrification;

- Establishment of a system for monitoring access to energy and energy efficiency.

3.2.3.3 Promotion of alternative energies

The objective of this option is to reduce the pressure on the use of wood energy, through the promotion of actions and measures to strengthen energy efficiency and improve access to alternative energy sources. The increase in wood energy consumption in Togo is largely due to the high demand in urban centers. Faced with the ecological threats that could result from this, the country has anticipated this by initiating, since 1980, a policy of substituting part of its wood energy consumption with butane gas. However, the use of gas has had very low penetration due to gas prices and consignment of equipment which, for the majority of urban households, are too high. Indeed, among the conventional energies, liquefied petroleum gas (LPG) energy (propane and butane gas) and natural gas are the least polluting and the lowest emitters of CO2.
Moreover, the combustion of these gases generates no particulate emissions and very few nitrogen oxides (NOx). Thus, LPG energy is an alternative to more polluting energies (firewood, charcoal, etc.) to be considered within the framework of the national REDD+ strategy.

Since the year 2000, with the increase in urban population, there has been a rapid increase in the demand for wood energy. This phenomenon leads to a deficit in wood energy inducing an increase in the price of charcoal. In addition, with the beginning of the promotion of gas stoves more adapted to culinary habits, the use of butane gas is becoming more popular. The different actions that should be undertaken are identified below:

- Capacity building of consumers on the safe (safe) use of LPG and liquefied natural gas (LNG) ;

- Support for improving the accessibility of gas and butane gas fireplaces.

3.2.4 Priority 4. Support for the implementation of cross-cutting actions to strengthen the REDD+ process

The cross-cutting nature of this axis is linked to the nature of the actions included, which contribute as a whole to achieving the objectives of the national REDD+ strategy. This cross-cutting axis therefore includes options relating to land use planning, land tenure security, integration of REDD+ in planning documents and programs, information strategy, awareness raising, communication and environmental education, taking into account the gender dimension and vulnerable groups, capacity building of institutions and research, support for legal and regulatory reforms, and improving monitoring and management of mining operations in Togo.
This axis therefore aims more at addressing and mitigating the indirect and underlying causes of deforestation and forest degradation in Togo and appears to be a prerequisite for the performance of all the actions that will be implemented under the national REDD+ strategy. The options proposed in this axis also seek to ensure good governance of the REDD+ process in Togo, which is necessary for an effective, cross-cutting, transparent, responsible, pragmatic, equitable and sustainable implementation of REDD+ that is results-based and integrates information, consultation, ownership and participation of all stakeholders.

3.2.4.1 Implementation and operationalization of tools and mechanisms for better observation and planning of the territory

This strategy aims to propose effective measures and mechanisms to enable decision-makers and planners to know, plan, arbitrate and observe the territory and its dynamics of change, as a basis for REDD+ actions. Spatial planning refers to «the action and practice of arranging in an orderly manner across the space of a country and in a prospective vision, the people and their activities, the equipment and means of communication they can use, taking into account natural, human and economic constraints, so that the functions and relationships between people are exercised in the most convenient, economical and harmonious way» (Merlin, 2007). In this context, Togo should be able to rely on the elaboration and application of the national land use plan, regional land use plans and the master plans for urban development (MPUD) of the communes as provided for in the NLUP.

The National Spatial Planning Scheme (SNAT) is a general scheme for visualizing the country's long-term development prospects. The main goal of the national land use plan is to optimize the use of space, by orienting equipment (transport, hydraulics, social infrastructure, etc.) and production activities, taking into account local and participatory development. It is intended to provide a framework of reference and coordination of investment efforts and actions for all stakeholders in land use planning (public administration, local authorities, civil society organizations, private actors, etc.). It is one of the means of meeting the general objectives of the national development policy, namely:

(i) the economic growth of the country,

(ii) the increase in the standard of living of the population, and

(iii) the equitable distribution of the benefits of growth throughout the territory.

In addition, to facilitate territorial anchoring, the SNAT must be implemented in each region, through the regional land use planning schemes (SRAT) and in each commune through the communes' development and urban master plans. These must be designed and applied to the unique requirements of each region and commune, which requires at the same time capacity building of local authorities at the regional and commune levels.

The development of the SNAT, SRAT and the master plans for the development and urban planning of the communes must be participatory and this phase should give importance to the collective implementation of these plans and to collaboration between the services and other stakeholders, in order to come up with concrete, coordinated, concerted and coherent proposals that are likely to enable the real development of the country and the regions. To this end, the national REDD+ strategy will support the development and implementation of these management plans, so that the process can be used as a communication, awareness raising and information dissemination tool for all stakeholders, with the concern of integrating the REDD+ dimension.

Moreover, to be effective and efficient, the implementation of development plans must be accompanied by means for monitoring and evaluating implementation. Indeed, monitoring allows to observe, in a systematic way, the events that develop on a territory, to detect any significant deviation from the development plans and to evaluate the effectiveness and impact of the implemented actions. Therefore, it will be necessary to support the implementation of this policy by a national observatory of spatial analyses aimed at reporting on the dynamics of land occupation and use and thus the impacts of the policy carried out over time.
At this level, there should be a strong synergy with the Monitoring-Reporting and Verification system that will be set up in the framework of the national REDD+ strategy (MRV) and then an opportunity to support and pool this observatory (in particular satellite imagery data).

To ensure the efficiency of the measures taken and their proper implementation in the field, the system should also include means, particularly human, for monitoring and control in the field. The national REDD+ strategy should thus contribute to strengthening the means in terms of staff and equipment of monitoring and control agents in the field (forestry agents, national parks, natural reserves, etc.).

Also, as mentioned in the NLUP, land-use planning should include a specific component aimed at developing and implementing land tenure and development master plans for urban cities (over 5,000 inhabitants).

These have concentrated dynamics that are quite specific and consequently face singular problems that should be dealt with separately by the elaboration and application of these plans to each urban city. Urban expansion is a direct and indirect factor of deforestation and land degradation, which justifies the national REDD+ strategy's involvement in this urban development component. The extent of land degradation has been revealed in particular through a study specifically conducted including a cartographic production of the state of degradation at the national level within the framework of the PGCIT project. The latter confirms the causal relationship between proximity to urban areas and the intensity of land degradation.

In sum, the national REDD+ strategy will actively contribute to a better knowledge, planning, and observation of the territory within the framework of Togo's land-use planning policy by supporting the following actions:

- Support for the development of the national land use plan (SNAT);
- Support for the elaboration of regional land use planning schemes (SRAT);
- Support for the dissemination/communication of the SNAT, SRAT and SLAT to stakeholders;
- Support for the development and operationalization of a land use and occupation monitoring system;
- Capacity building of state institutions in charge of collecting, creating and Centraleizing geographic and socio-economic data;
- Support for the elaboration of development and urban planning master plans (SDAU) for the communes.

3.2.4.2 Promotion of integrated and decentralized management of land use planning based on Sustainable Development Goals (SDGs)

The objective of this option is to propose integrated and decentralized measures that must underpin land use planning that promotes sustainable resource management.

Indeed, an efficient land use planning tool must contribute to the enhancement and preservation of natural resources as well as to the development of the country. The land use planning policy must therefore be closely linked to Togo's economic development orientations and in particular the National Development Plan (PND). Indeed, land use planning allows development planning to better identify investment projects and to locate them on the territory and thus actively participates in the economic orientations of the country and can be considered as the spatial dimension of the PND.

The implementation of the SDGs is in progress; in this sense, the regional planning offers an opportunity to take into account in the development actions the principle of sustainable development which consists in combining the economic and social development and the preservation of the environment.

Moreover, one of the guarantees of effective regional and local development comes from decentralization and the granting of the powers and means to local authorities necessary to apply land-use planning strategies that are appropriate to their social, economic and environmental context. It should be noted that in Togo, the integration of the decentralization process is not yet truly established and fully operational. However, the overall strategy must be based on decentralization and deconcentration of the administration in order to promote and drive the socio-economic development of each region throughout the country. Local authorities must therefore learn to create and manage local resources in a rational manner and to steer actions for the sustainable development of the environment. To do this, the human and financial resources allocated to them must be correctly dimensioned. The national REDD+ strategy should therefore identify mechanisms and means of action likely to consolidate the decentralization process, in particular through the implementation of programs to promote local and regional economies, which contribute to reducing deforestation and degradation dynamics in each region and locality.

The design and implementation of integrated land use planning programs for balanced and sustainable development should in particular seek to identify homogeneous economic and environmental zones, allowing for the development of appropriate production activities that will contribute in a comprehensive manner to the country's economic growth. For example, Togo has recently started the implementation of the PODRAT project aimed at developing agropoles. The national REDD+ strategy could contribute to the emergence and implementation of these programs by supporting technical and financial operations related to forests.
The different actions that could be undertaken in the framework of the promotion of integrated and decentralized management of land use planning based on SDGs are the following:

- Integration of the REDD+ dimension in the incentives provided for in the investment code and support for its operationalization in disadvantaged areas, among others, for a balanced development of the territory;
- Support for the elaboration of the implementation texts of the law on decentralization relating to the decentralized management of natural resources;
- Support for the development of regional and local planning tools (PRD and PLD).

• Support for the decentralized management of natural resources, within a framework of integrated local land use planning initiatives

3.2.4.3 Strengthen the land tenure security

The objective of this policy option is to strengthen land ownership rights as a motivating factor for the preservation of natural forest ecosystems and sustainable investment in reforestation. Land tenure and the security of property rights are generally considered to be a factor in the good management of a natural resource such as the forest, notably because it prevents the tragedy of the commons (Hardin, G. 1968). In fact, the absence of a solid sustainable land tenure system and of respected property rights generally results in free access to land, especially forest land in remote areas that are difficult to control by the State. Natural resources and in particular forests are then over-exploited.
Land tenure reform is thus an indispensable step towards securing land rights in Togo and thus improving the efficiency and productivity of the country's economic activities, particularly in agriculture. This is all the more valid as Togo is facing growing demographic pressure which accentuates the dynamics of change in land occupation and use and the associated risks of social conflicts and environmental degradation.
It should be noted, however, that for more than five years now, significant efforts have been made between the government and civil society actors to initiate real land tenure reform. Thus, the Togolese government has launched a major project to reform the land tenure code through a participatory approach that includes:

(i) an inventory of the problems undermining the land tenure sector,

(ii) the identification of stakeholders in good land tenure governance, their role and responsibility, and

(iii) the drafting and adoption of new texts.

In this context, the national REDD+ strategy will support and participate in the implementation and popularization of land tenure reform and will carry out actions to promote land tenure control in the country (e.g. monitoring and control). In particular, this should be undertaken in order to promote the articulation of land tenure with the forestry sector and other sectors related to REDD+, such as agriculture, energy and mining. The national REDD+ strategy will also support the development of a monitoring and control system for land tenure implementation by promoting the use of tools and data used in its MRV.

The different actions that will be supported are as follows:

• Support for extension through information, education and communication (IEC) on the land tenure code;

• Support for the elaboration, adoption and implementation of texts for the application of the land tenure code that improve access to forest land;

• Integration of the monitoring of the national land registry into the MRV system of the REDD+ strategy;

• Support for the participatory development and implementation of land tenure security models for community forestry training;

• Support for the registration of forest land;

• Support for the reduction of costs and procedures for obtaining land titles for forest estates and plantations.

3.2.4.4 Integrating REDD+ into planning documents and programs

The objective of this strategy option is to take steps to better integrate REDD+ into policy, strategy, planning, programming and budgeting documents, to strengthen cross-sectoral linkages between forests and other development sectors, and to mainstream REDD+ as a common practice in local, regional and national development practices. The REDD+ strategy must pursue actions aimed at promoting its integration into the country's institutional landscape in order to establish itself as an essential consultation and dialogue mechanism during the development of programs and strategies for the country's main economic sectors. The main related sectors are Agriculture, Water, Livestock, Education, Tourism, Culture, Economy, Transport, Public Works, Energy, Mines, Urban Planning, Territorial Administration and Local Communities, etc.

Moreover, the implementation of the national strategy should bring many benefits, beyond carbon, and thus actively participate in Togo's economic development. It would be legitimate to allocate regular human and financial resources to support the implementation of the national REDD+ strategy, which is in these conditions of public interest. Also, the environmental monitoring means and technology that will be implemented under REDD+ should be shared and leveraged with other sectors (e.g., Mining, Agriculture, Water, Livestock, etc.). In order to assess and value the numerous impacts in terms of ecosystem services and benefits that may result from the implementation of the national REDD+ strategy, the strategy provides for the development of a method and an operational system for monitoring Togo's environmental accounting, which would be disseminated and included in the national accounting system.

Among the actions that should be undertaken in this regard by the national REDD+ strategy, the following activities will be supported:

• Support and/or strengthen the integration of REDD+ aspects in sectoral planning documents (policies, strategies, plans, programs) of the main sectors interacting with REDD+ (e.g. development of a guide for integrating REDD+ in planning documents; training of institutional and non-state actors in methodologies for developing strategies, programs and projects integrating the REDD+ dimension) ;

• Strengthening of sectoral thematic groups for the elaboration/update of policies, strategies and programs integrating the REDD+ dimension;
• Development of an accounting system for the ecosystem services and benefits and its integration into the system of national accounts;

• Support for strengthening the consideration of the REDD+ dimension in planning, programming, budgeting and monitoring-evaluation mechanisms in all development sectors.

3.2.4.5 Information, education, communication and environmental awareness

The promotion of information, awareness-raising, communication and education activities within the framework of the implementation of the REDD+ process, aim at strengthening the ecological awareness in Togo of all stakeholders for a better internalization of REDD+ in the promotion of sustainable development, in its green economy dimension. The implementation of the national REDD+ strategy is an opportunity to take up the environmental concerns of the Togolese population, notably by carrying out during the whole process, information, sensitization, communication and education activities with all stakeholders in order to voluntarily and effectively lead them to make REDD+ their daily actions and concerns during the whole process and thus promote the emergence of a national environmental awareness.

The participatory and inclusive approach is the preferred option for the implementation of REDD+ actions. To this end, the strategy will develop the principle of ownership, which will promote wide dissemination of programs and activities undertaken and sustained mobilization of stakeholders during implementation. All stakeholders will be involved in the decision-making process and in the implementation of actions; these include politicians, planners, private sector operators, promoters, civil society organizations (CSOs), local communities, local authorities, deconcentrated technical services, agencies implementing development projects and programs, etc., and efforts will be continuously sought to broaden adherence to the REDD+ process, as a sign of the strategy's performance. In concrete terms, the national REDD+ strategy will support the provision of the necessary tools and may, for example, support the establishment of platforms for exchange, dialogue and discussion among stakeholders.

The information dissemination program under the national REDD+ strategy will integrate and use all channels available to all communication campaigns (audiovisual media, print media, websites, social networks, etc.). The main available communication channels that will be used with a view to ensure mutualization and synergy taking into account the comparative advantages of each in the REDD+ process are:

(i) Modern media: Audiovisual media: Radio, television; Written media: Periodic newspapers (newsletters, magazines), books, comic strips, brochures, reports; Mixed media: Website, leaflets; Group channels: Intellectual exercises (conferences, press briefings, debates, workshops, roundtables, meetings, etc.); Gadgets: Agendas, calendars, notepads, keychains, folders;

(ii) Personalized channels: Web: Newsletter on the progress of the mechanism, interactive mapping platform.

The REDD+ communication program will also be based on the principles of transparency and inclusive dissemination of information (i.e. accessible to all). It will focus on and systematize working meetings, dissemination of written documents, computer networking of services, organization of documentation and archives, etc. The communication program will be based on the principles of transparency and inclusive dissemination of information (i.e. accessible to all). The aim will be to disseminate information in the form of tools adapted to each target group (targeting state and non-state actors, as well as grassroots communities, which are the beneficiaries of REDD+ actions). To facilitate communication, the REDD+ implementation structure will be equipped with multimedia materials, a website and other communication tools appropriate to the target groups concerned.

As part of the implementation of the innovative initiatives and REDD+ adaptation and mitigation projects that will be formulated, and in order to make good practices that are resilient and low in carbon emissions related to forests more visible, the most appropriate channels for the target audiences will be identified and used: leaflets, posters, radio, press, television messages, reports, etc. In addition, identification panels will be placed on the intervention sites of the implemented actions in order to make the achievements of REDD+ more visible.
This visibility and demonstration of REDD+ good practices and impacts on the living conditions and resilience building of beneficiary communities will be part of this visibility and demonstration of REDD+ good practices, Documentary films on the achievements will be produced regularly with a view to capitalizing on the actions implemented, particularly during the mid-term review and final evaluation of the implementation of the REDD+ investment plan and the resulting projects.

1 *An agropole is an urban center, or area located nearby, with a strong potential for research and technological education, and cutting-edge industries for the agri-food industry. Such a structure would allow the development of a real agricultural industry with a strong processing activity and would participate in improving the competitiveness of the country.*

Emphasis will be placed on the testimonies of the actors involved, first and foremost the beneficiary populations, and the comparison of situations before and on the evaluation date. Experienced information and communication service providers and local opinion leaders will be involved in carrying out communication activities.

In addition to communication on the progress and actions undertaken in the framework of the REDD+ strategy, it will be necessary to conduct regular awareness campaigns on environmental issues among the population. This will be done through the organization of workshops, conferences or specific training sessions. Behavioral change and awareness raising in favor of environmental issues should be a performance indicator of the strategy. Finally, the national REDD+ strategy should:

(i) play a role in disseminating acquired knowledge,

(ii) promote technical and professional training in the environmental sector as appropriate, and

(iii) participate in the environmental education of young people. The different actions that should be undertaken are:

• Strengthening communication, information and awareness raising on climate change and the REDD+ process (including e.g. physical, audio-visual teaching aids, documentary films and sketches and other communication and awareness raising mechanisms; environmental awareness campaigns focused on REDD+ on a regular basis and throughout the territory; show examples of good practices and successful initiatives; ...);

• Strengthening consultation and participation frameworks ;

• Strengthening awareness on family planning ;

• Integration of teaching units on the concepts of climate change and sustainable management of natural resources, including forests, into secondary school curricula.

3.2.4.6 Strengthening access to productive resources for women, young people, people with disabilities and other vulnerable groups

The objective of this strategic option is to promote equitable access of women, youth and other vulnerable people to forest resources and other factors for forest restoration, and to the resulting benefits.

Indeed, the specific roles, rights and responsibilities assigned to women and men, as well as their modes of use and knowledge of the forest, will condition the effectiveness of Togo's national REDD+ strategy. To ensure the long-term success of REDD+ on the ground, the strategy must therefore be based on a gender breakdown of forest needs, uses and knowledge.

In particular, it will be important to ensure that national REDD+ systems and programs are inclusive and open to all, and to pay particular attention to the specific roles, requirements and contributions of women and men, as well as vulnerable people at each stage of policy and program implementation, from design to implementation and monitoring and evaluation.

While the term gender refers to the status of both men and women, the national REDD+ strategy should, however, give specific and privileged attention to the specific needs and contributions of women, in order to «address gender gaps, unequal policies and discrimination that have historically disadvantaged women. Also, for the same reasons, the national REDD+ strategy will include the cause of youth populations and other vulnerable groups (e.g., the disabled, the elderly, etc.) and give them a privileged place in implementation. The national REDD+ strategy should therefore throughout the process seek to identify the specific needs and build the capacities of the most vulnerable stakeholders so that they can fully participate, according to their roles, in the planning, implementation and monitoring of REDD+.

The growing importance of women in key areas of the economy shows that they are becoming the pillar of socio-economic growth and that expanding financing capacity for women would allow for more effective implementation of the national REDD+ strategy. Thus, in order to promote the role of women, but also of the most vulnerable populations, and improve their situation, the national REDD+ strategy will adapt financing instruments that meet their needs and aim in particular to promote and stimulate the creation of small and medium enterprises. The different strategic actions that will be undertaken are:

• Strengthening the participation of women and other vulnerable groups in decision-making spheres and consultation/participation frameworks in natural resource management ;

• Advocacy for the implementation of legislative and regulatory reforms guaranteeing the rights of women, youth and other vulnerable groups to land ownership and natural resources;

• Strengthening the employability of women and youth and their technical and organizational capacities for production and market access, in relation to sustainable natural resource management;

• Promotion of entrepreneurship of women, youth and other vulnerable groups through appropriate financing mechanisms;

• Support for the equitable access of women, youth and other vulnerable groups to productive resources (land, forest resources and other resilience-building factors) and to the various benefits of REDD+;

• Capacity building for women, youth, people with disabilities and other vulnerable groups on good practices for the exploitation and management of forest resources.

3.2.4.7 Strengthen institutional and research capacities

The objective pursued at this level is to improve the offer of support, advisory, governance and research services through the strengthening of the technical, human and financial capacities of institutions and other stakeholders to operationalize the plans and programs provided for under the strategy. Therefore, the national REDD+ strategy will support actions and operations aimed at promoting the capacity building necessary for all stakeholders involved. To this end, the national REDD+ strategy will strengthen the knowledge of actors on all laws and regulations governing the forest sector and other sectors related to REDD+.

It will also be involved in the modernization of public institutions taking part in the process by promoting in particular the provision of the necessary human and material resources. Finally, the national REDD+ strategy will take part in the decentralization process already underway and will promote the increase in the competence of local authorities for the elaboration, implementation and monitoring of local development action plans integrating the REDD+ dimension. To this end, technical, organizational and financial capacity building actions will be carried out with decentralized authorities throughout the country.

Beyond public institutions, the national REDD+ strategy will ensure technical and financial support to community organizations and groups and to the various actors involved in sustainable forest management (e.g. forest communities, producers and traders of wood products, forest product processors, etc.). Among other things, the national REDD+ strategy will promote project development initiatives at the local level and will encourage the emergence of new initiatives by providing a facility for formulating investment programs and projects and promoting these initiatives to various potential donors. It will also promote public-private partnership development strategies and support the establishment of an incentive mechanism for financing REDD+ actions (MIFAR) by banks and financial institutions for risk sharing, following the example of the incentive mechanism for agricultural financing (MIFA) in Togo officially launched in June 2018.

Finally, the national REDD+ strategy will accompany the implementation of research and development programs aimed at i) increasing knowledge on Togo's forest ecosystems and ii) identifying innovative and operational forestry and agronomic techniques that will promote the effectiveness of local actions to be implemented to reduce deforestation and degradation and, in general, to sustainably increase the country's forest cover.

To this end, the national REDD+ strategy will involve Togo's research centers and universities in research areas relevant to the implementation of the strategy and will provide the technical and financial means necessary to carry out this work.

The main actions to be carried out are as follows:

• Capacity building of stakeholders on all laws and regulations governing the forest sector and other sectors related to REDD+ ;

• Capacity building of institutions involved in REDD+, by promoting the acquisition and provision of appropriate technical equipment and human resources;

• Strengthening the technical, organizational and financial capacities of local governments for the elaboration and implementation of the various local development plans integrating REDD+ ;

• Support for the establishment and operationalization of insurance mechanisms to cover the risks of natural, climatic, environmental and anthropogenic disasters on forest formations;

• Support to state and non-state actors in the formulation of investment programs and projects, and in facilitating access to financing related to REDD+;

• Capacity building for data collection and processing in forestry statistics;

• Reinforcement of research capacities to support the development of technologies related to the previously agreed strategic priorities;

• Strengthening partnerships and collaboration between technical services, universities, research centers, grassroots organizations, local authorities and civil society organizations;

• Strengthening public-private partnerships in the context of resource mobilization.

3.2.4.8 Legal reforms

The national REDD+ strategy will guide and support the necessary legal and regulatory reforms to ensure an institutional framework that is conducive and favorable to the implementation of the planned policies and programs.

In addition, a recent study on the analysis of the legal and regulatory framework and preparation of implementation texts in the context of REDD+ in Togo (MEFR. 2017d) was validated in May 2017. This study aimed at analyzing and proposing an improved and more adapted legal and regulatory framework to enable and facilitate the implementation of a REDD+ strategy. Overall, even if this study reveals that the legal framework is, on the whole, favorable to the implementation of the REDD+ process, it nevertheless indicates that it is necessary to accompany this process with the drafting of certain complementary texts, especially in the agriculture, energy, urbanism, land and land use planning sectors. The study thus lists a series of weaknesses linked to the legal and regulatory framework of the environment and forestry sector, such as:

The priority measures that will be supported by the national REDD+ strategy are among others:

- Revision of the legal framework regulating vegetation fires in Togo;
- Strengthening of the legal framework relating to land clearing and land use in Togo;
- Support for strengthening the legal framework relating to protected areas and forest massifs;
- Strengthening of the legal framework of private forest estates and local authorities;
- Support for strengthening the legal and institutional frameworks of forest-related sectors;
- Support for the establishment and operationalization of an appropriate legal framework for benefit sharing in the context of REDD+ in Togo;
- Support for the establishment and operationalization of an appropriate legal framework for complaint management in the context of REDD+ in Togo;
- Strengthening the application of legislation.

CHAPITRE IV
FRAMEWORK FOR IMPLEMENTING THE STRATEGY

4.1 FRAMEWORK FOR STEERING, IMPLEMENTATION AND INTERSECTORAL COORDINATION

At the regulatory level, the institutional framework for steering and managing the REDD+ readiness process in Togo, formalized by Decree N°2016-007/PR dated January 25, 2016 and which, among other things, accompanied the preparation of this strategy, will be maintained during its implementation. These are:

(i) the National REDD+ Committee (CN-REDD+);

(ii) the National REDD+ Working Group (GNT-REDD+) and

(iii) the National REDD+ Coordination. It will no longer be necessary to formalize another governance mechanism. Indeed, the remit of the different bodies, notably the NC-REDD+ and the National REDD+ Coordination, also covers the investment phase of the process.

Also, the National REDD+ Committee, which will play the role of the steering committee, has clear attributions that cover REDD+ implementation and monitoring. They include policy monitoring, arbitration of conflicts between stakeholders, approval of the National Coordination's work program, monitoring and evaluation of the implementation of the REDD+ strategy, monitoring of the inclusion of REDD+ in policies, strategies and programs, synergy of actions and process coordination.

In addition to designing management and administrative tools, the National Coordination's responsibilities, as set out in the aforementioned decree, include resource mobilization, communication, management of the database on the REDD+ process, management of conflicts between stakeholders, and missions related to the conduct and periodic preparation of reports on the status of implementation of the REDD+ strategy in Togo.

Placed under the supervision of MEFR, it is under the responsibility of a national coordinator and comprises seven (08) cells: the programme support cell; the administrative and financial cell; the information, education and communication cell; the monitoring-evaluation cell; the «measurement, reporting and verification (MRV)» cell; the legal affairs cell; the Environmental and Social Assessment cell; and the contracting cell. This framework remains indicative and may be revised at the start of the implementation of the strategy.

At the regional level, Decision No. 017/SG/MERF of April 12, 2012 designates the regional directorates of environment and forest resources as REDD+ focal points, responsible for coordinating REDD+ activities. For effective monitoring and coordination of REDD+ activities, a regional REDD+ unit will be set up within each DRERF, with appropriate resources. At the level of each prefecture, focal points will also be appointed to monitor activities at the prefectural level, but will not be set up as REDD+ cells.

The National REDD+ Working Group (NWG REDD+), a technical support body for the National REDD+ Committee and the National REDD+ Coordination, will also be maintained, but will play an ad hoc committee role. It will be in charge of supporting the National Coordination in the implementation of the REDD+ strategy, including the review, selection and monitoring of projects and other activities of state and non-state institution project leaders.

In addition to these institutional mechanisms, the sectoral thematic groups set up as part of the preparation process will be strengthened and will play the role of focal points at the level of the various ministries involved.

They will serve as relays for the National REDD+ Coordination for the implementation of actions.

Regarding civil society and the private sector, the platforms set up as part of the preparation process will play a relay role. The national sustainable development commission and the local sustainable development commissions are platforms for participation, mobilisation and consultation.

The main project leaders are the sectoral ministries, civil society organisations, the private sector, local authorities and the umbrella organisations of grassroots organisations. Each project leader is likely to develop, mobilise the appropriate financial resources, implement and monitor the activities specific to their project. To this end, in accordance with the procedures of the technical and financial partners, it will set up a management unit dedicated to the implementation of the project.

This management unit will be responsible for:

(i) the coordination of all activities of the project or programme financed;

(ii) the financial, administrative and accounting management, as well as the instruction of regular audits;

(iii) the procurement of works, goods and services;

(iv) the monitoring and evaluation of actions; and

(v) the implementation of the project components and actions, as well as the environmental and social safeguards measures To this end, it will report to the donor and to the appropriate bodies at the national level, including the NC-REDD+ for monitoring purposes.

National REDD+ Coordination will play a role in monitoring all activities implemented by stakeholders under the national REDD+ strategy, in order to assess their effectiveness in relation to the reference situation and the strategy's objectives. Also, mechanisms and procedures will be put in place to monitor activities carried out by project leaders. NC-REDD+ will not directly implement investment projects, but may initiate and manage enabling or pilot projects related to REDD+.

It will therefore play a role in supporting the actors involved, certifying and supporting the visibility of all actions carried out under the strategy.

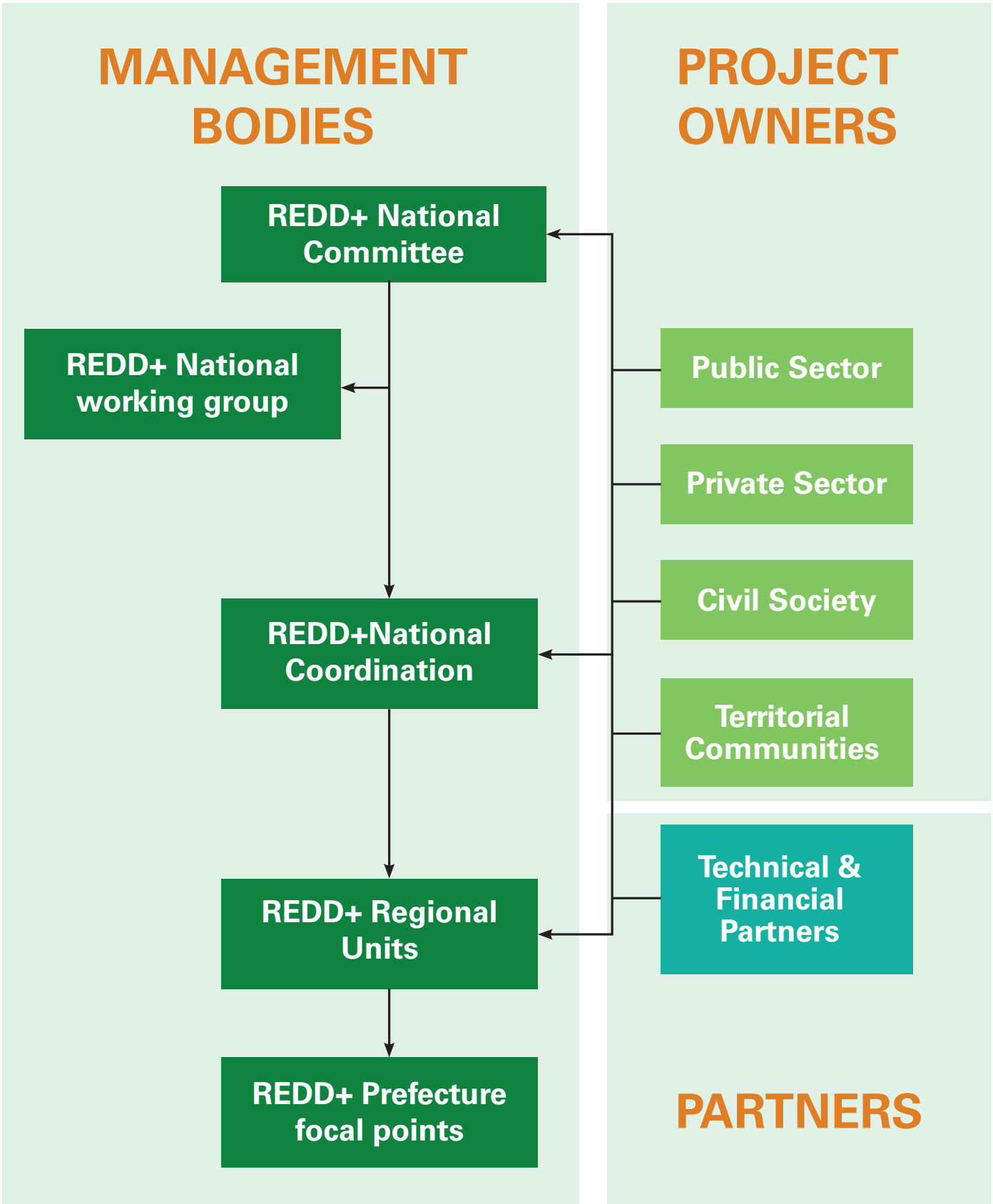
The table below summarizes the functions and missions of the National Coordination, independently of those assigned to project leaders.

Table 16: Functions, objectives and missions of the National REDD+ Coordination in the framework of the implementation of the REDD+ strategy/process

Functions	Objectives	Missions
Management/coordination	Ensure the overall management and monitoring of the REDD+ implementation process	- Oversee the implementation and review of the national REDD+ strategy - Review and approve REDD+ plans and programs; - Manage international relations in the context of REDD+.
Fiduciary	Monitor the financial management and procurement of activities under the responsibility of NC-REDD+.	- Ensure financial, administrative and accounting management; - Ensuring the procurement and auditing of the accounts - Participate in mobilizing international and national funding for REDD+ implementation; - Participate in the arbitration of resource allocations to implementing entities, according to the priority policies and measures of the national REDD+ strategy; - Ensure compliance with agreed national and international agreements through financial, fiduciary, and reporting procedures; - Manage the country's relationship with the REDD+ carbon market.
Technical	Provide technical advice and support to REDD+.	- Establish national standards for REDD+ (e.g., MRV and environmental and social safeguards, validation manual for projects meeting REDD+ standards) ; - Monitor regular forest assessments and MRV activities, or delegate them to others, and review and approve results ; - Manage relations with international REDD+ technical bodies; - Provide technical assistance to different stakeholders in the REDD+ process (e.g., provide standards and guidelines on REDD+ implementation and measurement).
Monitoring and evaluation	Monitor and evaluate the implementation of the strategy	- Establish the reference situation ; - Develop indicators and procedures for monitoring strategic options in collaboration with stakeholders; - Monitor the implementation of the strategy and action plan in collaboration with stakeholders; -Carry out the mid-term review of the strategy and action plan and their evaluation; - Ensure visibility of the implementation of the strategy's actions and programs.

Functions	Objectives	Missions
Implementation	Undertake REDD+ activities or supervise and monitor different stakeholders[1] REDD+ activities	- Implement REDD+ readiness and demonstration activities; - Accompany and supervise the preparation of REDD+ projects/programs by project developers, in accordance with the orientations and options of the national REDD+ strategy; - Supervise the implementation of the REDD+ strategy, measures, programs and projects and delegate implementation to stakeholders; -Participate in the review, approval and revision of REDD+ projects for funding.
Registration and certification	Record and certify REDD+ actions and/or outcomes	- Develop the REDD+ Togo project approval manual that will specify: (i) categories of promoters; (ii) criteria for REDD+ projects in Togo; (iii) conditions for implementing and monitoring REDD+ projects; links between project promoters and REDD+ governance bodies; (iv) payment conditions for environmental services. - Establish a register of REDD+ activities; - Certify REDD+ MRV results; - Use the REDD+ registry to facilitate payments and distribution of certified emission reductions among REDD+ project participants; - Manage relationships with international registry and certification bodies.
Safeguards and liability:	Ensuring transparency, governance and guarantees	- Set up and supervise the operation of participatory systems of public consultation and social and environmental protection with the support of NEMA ; - Establish and supervise the operation of complaint resolution procedures; - Manage relations with international guarantees; - Establish and manage the recourse mechanism.
Capacity building	Ensures that all parties have the required knowledge	- Facilitate the organization of visits - exchanges ; - Provide or facilitate training and capacity building for staff working on the REDD+ process so that they can properly carry out their functions; - Facilitate training and capacity building for all key stakeholders in REDD+ processes so that they can actively participate in and benefit from the REDD+ system.

Figure 33: Institutional Framework for the Implementation of Togo's REDD+ Strategy



4.2 MOBILIZATION OF FINANCIAL RESOURCES FOR THE IMPLEMENTATION OF THE STRATEGY

4.2.1 General considerations

The objectives of the national REDD+ strategy are ambitious. The programs and actions to be undertaken for the implementation of the strategy will therefore require significant financial investments in order to produce the expected impacts on the reduction of GHG emissions, the improvement of living conditions and the reduction of the incidence of poverty on the population. Thus, the implementation of all the proposed strategic actions requires the identification and mobilization of multiple financing and the use of different financing modalities. It should be noted, however, that many of the projects do not concern REDD+ in the strict sense, but rather cross-cutting priorities for the country's development (governance, land tenure, land use planning, etc.). Numerous traditional financing methods (State budget, public development aid, private investments) are therefore likely to contribute to the implementation of the strategy. The REDD+ strategy can only be imposed in Togo as part of a broader process of transformation towards a successful green economy model, which implies that beyond «absolute» investment, the «relative» amounts mobilized for REDD+ and the green economy in Togo will also be essential indicators to judge the success of the REDD+ strategy.

Trends in climate project financing in Togo in recent years reveal that only public funding from international and national sources is currently used to support climate change mitigation and adaptation projects in Togo, including in the forest sector. Private sector experiences supporting this area of action are rather limited. It is therefore important to explore and further involve the national and international private sector in the resource mobilization strategy for REDD+ financing in Togo, which can bring about a paradigm shift in the mobilization of climate financing.

As far as the public sector is concerned, the most important contribution remains that made by international cooperation. However, given the limit of these resources, it is desirable that options be identified and explored for the increased mobilization of both national and international public resources.

4.2.2 Potential sources of funding

Given the significant financial resource needs for the implementation of climate mitigation and resilience actions, including REDD+, it is generally agreed that funding will need to come from a wide range of sources. These include public and private, bilateral, multilateral and alternative sources. Some countries are broadly exploring various financing instruments, including grants and concessional loans, which are considered essential for climate change adaptation and mitigation efforts in the most vulnerable developing countries. In Togo, potential sources of domestic and international financing are identified in the following paragraphs.

Potential sources of domestic financing

The potential sources of national financing for REDD+ are as follows:

(i) Internal Resources (IR)/capital expenditure;

(ii) National funds: National Forest Development Fund: (FNDF), National Environment Fund (FNE), and Autonomous Company of the Road Maintenance Fund (SAFER);

(iii) Public, para-public and private companies to finance environmental and social safeguard measures and societal obligations;

(iv) Public, private and investment banks at the national level;

(v) Local authorities (local budget);

(vi) Micro-finance institutions; and

(vii) Legacies, donations from individuals or legal entities.

Potential sources of international financing

Potential sources of international funding are as follows:

(i) Bilateral (KFW/GIZ, USAID, GEF, AFD, EU/EDF/EIB, JICA, Kuwait Fund, and Chinese Fund) ;

(ii) Multilateral (FAO, UNIDO, UNDP, UNEP, IFAD, IDB, BADEA, World Bank, International Finance Corporation (IFC), GEF (Global Environment Facility), Adaptation Fund (AF), Green Climate Fund (GCF), Least Developed Countries Fund (LDCF), Climate Change Special Fund (SCCF), OPEC Fund, Global Facility for Disaster Risk Reduction and Recovery (GFDRR));

(iii) Sub-regional organizations (ADB, EBID, WADB, WAEMU, ECOWAS) and the international private sector.

4.2.3 Priority sources of funding for REDD+

4.2.4.1 Global framework

There are generally four priority sources of financing for REDD+, which can themselves be further subdivided according to additional factors such as origin (internal or external), nature (traditional, additional, aligned, etc.), or detailed according to disbursement modalities (bilateral, multilateral, results-based/ex-post...). Table 17 presents the advantages and disadvantages specific to each source of financing.

Table 17: Four priority sources of funding for REDD+

Source of funding	Examples	Advantages	Disadvantages
Public	Development public Aid, State budget (including contributions from FNE, SAFER, ...)	Flexible, non-economic logic	Limited, lack of predictability, conditionalities …
Market-related	Payments for Ecosystem Services, Offsets, Royalties …	Flexible, non-economic logic, high potential	Lack of ambitious regulations
Market-based	Californian market, Australian market, voluntary market...	Strong potential for the regulated, pioneer for the volunteer	Lack of ambitious regulations, short-term actions, volatility
Private off-market	Agroforestry, ecotourism...	Strong potential	Business environment in Togo, reduced opportunities

In view of these multiple sources of financing, it is essential to establish a vision of the major sources in the medium and long term, in order to guide the relevant actions accordingly, so that existing opportunities can be valued and seized. Under current carbon market conditions, the most relevant and priority sources of REDD+ financing for Togo are: aligned internal and external public funds (which implies better coordination of international assistance and programmatic translation of confirmed policy alignment priorities), private investments (which implies confirmation of the profitability of sectoral REDD+ business models) and market-related financing (Green Climate Fund, compensatory measures, etc.).

In addition, in general, regarding REDD+ financing, it should be considered that:

(i) These multiple sources and financing modalities make it complex to put project developers and all REDD+ actors on the one hand, and financial resources on the other hand in contact with each other; hence the importance of communication and facilitation of this contact;

(ii) Many projects do not concern REDD+ in the strict sense, but rather cross-cutting priorities for the country's development (governance, land tenure, land use planning, etc.) that are likely to be covered by many traditional sources of funding (State budget, public development aid, private investments) and will thus contribute to the implementation of the REDD+ strategy;

(iii) The success of REDD+ will depend on the coordinated implementation of activities integrating land use planning, land tenure security, governance conditions and population control into agricultural, energy, forestry, mining or multisectoral investments. Financing must therefore be sufficiently flexible to support the REDD+ orientation of otherwise unsustainable investments.

4.2.4.1 Internal Sources of funding

Financing of the REDD+ process in Togo comes from national resources and support from technical and financial partners in accordance with Decree No. 2016-007/PR of January 25, 2016. Thus, national resources include the allocation from the State budget, the share of the national forest development fund (FNDF) created by Law N°2008-009 of June 19, 2008 on the forest code in Togo, project financing within the framework of REDD+ as well as donations, legacies and other legal resources. In addition, the operationalization of the National Environment Fund (FNE) created by Law N°2008-005 of May 30, 2008 should enable capacity building in the mobilization of national resources for the financing of sustainable development: eco-taxes, royalties, compensations, fines, taxation, capitalization of promoters' environmental costs, etc., in order to attract more potential technical and financial partners to finance REDD+ activities.

The existence of a permanent forest estate (PFE) in Togo is a strong argument for the implementation of the FNE and its tools. A geographically identified PFE makes it possible to require in-depth impact studies that take full account of the short-, medium- and long-term impact on the forest, and not only impact mitigation, but also significant ecological (restoration of ecosystems degraded elsewhere) and financial compensation (restoration of ecosystems degraded elsewhere). These financial compensations or royalties would contribute to the national fund to finance REDD+ activities throughout the country.

In addition to public and market-related finances, national private investments are also an avenue for financing actions that should not be overlooked.
The development of public-private partnerships (PPPs) will substantially increase national empowerment of financing for the forest sector.

4.2.4.3 External sources of funding

A wide range of multilateral and bilateral initiatives have been developed to finance REDD+ activities. To date, these initiatives have focused primarily on «REDD+ readiness» activities. The main multilateral initiatives potentially mobilized by Togo under REDD+ are the following:

(i) The FCPF Carbon Fund, which aims to pay for verified emission reductions;

(ii) The World Bank's Forest Investment Program (FIP) which supports REDD+ activities, including sustainable forest management, in a number of selected countries;

(iii) The UN-REDD Programme, a multi-donor trust fund that supports governments in the development and implementation of national REDD+ strategies;

(iv) The GEF, the financial mechanism of the conventions on biodiversity, climate change, desertification and land degradation, chemicals and wastes, and international waters, administers LDC funds to finance adaptation in the least developed countries and provides incentives for sustainable forest management projects;

(v) The Global Environment Facility's Small Grants Programme, which supports sustainable management of land, forests and restoration of degraded landscapes;

(vi) The Adaptation Fund (AF) which finances climate change adaptation projects in developing countries that are parties to the Kyoto Protocol;

(vii) The Green Climate Fund (GCF), a financing mechanism of the UNFCCC, which provides assistance to developing countries to limit or reduce their greenhouse gas emissions and adapt to the impacts of climate change.Sustainable forest management to support mitigation and adaptation, including afforestation and the reduction of forest degradation and the implementation of REDD+ is one of the eight focal areas of the Fund;

(viii) The Special Climate Change Fund (Clim-Dev-Africa-FSCD) established by the African Development Bank (AfDB), the African Union (AU) and the Economic Commission for Africa (ECA), and

(ix) The Clean Development Mechanism (CDM) of the Kyoto Protocol, which is a source of funding for afforestation and reforestation projects.

However, in order to access the portfolio of these different funds, there are a number of prerequisites to master, notably on the technical, financial and institutional aspects. However, a lack of capacity in this area currently hinders Togo's access to this type of assistance. Nevertheless, the determination of the government to fill these gaps in order to facilitate access to this type of financing is demonstrated by the determinism displayed during training sessions held in 2017/2018 to master the Green Fund mechanism as part of the implementation of the preparation program. In addition, it should also be noted that Togo currently maintains good relations with sub-regional (WADB, ECOWAS, WAEMU, etc.) and continental (African Union, ADB) institutions.

A number of donors have also set up bilateral funds for REDD+, the main ones being the following:

(i) The International Forest Carbon Initiative, led by Australia, which focuses primarily on REDD+ monitoring capacity building;

(ii) The Norwegian Government's International Climate and Forest Initiative, which has provided significant funding to the initiatives;

(iii) The International Climate Initiative, launched by the Government of Germany and the International Climate Fund, established by the United Kingdom, are important sources of funding for REDD+ activities, but are not exclusively focused on the mechanism;

(iv) The The Global Environment Facility (GEF), which aims to promote global environmental protection through the implementation of sustainable development projects in developing countries and countries in transition.

As regards bilateral cooperation, Togo will be able to rely on its traditional partners such as France, Germany, China, Japan, the United States of America, etc. Outside these countries, the opportunities offered by international organizations such as the International Tropical Timber Organization (ITTO), the African Timber Organization (ATO) and the IUCN should also be considered as opportunities.

4.2.4 Financing strategy

Steps and actions for capacity building

The REDD+ financing strategy is based on steps to facilitate access to identified sources of finance. These steps focus on:

(i) establishment of a reference situation to facilitate monitoring of progress made in terms of resource mobilization and serve as evidence to potential investors;

(ii) objective assessment of the options actually available to ensure continuity in the process of preparing and implementing concrete REDD+ measures and actions;

(iii) familiarization with the modalities for accessing and obtaining financing from targeted sources;

(iv) improvement of the capacity to draft and present application files that meet the requirements of the technical and financial partner being approached;

(v) commitment to a precise and strategic approach to funding requests, which consists of planning, researching, preparing and submitting funding proposals; and

(vi) development of the capacity to follow up on funding requests.

In order to make the financing strategy operational, it is essential to focus resource mobilization efforts on REDD+ priority actions. As a general rule, the strategy should target the sources and funds with the greatest potential based on a number of criteria to guide the decision.

An effort to mobilize national resources is a priority, and is likely to strengthen the credibility of the national partner and give a strong signal about the priority that REDD+ represents for GHG reduction in the context of climate change. Options for national resource mobilization include the possibility of benefiting from national budget allocations for REDD+ projects or the provision of qualified personnel and premises to support related projects. Possibilities for increasing national budget contributions should be explored, particularly in the framework of the reform underway in WAEMU countries, in relation to the 2014 organic law on finance. Indeed, the possibilities offered by program budget approaches should be better assessed and allow for the inclusion of budget lines on REDD+ and adaptation to climate change impacts in their budget programming framework. Finally, existing and/or emerging national environment funds can and should develop innovative instruments for resource mobilization for REDD+ financing.

The implementation of such a strategy requires the deployment of technical expertise. It is important to ensure, as part of this technical support, that all other necessary areas of expertise are mobilized, including technical and scientific expertise, financial engineering, market approaches as appropriate for the type of project to be submitted.

The mobilization of private sector actors at both the national and international levels has always been a real challenge. To this end, advocacy should be conducted and an effort undertaken to better understand the modalities of access to private financing. For the national private sector, support to REDD+ could consist in financing community-based mitigation and adaptation projects with high impacts related to REDD+ in the areas and zones of intervention, in a corporate social responsibility approach, in accordance with the provisions in force in the framework of environmental and social assessments.

Strengthening the public-private partnership between national public and private sector actors involved in the field of climate change is important to increase and mutualize interventions in support of REDD+ implementation. Thus, the national REDD+ committee and the ministries in charge of the environment and the private sector should create a framework for collaboration with the chamber of commerce and industry, employers, and the Administrative Society of the Free Zone ASFZ in order to explore ways and means to better involve both the national and international private sector in the financing of REDD+ actions.

In addition, particular attention should be paid to removing the remaining barriers to mobilizing resources from the GCF, including accreditation of an implementing entity, capacity building for submitting eligible projects, and understanding how to access the fund.

Approach to funding mobilization

Political and technical support measures: This will involve

(i) creating an enabling national environment for increasing traditional and climate-related financial flows (strengthening the rules of good governance, transparency in the management of public resources and improving the business climate, etc.);

(ii) developing and implementing a communication strategy.

Measures to sensitize and mobilize stakeholders: These aim at

(i) facilitating ownership by national stakeholders through continuous sensitization, information, education and communication;

(ii) preparing and implementing a donor mobilization strategy;

(iii) organizing missions to TFPs and international NGOs.
Organization of the Round Table of TFPs and monitoring of commitments: This will involve

(i) organizing and holding a round table with potential national private sources of financing; (

ii) organizing and holding a round table of TFPs;

(iii) developing a dashboard of financial and technical commitments; (iv) following up on the commitments resulting from the round tables.

Coordination

Despite the range of financing mechanisms mentioned above, in practice, it is certain that the full range of activities relevant to REDD+ will not be achieved by relying solely on REDD+ financing, which will be limited in nature.

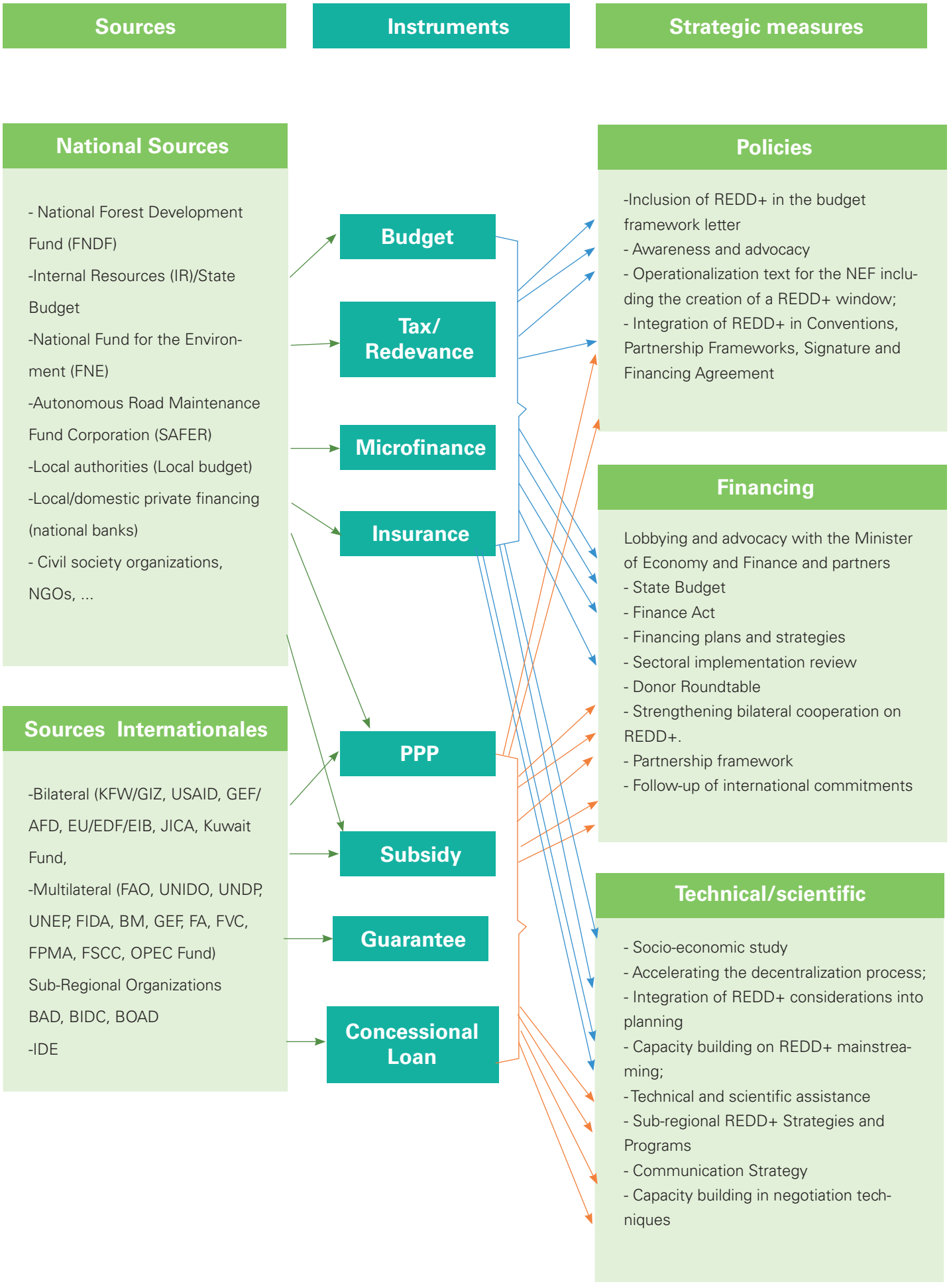
REDD+ implementation at the national level will therefore require a pooling of efforts by all stakeholders. A multitude of actors and projects, both public and private, are involved in the sectors identified as strategic.

The government will encourage an alignment of these interventions with REDD+ objectives and will support a greater convergence of interests through financial and technical incentives. Many development partners support initiatives that can be linked to REDD+ objectives through the development of agriculture, access to energy, infrastructure, forestry, research and training, etc. The government will encourage the alignment of these interventions with REDD+ objectives, and will support greater convergence of interests through financial and technical incentives.
Awareness-raising among partners must be conducted and support opportunities may be provided in order to integrate REDD+ concerns.

Conceptual framework of the REDD financing mechanism in Togo

The conceptual diagram in Figure 34 below gives a broad idea of the potential sources and the instruments offered by these sources. It also presents the strategic measures

Figure 34: Conceptual diagram of the REDD+ financing mechanism in Togo



4.3 NATIONAL FOREST MONITORING SYSTEM (SNSF) AND MEASUREMENT, REPORTING AND VERIFICATION (MRV) FOR REDD+

4.3.1 Background

In the context of REDD+, an MRV/RSF is a system to record and monitor how land is used in a country and to estimate greenhouse gas (GHG) emission levels. Its purpose is to assess the extent to which REDD+ activities are working. It then has two functions: the monitoring function and the measurement, reporting, and verification (MRV) function. The principles of REDD+ MRV in Togo are based on the following elements:

- The scope of the monitoring system includes the monitoring of greenhouse gases from land use and forestry, and more specifically of Togo's REDD+ strategy options. In this context, deforestation and degradation drivers, policies and measures, non-carbon benefits and reference level are integrated in the monitoring.

- The main carbon sinks considered are biomass (aerial and root) and dead biomass, excluding organic soil, as well as litter for capacity reasons.

- The technological options and choices for MRV are based on the methods used in the land use mapping and the national forest inventory.

- The approach takes into account existing capacities and future capacity requirements, following a continuous improvement approach.

- The participation of local communities and NGOs will be actively sought in the monitoring.

- Since the national REDD+ strategy includes a variety of options, a particular focus will be on carbon leakage.

The SNSF will be further refined in Phase 2 of REDD+, through the implementation and measurement of the evolution of REDD+ activities on the ground. Phase 2 will refine methodologies and measurement tools.

4.3.2. The monitoring functions

For monitoring REDD+ activities, Togo has defined its own methods, criteria, and indicators to reflect specific national circumstances[1]. The monitoring will include indicators, which will be used to monitor the implementation of specific REDD+ policies and measures. For sustainable forest management, a potentially useful indicator to monitor is the annual volume of timber harvested and certified areas. For carbon stock enhancement activity, a potential indicator to monitor is the area reforested or planted. This makes the monitoring function of the SNSF a national tool for assessing the results of REDD+ activities implemented by different stakeholders and institutions.

In terms of methodology, the completion of the 1st national forest inventory (NFI) made it possible to develop the methodology and instructions for the NFI. During this inventory, 945 permanent plots were installed, materialized by an iron rod in the center of each plot. It is on these plots that periodic measurements will be made to monitor the forests of Togo. Monitoring is carried out by the management unit for the database of forest resources and the results of the national forest inventory (CBDR/IFN), which has branches at regional level in the regional directorates of environment and forest resources.

Monitoring will be carried out by remote sensing using free satellite images, through the Cartographic Database Management Unit (UGBDC), created by Order No. 071/MEFR/SG of 1 July 2016. The web interface will serve as a gateway to information on the progress of REDD+ implementation and managed by the national REDD+ coordination. Community monitoring and other forest-related monitoring systems (vegetation fire, non-timber forest products) will complement the monitoring function.

4.3.3. The MRV function

This function refers to **the measurement** that concerns information on how human activities take place (activity data: AD) with coefficients quantifying emissions or storage per unit of activity (emission factors: EF). In the case of REDD+, this translates into the measurement of forest area and changes in area (DA) and forest carbon stocks and changes in forest carbon stocks (EF). All of this information is used as the basis for a GHG inventory. The measurements of DA and FE are made by the CBDR/IFN and the UGBDC.

Reporting involves the establishment and availability of national data and statistics for reporting to the UNFCCC (with respect to national communications). This includes information on greenhouse gas (GHG) emissions and removals and details on the activities that Togo has implemented to meet its commitments to the UNFCCC. The reporting is done by the MEFR, through the Environment Directorate, the focal point of the UNFCCC.

Verification refers to the process of independent control of the accuracy and reliability of the information presented or the procedures and methodologies used to generate it. The reported data are reviewed at the national level by the Directorate General of Cartography and the University of Lomé and then by experts from the UNFCCC Secretariat.

There are three technical pillars essential to support its MRV function which are described as follows:

1 *Instruction for the execution of the national forest inventory (MERF, 2015). Methodology for carrying out the national forest inventory in Togo (MERF, 2015)*

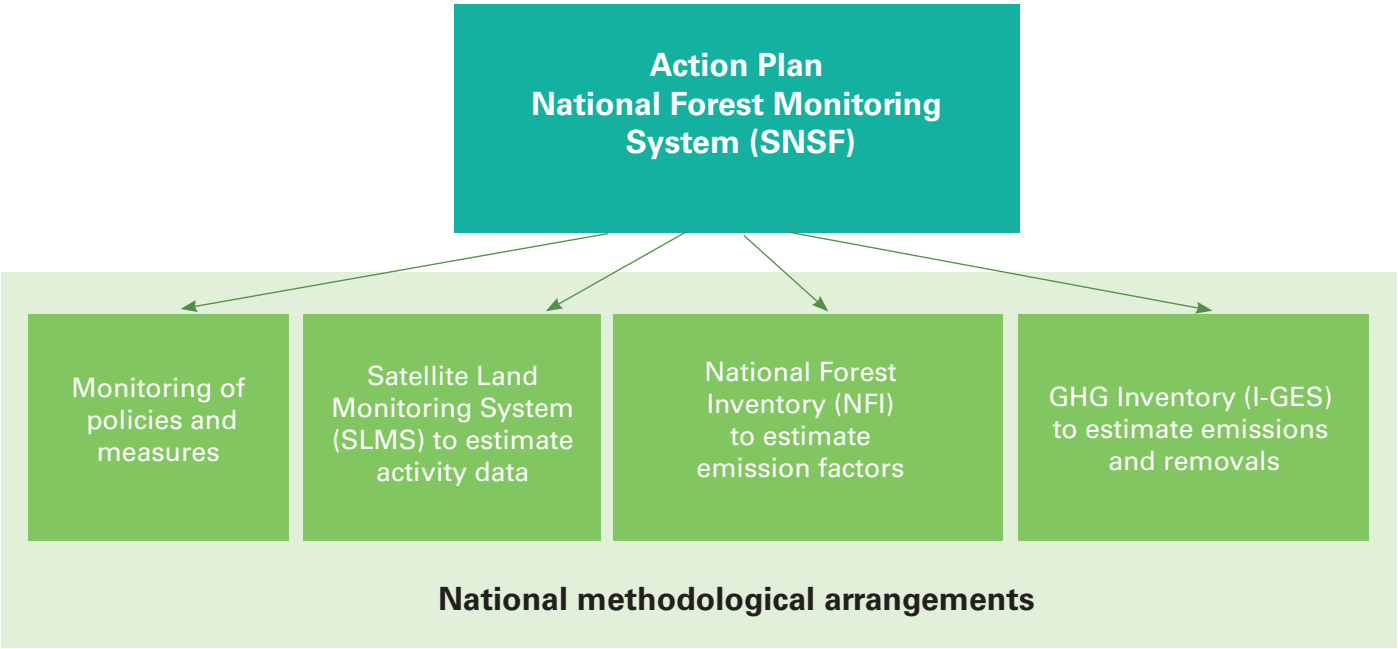
Pillar 1: A satellite-based land monitoring system (SSTS) to collect and evaluate over time data on forest-related activities (AD). This is Land Use, Land Use Change and Forestry (LULUCF).

Pillar 2: The National Forest Inventory (NFI) to collect information on forest carbon stocks and changes in forest carbon stocks to estimate emissions and removals and provide emissions factors (EFs).

Pillar 3: A national GHG inventory as a tool for reporting forest-related anthropogenic GHG emissions by sources and removals by sinks to the UNFCCC Secretariat.

The summary of the linkages between functions, outputs and methodological arrangements in Togo is as follows (Figure 35).

Figure 35: Organisation of SNSF



4.3.4. Institutional Arrangement for Measurement, Reporting and Verification (MRV)

In the national context and for the REDD+ process, Togo opted for capacity building of existing structures and internal reorganizations for the national forest monitoring system. Thus, in April 2014, Order No. 94/MEFR, establishing, composing and allocating the national forest monitoring team in Togo was issued, bringing together the various structures in connection with LULUCF. In practical terms, two structures for the management of activity data and emission factors were created in March 2017, within MEFR to form the basis of the Measurement, Reporting and Verification (MRV) system. These are:

(i) the management unit for the database of forest resources and the results of the national forest inventory (CBDR/IFN) created by Order No. 181/MEFR/SG of 28 July 2016 at the level of the Forest Resources Directorate (DRF); and

(ii) the cartographic database management unit (UGBDC) created by order n°071/MEFR/SG of July 1, 2016 at the Directorate of Studies and Planning.

These structures have sub-units in all the Regional Directorates of the Environment and Forest Resources (DRERF) for the collection of activity data and emission factors at local and national levels.

The institutional arrangement for measurement, reporting and verification (MRV) under REDD+ in Togo is as follows.

The Ministry of Environment and Forest Resources (MEFR) through the Directorate of Environment (DE) is responsible for submitting reports (National Communication and biennial reports) to the United Nations Framework Convention on Climate Change.

The MRV unit of the REDD+ National Coordination located at ODEF is responsible for coordinating all institutions and organizations involved in feeding the MRV system.

The NERF/MRV Working Group (WG) and the National Forest Monitoring Team are in charge of the work and technical decisions and choices on the data, results and methodology adopted for MRV. This is the linchpin of the MRV unit. They are made up of executives from the institutions involved in the National Forest Monitoring System (SNSF).

The Directorate of the Environment (DE) is in charge of the greenhouse gas inventories (I-GES) of all sectors, but ensures the consistency of the I-GES data of the Agriculture, Forestry and Other Land Use (AFOLU) sector with the reports that will be submitted to the UNFCCC.

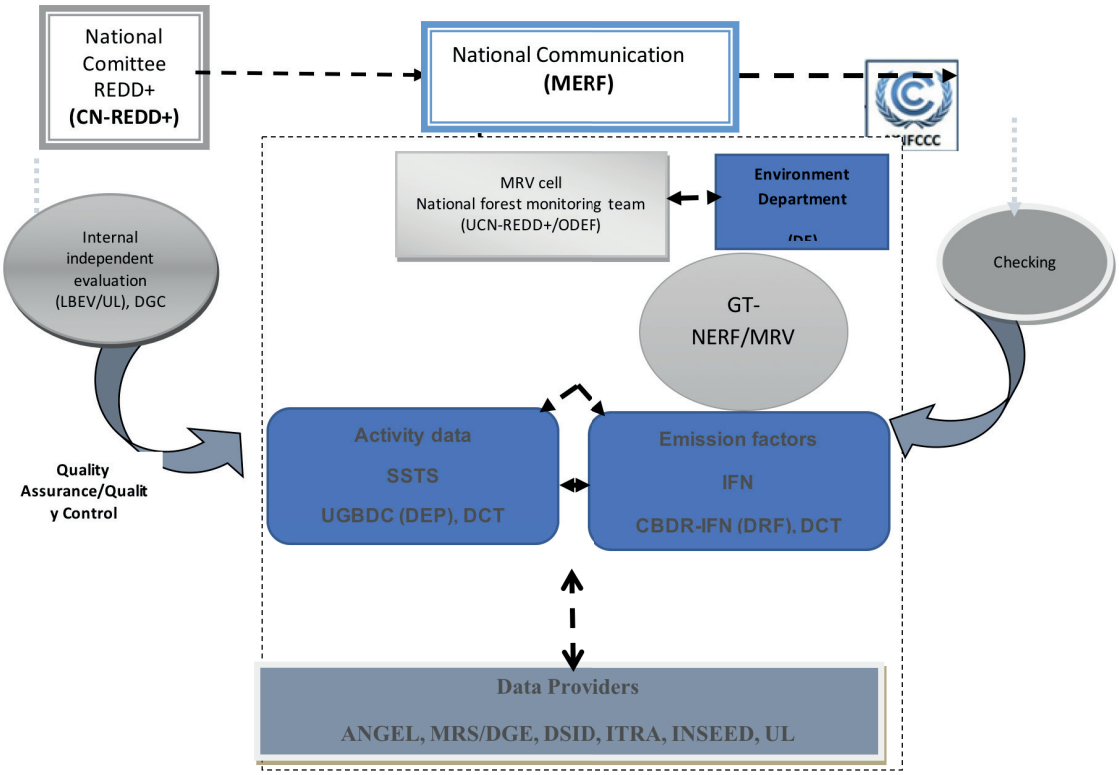
The Cartographic Database Management Unit (UGBDC) is in charge of managing the mapping of Togo's forest estates, and the Cartography and Remote Sensing Division (DCT) of the Office for the Development and Exploitation of Forests (ODEF) in charge of mapping classified forests and state-owned plantations will be responsible for producing activity data, through the Satellite Land Tracking System (SSTS).

The Management Unit of the Database of Forest Resources and National Forest Inventory Results (CBDR-IFN) and the Cartography and Remote Sensing Division (DCT) of ODEF are in charge of producing emission factors, through the national forest and plantation inventories.

The National Environmental Management Agency (ANGE) is responsible for providing data on vegetation fires, the General Directorate of Energy of the Ministry of Mines and Energy (DGE/MME) will be responsible for providing data on wood energy consumption, **The Direction de la Statistique agricole de l'Informatique et de la Documentation (DSID)** and **the Institut Togolais de Recherche Agronomique (ITRA)** will produce data on agriculture (area sown and livestock), research data from Togolese universities will feed the MRV mechanism, and the Institut national de la statistique et des études économiques et démographiques (INSEED) will provide additional demographic and other information.

Quality assurance and quality control will be carried out through internal independent evaluation by the Laboratory of Plant Biology and Ecology of the University of Lomé (LBEV/UL) and the General Directorate of Cartography (DGC).

Figure 36: Institutional Arrangement for Measurement, Reporting, and Verification (MRV)



4.3.5. Determination of the forest reference emission level (NERF)

Togo's forest reference emission level (NERF) is based on NFI results, interpretation and analysis of aerial photos (1977 and 1979, 1982), archival satellite images (LandSat 1988 - 1990, 1999 - 2000, 2009 - 2010) and recent images (LandSat 2014, 2015, 2016, RapidEye2013). It is derived from the results of the SNSF.

Togo's NERF/NR will take into account the following elements:

- The scale or area covered by REDD+ activities will be at the national level. This is justified by the availability of permanent NFI plots at the national level, the 2014/2015 national forest inventory and periodic re-measurement; the 1985 historical analysis on aerial photos and Rapideye 2015 images covering all Togo.

- The scope of the NERF/NR concerns REDD+ activities, including reservoirs for reducing greenhouse gases: reducing deforestation and forest degradation, sustainable management of forests and agro-forestry, conservation and enhancement of carbon stocks - A methodology will be developed to estimate forest degradation;

- The gas to be considered is carbon dioxide (CO2) excluding methane (CH4) and nitrous oxide (N2O) due to lack of data to quantify forest fire emissions;

- The definition of forest in the REDD+ context is that of Togo's national forest inventory. The definition of forest in the REDD+ context is that of Togo's national forest inventory. It is a minimum area of 0.5 hectares with trees whose crowns cover more than 10% of the ground surface and which can reach a minimum height of 5 m at maturity;

- Multi-temporal spatial data (selection and analysis of activity data and emission factors); and the objective is to monitor Togo's performance and progress in reducing greenhouse gas emissions. In order to monitor performance, the MRV unit, the CBDR-IFN and the UGBDC, which are permanent entities, will continue forest monitoring with the regional directorates. This involves national forest inventories and the regular updating of mapping by collecting data from the 945 permanent plots set up and processing satellite images.

4.4 ENVIRONMENTAL AND SOCIAL IMPACTS AND SAFEGUARD MEASURES

The conclusions drawn from the Strategic Environmental and Social Assessment (SESA) of Togo's REDD+ process reveal that implementing all the options/actions simultaneously will require significant behavioral changes on the part of the communities involved: modification of agricultural practices and livestock and transhumance habits, integration of agroforestry practices, adaptation of traditional lifestyles, change of habits in the production and consumption of wood energy, use of renewable energy sources, preservation of existing forests and protected areas, etc. In this context, the accumulation of these changes in a short period of time could have certain repercussions from a social point of view. These repercussions could take several forms: resistance to change, a negative effect on the social acceptability of certain projects, a negative effect on social cohesion due to the possible displacement of population or the presence of workers from outside, etc. Taking these various risk factors into account militates, on the one hand, in favour of establishing an environmental management framework covering all aspects and, on the other hand, in favour of a communication strategy allowing for the sustained involvement of local communities in management and development efforts.

In the case of Priority 1 on the promotion of efficient agriculture with low negative impact on the forest, changes in agricultural and livestock practices are necessary. Extensive slash-and-burn farming practices, as well as herd transhumance practices, are particularly damaging. Wildfires are also an important factor in deforestation. However, the environmental management process will need to take the following elements into consideration:

- With regard to the development of intensive agricultural practices, the potential negative effects inherent in the use of fertilizers, pests and pesticides to improve production yields is certainly an issue to consider. The use of unregistered products can, among other things, become problematic. Although measures can be put in place to favour the use of natural inputs, it is far from certain that the use of natural products can fully and effectively meet the needs of soil enrichment, so the implementation of mechanisms for sound management of chemicals will be a necessity.

- From the human environment point of view, such a change in agricultural practices will inevitably require a significant change in traditional lifestyles, even if, in the long run, these changes will have a positive effect on the quality of life of peasant producers. Faced with these multiple challenges, the implementation of education, training and support measures will be a key factor in their implementation.

- With regard to livestock rearing and transhumance practices, it is clear that these activities will make it possible to maintain and increase the plant cover by reducing the animals' wandering and avoiding the more or less controlled firing that follows to accelerate the regrowth of vegetation.

However, certain actions to be put forward will have to be supervised. In particular, the tracing and marking of transhumance corridors could have repercussions for the landowners concerned.

In the case of Priority 2 on sustainable forest management and the enhancement of the forest heritage, the various options proposed aim above all to strengthen the framework for managing existing forests according to a vision of sustainable development and to encourage the involvement of local communities and the various stakeholders in the reforestation process. The negative environmental effects that may result from these measures are on the whole minor compared to the environmental benefits they may bring in the long term. The success of the proposed actions will depend greatly on the participation of local communities in land management and reforestation efforts.

In the case of Priority 3 on reducing the pressure on wood energy, improving the efficiency of the transformation and combustion of traditional energies, the promotion of renewable energies and the promotion of alternative energies could allow a significant reduction in the consumption of wood energy. From an environmental point of view, the implementation of Priority 3 will have to take into consideration the following elements:

- In a perspective of sustainable development, the use of renewable energy sources should be favored over the use of traditional or fossil fuels. In practice, however, several other factors will be taken into account in the choice of energy sources, including the cost, which will obviously have a major impact on the population.

- The implementation of the options selected in Priority 3 implies significant changes in behavior at all levels, whether in terms of consumption habits or the organization of production and distribution. Faced with this situation, the communication and awareness-raising strategy to be implemented will be particularly important in order to counter resistance to change.

- The use of improved fireplaces, the adoption of more efficient carbonization and combustion processes and the development of renewable energies will involve significant investments, given the equipment that will be required. In this sense, the availability of financial resources and the efficiency of the incentive programs to be put in place to equip communities with the required equipment will be important issues.

- The development of the various renewable energy sources (biomass, solar, wind, hydroelectricity, etc.) involves various environmental issues that will have to be taken into account. These issues will vary according to the sector and the nature of the receiving environment.

Among the main sources of potential effects are the presence of infrastructures, the installation of the collector network, the operation of power plants and the disposal of equipment at the end of its life. The installation of facilities could also imply, in some cases, the involuntary displacement of populations. In this context, it will be necessary to ensure that all development projects are subject to an environmental and social impact assessment or study.

In the case of Priority 4, the REDD+ Strategy includes a set of strategy options whose objectives are aimed more at supporting the implementation of axes 1 to 3. Although the implementation of some options may have potential negative effects, the anticipated residual effects are positive for all options analyzed. The potential negative effects concern in particular the possibility of conflicts during the finalization of development plans, land tenure security and legal reforms.

4.5 MECHANISM FOR MONITORING AND EVALUATION OF REDD+ STRATEGY IMPLEMENTATION

4.5.1 Goals and objectives

Challenges facing the monitoring and evaluation system for the REDD+ process include the following:

(i) the lack of a common unit of measurement to assess success;

(ii) the long time scale of forest investment actions;

(iii) the uncertainty regarding the level of assessment of actual impacts on GHG emissions;

(iv) the existence of other factors such as socio-economic, political change and non-climate related environmental degradation and the lack of data on changes to be monitored.

The monitoring and evaluation system for the REDD+ process has three purposes, namely:

(i) to verify whether the REDD+ process in Togo is on the right track, make the necessary adjustments accordingly, and take the right decisions regarding the direction of the process;

(ii) to generate and produce knowledge on the context, needs and feedback on GHG absorption/emissions related to the forest and its development drivers in a dynamic manner;

(iii) to produce data and information to inform the different stakeholders on progress and/or results in the sense of accountability.

The objective of the monitoring-evaluation system for the REDD+ process is to develop and operationalize a system for monitoring, evaluating and verifying the implementation of the national REDD+ strategy. The successful completion of the various activities programmed at the level of the strategic axes and the implementation framework will also depend on the capacity of national stakeholders and the reliability of the monitoring system that will be developed. This monitoring system could be integrated into a national register aimed at collecting, processing and disseminating information on REDD+ activities. The role of the monitoring system in the national REDD+ strategy is indeed important in that it will (i) provide continuous information on the evolution of the status of implementation of strategy actions, the state of forests and serve as proof of the REDD+ results that will be recorded, (ii) identify areas and thus enable adjustment of actions as appropriate, but also (iii) evaluate the impacts of activities carried out and the contribution of each of the actors.

4.5.2 Anchoring with existing monitoring and evaluation systems

The monitoring and evaluation of development policies and programs is ensured by the Institutional Mechanism for Coordination, Monitoring and Evaluation of Development Policies (DIPD), which has two specific objectives, namely:

(i) to coordinate, at the national level, the different levels of monitoring-evaluation of development policies and

(ii) to ensure accountability to the population by involving all development actors.

The REDD+ monitoring-evaluation system will have to be taken into account when the NDP monitoring-evaluation mechanism will be developed.

4.5.3 Identifying Monitoring Stakeholders and their Roles

The following institutional structures will be involved in the monitoring-evaluation of the REDD+ process. Their roles are defined in Table 18:

Table 18: Institutional structures involved in the ESS of the REDD+ process

Structure / Institution	Roles in Monitoring and Evaluation of the REDD+ Process
National Development Council (CND) of the PND/Strategic Secretariat in support of CND/ Strategic Secretariat	- Coordination of the monitoring-evaluation mechanism at the national level
Institutional Framework for Coordination and Implementation of the REDD+ Strategy	- Coordination of the REDD+ monitoring process - Production and dissemination of monitoring and evaluation reports on the REDD+ process. - Conduct of the REDD+ process evaluation.
MEFR, MPDC	- Centraleization and analysis of data collected by different actors at different levels. - Monitoring of cross-cutting REDD+ process indicators - Support to the planning departments of the departments involved - Monitoring the integration of REDD+ into planning
INSEED/Committee PIB	- Estimating and monitoring the contribution of the forestry sector to the national economy

Structure / Institution	Roles in Monitoring and Evaluation of the REDD+ Process
Studies and Planning Branch/ Departmental Sectoral Branches	- Collection and processing of data and information on REDD+; - Monitoring the implementation of REDD+ integration in the relevant sector
State and non-state stakeholders with REDD+ projects	- Collection of baseline data at project level / Monitoring and self-assessment
Regional and local planning committees	- Data collection at the regional and local levels; - Use of the information produced as a result of the analyses for managing the integration and implementation of REDD+ actions and measures;
National Commission for Sustainable Development and its branches Civil society organizations	- Ensure integration of REDD+ into development actions at national and local levels.
INSEED/Comité PIB	Estimation et suivi de la contribution du secteur forestier à l'économie nationale

4.5.4 Tools and mechanisms for monitoring actions and results

4.5.4.1 Monitoring and evaluation system

The monitoring and evaluation system has several levels:

i. National level/National coordination: The Ministry of Development Planning and Cooperation (MPDC), the Ministry of Economy and Finance (MEF) and the Ministry of Environment, Sustainable Development and Nature Protection (MEFR) are responsible for ensuring ownership, monitoring and evaluation of the level of consideration of REDD+ in development planning and programs;

ii. At the ministerial level: The mission of integration, implementation of monitoring and evaluation of REDD+ within each ministry is ensured by the structure in charge of planning and monitoring-evaluation;

iii. At the local government level: the mission of integration, implementation, monitoring and evaluation of REDD+ in each commune is ensured by the communal sustainable development commission;

iv. At the private sector level: the mission of integration, implementation, monitoring and evaluation of REDD+ is carried out by the associations of the timber and related industries, the Chamber of Commerce and Industry of Togo (CCIT) and the National Employers' Council (CNP); and

v. at the level of civil society: this mission is devolved to the national and regional umbrella organizations of NGOs/associations.

The different actors involved in the monitoring-evaluation mechanism will be trained in the use of the monitoring-evaluation tools validated at the national level.

4.5.4.2 Monitoring and Evaluation Mechanism

The monitoring and evaluation system will be ensured mainly by the information system put in place. The information system is a system through which data and information related to REDD+ are collected, collated, stored and disseminated. The basic principles of the monitoring and evaluation mechanism are as follows:

Accountability: The participation of the different stakeholders (partners) is the key element for everyone to accept responsibility for the implementation of the process. Stakeholders will accept this responsibility all the better if they feel invested with management and decision-making power.

Culture of results: all interventions by an institution or stakeholder must be motivated by the constant search for results. Planned (expected) results are clearly defined in advance, at the outset of any public development intervention, as well as the resources and inputs needed to achieve these results, by means of a results framework. Accountability: in order to report on the results obtained at the level of the various programs and their dissemination to all stakeholders, regular reports and accounts will be produced and shared. Recipients will also be held accountable in the evaluation of the NLP process.

Monitoring tools

As regards the operational phase, a monitoring and evaluation plan will be implemented for this purpose. The main monitoring and evaluation tools and supports are:

(i) the Annual Work Plan (AWP) monitoring table;

(ii) the Expenditure Commitment Plan (ECP) monitoring table;

(iii) the Procurement Plan (PPM) monitoring table; and

(iv) the Indicators monitoring table.

Evaluation Tools

The tools used for the evaluation include, among others, the following:

- the synoptic monitoring-evaluation plan which indicates the objectives, expected results, indicators, baseline level, target level; the studies to be conducted or consulted in order to obtain the information necessary for monitoring-evaluation, the meetings or reviews envisaged, their rhythm and periods; and the main deadlines or commitments, national or international, which concern the strategy;

- reports and minutes of meetings and reviews presented according to a standard framework defined by those responsible for monitoring and evaluation of implementation;

- activity report templates by implementing actor;

- focus groups or thematic groups;

- periodic meetings of stakeholders at various levels;

- surveys, field visits and monitoring of achievements;

- biannual, annual, or mid-term reviews of strategy implementation;

- performance report;

- the impact assessment and audit study or evaluation report.

4.5.4.3 Monitoring and evaluation information system

At the level of national coordination: the information system is based on all the strategic and operational tools put in place, namely the sectoral strategies, the sectoral priority action program (PAP), the program budget, the annual State budget , table of indicators, etc.

At the level of local authorities: the system is based on regional and local development plans, State-Community plan contracts.

At the level of the private sector: the system uses competitiveness plans, target contracts and upgrading agreements.

At the level of civil society: the system is based on CSO participation contracts.

4.5.4.4 Assessment of REDD+ strategy implementation

An internal and external evaluation of the implementation of the REDD+ process will be conducted. It will consist of analyzing the relevance, effectiveness, efficiency, impact, and sustainability of REDD+ actions implemented at mid-term and at the end of the fiscal year. The internal evaluation will be carried out by national stakeholders; while the external evaluation will be carried out by consultants with the involvement of stakeholders who have effectively participated in the implementation of REDD+. It will be informed by monitoring results.

4.5.5 Indicators for monitoring actions and results

Indicators for monitoring strategic actions in the framework of the present REDD+ process should make it possible to address the inherent causes of deforestation and degradation and those of results (outputs, effects and impacts) are the benefits induced by the effective and efficient implementation of Togo's REDD+ strategy at various levels.

Before the start of the operational phase of REDD+, a study of the monitoring and evaluation system to be put in place will specify procedures, input indicators (resources and activities of the operational investment plan and REDD+ programs and projects to be initiated, and result indicators (outputs, effects and impacts). It will also determine the performance measurement framework with the periodicity of measurement of indicators, the tools, methodologies and means of measurement, the stakeholders in the monitoring mechanism, as well as the evaluation mechanisms. As an indication, a few monitoring indicators are presented.

Table 19: Indicators for monitoring actions and results

	Action/input monitoring Indicator
Priority 1: Promotion of efficient agriculture with low impact on forest degradation	Number of agricultural producers who have adopted good production systems stabilization practices; rate of decrease in slash-and-burn agriculture; rate of decrease in new forest clearing for agricultural purposes; number of years of continuous operation of the same plot; number of producers who have used improved seeds and inputs; area under full or partial water control; number of training courses provided in good agricultural practices; level of integration of forestry and land management in agricultural growth poles; areas of degraded land restored; areas of agroforestry systems and volume of wood; number of nurseries installed and number and types of plants produced per agro-ecological zone; level of economic development of agroforestry production: rate and volume of processed agricultural products; level of improvement of fodder and pasture, number of stabilization breeding systems with control of animal raving; level of control of transhumance management; rate of decrease in the degradation of forest formations by transhumants.
Priority 2: Sustainable management of existing forests and an increase in the forest heritage	Area of natural forests restored; number and area of mountainous and fragile forests under conservation; number of forest landscape restoration and rehabilitation plans developed and validated; number and area of sacred forests rehabilitated and protected; number of protected areas requalified; number of development and management plans developed and validated; area of classified forests and degraded protected areas rehabilitated; number of sensitization activities carried out for the populations living near protected areas on the maintenance and restoration of forests; type and importance of income-generating activities promoted in protected areas; types of forest species adapted to agro-ecological zones resulting from the research programmes supported by the strategy disseminated; areas of reforestation carried out; level and relevance of incentives provided for reforestation; type of support for the professionalization and structuring of the wood and wood products sector given to facilitate the sale of products; level of implementation of reforestation initiatives in urban and peri-urban areas; degree of involvement of local populations in the control, monitoring and management of urban and peri-urban forests; level of development and processing of wood products; number of small woodworking enterprises created; number of training, sensitization and support-guidance sessions on vegetation fire control carried out; number of vegetation fire management committees set up; level of financial support for alternative income-generating activities; number of entrepreneurial initiatives supported; number of community forest management charters and income-sharing guides set up; number of mining sites and quarries restored and planted with vegetation.
Priority 3. Reducing the pressure on wood energy	Number of energy-based reforestation area development plans developed and validated; number of improved stoves popularized; types and qualities of alternative energies developed and popularized; level of tax reduction on imports of solar and wind energy equipment; number and capacity of mini-hybrid networks for rural electrification installed; number of households using butane gas stoves.

Action/input monitoring Indicator	
Priority 4. Support for the implementation of cross-cutting actions to strengthen the REDD process	Adoption and operationalization of land reform; adoption of the national land use plan; adoption of regional land use plans; number of awareness-raising sessions held on land use plans; number of institutions whose capacities have been strengthened in remote sensing tools in connection with the MRV; number of land use master plans for cities with more than 5.000 inhabitants drawn up; number of land tenure security models on community forestry training; number of policy and strategy documents that have taken into account the REDD+ dimension; level of integration of accounting of ecosystem services and benefits in the national accounting system; number of physical, audio-visual teaching aids, documentary films and sketches and other communication and awareness raising mechanisms developed and implemented; number of REDD+ oriented environmental awareness campaigns organized; level of integration of sustainable forest management concepts in the curricula; level of strengthening of the roles of women and other vulnerable groups in decision-making spheres; effectiveness of legislative and regulatory reforms guaranteeing women's rights to access land and productive resources; level of strengthening of women's employability; number of revised laws and regulations related to REDD+; number of stakeholders whose capacities are strengthened in mastering the laws governing the forest sector; level of partnership with research centers and universities; proportion of the state budget allocated to REDD+; volume of financing mobilized for REDD+; number of entrepreneurial initiatives of vulnerable groups (women, disabled people, youth, etc.) .
Indicators for monitoring results (outputs, effects, impacts)	
Level of increase in the rate of forest cover by region, by type and stratum; level of reduction in the rate of forest degradation; level of change in the volume of wood by type of species in m3 ; level of change in the volume of carbon stored, level of decrease in CO2 emissions due to the reconstitution of forest resources; degree of improvement in biological diversity ; level of improvement in the income of stakeholders, especially those living near the forest formations; level of reduction in the incidence of poverty, especially among the rural population, women and other vulnerable groups; level of strengthening of ecosystems and ecosystem services; level of strengthening of social cohesion.	

4.5.6 Participatory Mapping-Based Evaluation Tools and Procedures

In addition, it is essential to develop one or more methodologies adapted to the diversity of the country's contexts, allowing for the framing of REDD+ investments related to land use to achieve integrated, sustainable and harmonious management of resources, and not excluding any of the stakeholders. Apart from the media, CSOs are therefore also important channels that can serve as information relays to grassroots populations. For this reason, participatory mapping methodologies, which are valuable tools for land use planning at the community level, should be applied. These methods should make it possible to:

- clearly identify the various actors involved in the management and use of the targeted area and its resources, whether customary or not, local or remote;

- to ensure an upstream and long-term dialogue with these various actors on the use of the space and these resources and the support and measures to be implemented for more sustainable management;

The method of implementation is generally declined in several stages leading to an integrated and shared management of the space:

1. Identification and support of the structures of community, professional, and consultation organizations at the various local levels of governance;

2. Identification of the various rights holders and users of the targeted area and its resources, as well as their customary or positive law rights;

3. Definition of a land-use plan (participatory micro-zoning) integrating REDD+ objectives;

4. Definition of a development plan in support of compliance with the land use plan;

Contractualization using a PES-type contract integrating the double-dimension:

(i) investment support and

(ii) incentive to respect the zoning plan.

CONCLUSION

The National REDD+ Strategy is one of the structuring elements that has been internationally agreed upon as a prerequisite for implementing REDD+ and accessing results-based payments. It is based on an in-depth analysis of the direct and indirect drivers of deforestation and forest degradation. In Togo, inefficient land use and conversion patterns in the agricultural, logging, energy, mining and road infrastructure sectors are the main direct drivers of deforestation and forest degradation. They are induced by underlying structural causes related in particular to the lack of control over land use planning, land tenure insecurity, low level of ecological and ecosystem awareness of stakeholders, low level of access to productive resources by women, youth and other vulnerable groups, weak institutional and research capacity, inadequate legal framework for natural resource management. These factors lead to a significant loss of the country's forests, which do not spare protected areas. They contribute to disrupting the climate regime, aggravating the phenomenon of global warming and greenhouse gas emissions.

In this context, the REDD+ mechanism, which is part of the international climate negotiations, and which aims to support countries that reduce their emissions from deforestation and forest degradation and increase their carbon stocks through reforestation, conservation and sustainable management of forests, constitutes a new sustainable opportunity for safeguarding the last natural forests and for restoring forest cover. It is a financial mechanism for an integrated development vision for a transition to the green economy. Above all, it represents a new opportunity to strengthen national dialogue and the necessary convergence of public policies and sectoral investments for a real transformation of our economy and society. The various strategic options and actions proposed in this document have been defined with the involvement of all stakeholders and constitute the most appropriate responses to curb the direct and underlying causes of deforestation and forest degradation in Togo. They are consistent with the objectives of the country's major development reference frameworks, notably those of the NDP 2018-2022 and the NDC, which all identify the fight against deforestation, the preservation of natural resources and the replenishment of forest cover as a priority. For an adequate implementation and monitoring of all the proposed measures, a framework for the governance of actions is proposed.

Achieving the objectives targeted by each of the strategic options will only be effective with the involvement of each operational and decision-making stakeholder, as well as of the populations as a whole. The State will take the appropriate measures to achieve this. Timely communication about the process should promote national ownership of the issues related to the REDD+ process in Togo. The various approaches adopted for the development and validation of the national strategy have led to almost consensual results, integrating sustainable development expectations and meeting international provisions relating to the REDD+ mechanism. Moreover, the design of a national REDD+ Strategy is an iterative process following a progressive approach, as it is confronted with political, environmental and social issues. The National Strategy will undergo an evolving and improved approach on a cyclical basis and will be subject to a mid-term and final evaluation.

ANNEXES

ANNEX 1: PORTFOLIO OF ONGOING AND RECENTLY COMPLETED PROJECTS AND PROGRAMS RELATED TO THE REDD+ PROCESS IN TOGO

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Support for the development and modernization of the non-timber forest products sector	-Increase the availability of NTFPs and better value them; To improve the exploitation techniques and productivity of NTFPs ; Promote a better knowledge and organization of the NTFP sector at the national level	January 2017 to December 2018	FAO: 244 000 dollars US	National	- Promotion of IGAs in rural areas to reduce pressure on forests: - Support for the development and modernization of the NTFP sector in Togo in order to reduce pressure on the forest.	Priority sectors: - honey ; -medicinal plants; - Moringa (Moringa oleifera) ; - Nere (Parkia biglobosa) ; - Shea (Vitellaria paradoxa
Project to Strengthen the Conservation Role of the National System of Project Areas in Togo(PRAFT)	Strengthen the management system of protected areas in Togo in order to improve their contribution to biodiversity conservation through effective rehabilitation approaches.	2013-2018	GEF: 1 222 200 $ PNUD: 500 000 $ UEMOA: 500 000 $ Gouvernement togolais: 450 000 $	Kara and Centrale	- Development of the PA management strategy - Implementation of the development and management plan of the Fazao-Malfakassa Park - Test of the ecological monitoring system	The perspectives of the project are: -Organization of the national dialogue on PAs in Togo - Continuation of sensitization and IEC activities on AP; - Realization of socio-economic infrastructures around priority PAs; - Implementation of the development and management plans of some protected areas elaborated.

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Program Support for REDD+-READINESS and Forest Rehabilitation in Togo (Pro REDD	Improving the technical and institutional framework for REDD+ implementation and forest rehabilitation in Togo -To restore the ecological and productive functions of degraded ecosystems.	07/2014 à 06 2019	BMZ/EKF: 5 Millions EURO	Maritime Plateaux Centrale	- Realization of the national forest inventory - Documentation of good practices for the protection and sustainable management of forests - Forest Landscape Restoration (FLR) approach for the restoration of ecological and productive functions of degraded ecosystems based on participatory mapping	Perspectives: -Clarification of land rights issues
Project to support the fight against climate change in Togo (PALCC)	To reduce Togo's climatic vulnerability through measures to preserve forest and soil resources and energy efficiency and to improve the institutional context in relation to CC	July2017-march 2022	European Union (EU): 10 million euros or 6.559.570.258 CFAF francs	National	- Support for the sustainable management of the State domain (660 ha) ; - Support for the sustainable management of 6000 ha of community forests; - Implementation of forest and PA management plans and protection of biodiversity; -Auditing forest and plantation management through the ITTO/ABTO Principles, Criteria, Indicators and Verifiers (PCIV); -Development of wood energy plantations: - Extension of improved cookstoves, improved stoves and gas cooking systems:	- GIS capacity building, mapping, data analysis and sharing, method for capitalizing on experiences, monitoring and evaluation of results; - Consultation frameworks used by REDD+ will also be used in the framework of the PALCC to avoid creating new ones.

Title of the project	Objectives	Period	Costs by funding sources	Loca-tion/ regions	Link with REDD+	Observations/ perspectives
West Africa Coastal Resilience Investment Project (WACA)	Strengthen the resilience of targeted communities and areas on the West African coast and more specifically: a/ promote regional integration b/Strengthen policies, institutions and support systems for integrated coastal zone management c/Reducing coastal risks and improving community livelihoods		Total: US$55.532 million of which: - IDA: US$45 million - GEF: US$7.532 million STATUS: US$3 million		- Development and implementation of management plans and management tools for community and sacred forests and wetlands in the coastal zone - Implementation of a coastal zone MRV - Ecosystem restoration	Projet régional: Mauritanie, Sénégal, Côte d'Ivoire, Togo, Bénin et Sao Tomé et Principe En cours de formulation et sera suivi de la mise en œuvre à partir de juillet 2018
	Increasing resilience to extreme weather events and climate in Togo by strengthening the capacities of national institutions responsible for water resource management, disaster risk management and meteorology	January to December 2023	World Bank: CFAF 22 billion	National	- Support for the study of hydro-climatic trends and hazard modelling in Togo (floods, high winds, ground movements); - Elaboration of the national profile of flood risks in Togo; - Setting up and dissemination of Centrale data on climate and the environment	Project in the process of formulation

Title of the project	Objectives	Period	Costs by funding sources	Loca-tion/ regions	Link with REDD+	Observations/ perspectives
Integrated Land and Disaster Management Project (ILDMP)	Strengthening institutional capacities and national disaster management systems to prevent and manage flood and land degradation risks in targeted rural and urban areas	July 2012 to june 2017	$EU 16.948 million GFDRR/EU (7 290 000 $EU) GEF (5 453 704 $EU) FPMA (3 703 704 $EU) Terrafrica (500.000 $EU)	Natio nal	-Development of good management practices for community forests ; - Study for the identification of forest species resistant to CC ; - Map of land occupation, use and degradation in Togo ; - Collection of data on the indicators of the NBSAP - Elaboration of development plans for project areas (PA) - Formation of a core group of 10 executives for the MRV ; - Funding of community forest and land restoration activities	Project completed in June 2017
Global Environment Facility Small Grants Program (Mircro GEF)	Strengthening the resilience of vulnerable communities through the financing of community-based adaptation actions in sustainable land and forest management	2015-2017	GEF: US$ 0.30 million	National	-Supporting vulnerable communities in the implementation of sustainable land and forest management actions - Support to strengthen the capacity of communities to adapt to the effects of climate change due to deforestation.	Call for Community Projects Funded in GEF Replenishment Cycles

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Project to improve the environmental information system in Togo (PASIET)					Information systems on environmental statistics in Togo	Project in progress and housed at ANGE
Project for Strengthening National and Decentralized Environmental Management Capacities (PRCNDGE)	Strengthen national and decentralized management to deliver results that benefit the local and global environment.	April 2014 to dec 2016	(in US$ million) GEF: 0.77 UNDP: 0.60	National	Good Practice in Decentralized Community Forest Management	Project completed in December 2016
Project to Support the Formulation and Implementation of the National Reforestation Program (PNR)	Elaborate a reforestation program to guide the actions of the Ministry of the Environment and the country's main social actors	March 2015 to 2016	FAO: US$ 0.316 million	National	Reforestation vision and strategy Assessment of the contribution of the forestry sector to the national economy	Projet completed in 2016
Implementation of a geographical information system for the sustainable management of forest areas in Togo» known as «GIS».	To contribute to the optimization of the forest potential and the sustainable development of the forest estate in Togo. Improve the management of geospatial information of forest areas in Togo.	May 2013 to may 2016	OIBT: US$ 0.346 million Togo: US$ 0.216 million	National	Procedures for the generation of geo-spatial information systems for forest massifs	Project housed at the Directorate of ODEF and closed in 2016
National Project for the Promotion of Rural Entrepreneurship (PNPER)	Contribute to the development of rural entrepreneurship, creating remunerative and sustainable jobs for young people at the local level	May 2014 to June 2020	Total: CFAF 19.2 billion, of which IFAD loans (CFAF 5.242.5 million; IFAD grant: CFAF 10.484.9 million, Promoters (CFAF 915.4 million) Government (CFAF 1.856.8 million) and gap to be sought: CFAF 1.726.5 millionmillions FCFA	National	- Strategy for the development of rural entrepreneurship and decent employment around forestry training courses - Implementation of good practice guides that preserve the environment and ensure the safety of the contractor.	

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Elaboration of an agro-land policy document in Togo: Activities of the national committee for reflection on agricultural and rural land in Togo (CNRFAR) created by decree N° 2012-017/PMRT of September 20, 2012.	- To analyze all the contours of the land tenure problem in rural Togo; - To propose and adopt a document of renovated agro-land policy; - Contribute to the elaboration and implementation of the strategy and action plan of programs and projects related to agricultural and rural land tenure.	2012 to 2017	Total: 67 622 500 CFAF of which AFD: 36 342 790 CFAF The gap to look for	National	- Definition of State reserves with a view to establishing agroforestry, determining classified forests and defining green spaces ; -Diagnosis of land tenure problems resulting in the dualism of land and customary rights and the lack of control of the latter by the actors involved.	This is not a project, but a description of the process that should lead to the elaboration of an agro-financial reform text.
Agricultural Drainage Facilities and Multi-User Agricultural Water Development Program	PM	PM	PM	PM	PM	PM: This is not a current project, but the situation of developments in Togo.
Mô Plain Integrated Rural Development Project (PDRI-Mô)	Contribute to poverty reduction by improving access to basic social services and agricultural incomes in conditions of sustainable development, with particular attention to the disadvantaged strata.	July 17, 2011-October 31, 2019	Total: 13.171 billion CFAF of which: BOAD: 6.5 billion (49%) IDB: 5.27 billion (40%); Gvt: 0.79 billion (6%) and Beneficiaries: 0.61 billion or 5%.	Central Region	- Creation and management of community forests - Reforestation - Training and equipment for community brigades - Modernization of carbonization - Promotion of improved fireplaces, beekeeping and small game farming	

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Agropoles Development Project in Togo	- Promote private investment through the establishment of the Kara agro-park and the provision of incentives for the development of agro-industrial processing activities. - Promote high value-added value chains by strengthening the capacities of actors and infrastructures supporting production and processing	2018-2022	Total: 63.998.4 million CFAF, including Gvt (6.000); ADF (15.942); FVC (16.597) Korean Fund (9.583); Private Support (9.259.2) and Benef/SME/ Bank (6.617.2)	Kara	- Option of land management and reforestation - Actions to protect the banks of the main river of the Kara region - Recycling of waste to produce compost and energy for households - Design and implementation of action plans for the management of protected areas	Project under preparation and for which financing has not yet been finalized.
Urban development project in Togo, phase II: Drainage of the city of Lomé/ Development of the 4th lake and sanitation of surrounding neighborhoods	Improve the quality of life and the urban environment of the beneficiary populations and sustainably reduce the risk of flooding by rehabilitating the fourth lake, which will help to provide a buffer basin for storing runoff water during rainy periods in the targeted areas of the Lomé municipality.	2013-2020	EU: US$ 48.473 million	Lome	Building community resilience ; Disaster risk reduction	
Project to strengthen the participation of civil society and local communities in the protection of forests	Contribute to strengthening the capacity of the Togolese Republic in forest management through adaptation to climate change and reduction of carbon emissions	July 2017 to March 2018	The total cost of the project is US$35.000 financed by the FCPF through the Pan-African Climate Justice Alliance (PACJA).	Centrale and Kara	Awareness-raising activities focused on the REDD+ readiness axes - Priority 1: Sustainable agriculture - Priority 2: Sustainable forest management - Area 3: Renewable energies - Priority 4: Development of the territory and the land,	Project led by a civil society organization

Title of the project	Objectives	Period	Costs by funding sources	Location/ regions	Link with REDD+	Observations/ perspectives
Community Led Total Sanitation Project (ATPC)	Promoting hygiene and sanitation at the family level through the implementation of Community Led Total Sanitation (CLTS)».	2014 to 2019	Global Sanitation Fund/ Unicef: 270 293 563 CFAF	Kara	- Supporting communities to enhance the value of LAD sites through reforestation; - Support to farmers to recover fertile land and more regular abundant rainfall for agricultural activities through mass sensitization.	Project carried by the National Council of CSOs for Sustainable Development:
Restoration of vegetation in the Sogou Hills and promotion of sustainable management of agricultural land	- Stabilize the slopes of the Sogou hills and the banks of the watercourse	2018-2021	Total cost: 30 200 000 CFAF of which Beneficiaries: 1 500 000 CFAF AJEDI NGO: 3.200.000 CFAF FCPF Grant: 25 500 000 CFAF	Savanes	Training of nurserymen Installation of nurseries for reforestation Reforestation of 15 ha of land and Installation of the stony cords Reforestation of streambanks and water reservoirs	Project carried by an NGO
Rural Development Program including Agriculture (ProDRA) Agroforestry and rural energy component	The objective of the intervention is to support rural communities in the implementation of reforestation for wood energy in the canton of Amaïdè.	2013-2017	Total cost (confers eco-consult) Cost for AJA: 13 000 000 CFAF	Centrale	- Reforestation for wood-energy use - Popularization of improved charring techniques and economical cooking methods	Projet carried by an NGO

ANNEX 2: MAIN AGRO-FORESTRY SPECIES

Spicies	T.B.	CHIE	Families
Albizia adianthifolia (Schum.) W. F. Wright	mP	GC	Mimosaceae
Albizia zygia (DC.) J.F. Macbr	mP	GC	Mimosaceae
Antiaris africana Engl.	MP	AT	Moraceae
Aubrevillea kerstingii (Harms)	MP	GC	Mimosaceae
Bombax buonopozense P. Beauv	MP	GC	Bombacaceae
Ceiba pentandra (Linn.) Gaerth.	MP	Pan	Bombacaceae
Coffea spp	mp	I	Rubiaceae
Citrus sinensis (L.) Osbeck	mp	I	Rutaceae
Cola gigantea A. Chev. var. glabrescens Brenan & Keay	MP	GC	Sterculiaceae
Cola milleniiK. Schum	mp	GC	Sterculiaceae
Cola nitida (Vent.) Scott. & Endl.	mP	GC	Sterculiaceae
Dialium guineense Willd.	mP	GC	Caesalpiniaceae
Distemonanthus benthamianus Baill.	mP	GC	Caesalpiniaceae
Erythrophleum suaveolens (Guill. & Pherr.) Brenan.	mP	AT	Caesalpiniaceae
Ficus exasperata Vahl	mp	GC-SZ	Moraceae
Ficus mucuso Ficalho	mP	GC	Moraceae
Funtumia africana (Benth.) Stapf	mP	GC	Apocynaceae
Homalium letestui Pellegr	mP	GC	Flacoutiaceae
khaya grandifoliola C. DC.	mP	GC	Meliaceae
Maesopsis eminii Engl.	mP	GC	Rhamnaceae
Milicia excelsa (Welw.) C. C. Berg.	mP	GC	Moraceae
Monodora myristica (Gaertn.) Dunal	mP	GC	Annonaceae
Morinda lucida Benth.	mp	GC-SZ	Rubiaceae
Morus mesozygia Stapf	mP	GC	Moraceae
Parinari glabra Oliv.	mP	GC	Chrysobalanaceae
Persea americana Mill.	mp	I	Lauraceae
Pycnanthus angolensis (Welw.) Warb	mP	GC	Myristicaceae
Sterculia tragacantha Lindl.	mP	GC-SZ	Sterculiaceae
Terminalia superba Engl. & Diels	mP	GC	Combretaceae
Theobroma cacao Linn	mp	I	Sterculiaceae
Xlopia aethiopica (Dunal) A. Rich.	mP	GC-SZ	Annonaceae

Source MEFR, 2018 ; Study on the creation and sustainable management of forest and agro-forestry plantations for private individuals in Togo

ANNEX 3: NON-EXHAUSTIVE LIST OF PRIVATELY-OWNED FORESTS IN TOGO IN 2017

Region / Name of forest	Status	area (ha)	Management document
Region of Savanes			
Natchambonga	Community	749	No
Songouma	Community	39.75	No
Pilou	Community	2	No
Djiyiéga	Community	1,342	No
Kara Region			
Djinde	Community	20.0	No
Koudjodoulou	Community	20.0	No
Yaku Raga	Bois sacré	0.2	No
Koukou Ragu	Community	8.2	No
Siragu	Sacred forest	4.4	No
Centrale Region			
Alibi 1	Community	5,396.0	yes
Bago	Community	7,000.0	yes
Kossountou	Community	600.0	yes
Amaoudé	Community	2,000.0	yes
Goubi	Community	961	
Saïboudé	Sacred forest	17.0	Non
Plateaux Region			
Yaya	Private	210.0	yes
Gbalaga	Community	1.0	No
Azafi	Community	1.0	No
Amavanou	Community	21.21	No
Agbédougbé	Community	21.42	No
Gléi	Community	37.81	No
Toutou-To	Community	3,531.33	No
Lifiata	Community	41.02	No
Amakpapé	Community	58.54	No
Kessibo Wawa	Sacred forest	1.0	No
Maritime Region			
Hétowui	Community	10.0	No
Fontan	Community	100.0	yes
Avatoka	Sacred forest	7.0	No

Source: MEFR (2017): Monograph of the Maritime, Plateaux and Centrale regions. Ministry of the Environment and Forest Resources with the support of the ProREDD/ GIZ program. Lomé, Republic of Togo. Within the framework of the evaluation of forest capital exploitable to meet national energy needs, the areas of sacred groves will not be counted in order to consider their primary cultural and/or conservation vocation.

ANNEX 4: DISTRIBUTION OF TOP 30 SPECIES BY VALUE OF IMPORTANCE INDEX AT THE NATIONAL LEVEL

N°	Code	Name of Species	Importance index %
1	LEBV2052	Vitellariaparadoxa C.F. Gaertnersubsp. paradoxa	44.659
2	LEBV1270	PterocarpuserinaceusPoir.	38.397
3	LEBV0595	Anogeissusleiocarpus (DC.) Guill. &Perr.	33.669
4	LEBV0247	Lanneaacida A. Rich.	33.002
5	LEBV1121	Danielliaoliveri (Rolfe) Hutch. & Dalziel	28.577
6	LEBV1866	Crossopteryxfebrifuga (Afzel. ex G.Don) Benth.	23.157
7	LEBV1049	BurkeaafricanaHook.	21.11
8	LEBV1215	IsoberliniadokaCraib&Stapf	20.327
9	LEBV0589	ParinaricuratellifoliaPlanch. ex Benth.	19.299
10	LEBV1641	Ficus sur Forssk.	18.63
11	LEBV0627	TerminalialaxifloraEngl. &Diels	18.367
12	LEBV1259	Piliostigmathonningii (Schum.) Milne-Redh.	17.475
13	LEBV0625	TerminaliaglaucescensPlanch. ex Benth.	17.033
14	LEBV1137	DetariummicrocarpumGuill. &Perr.	16.608
15	LEBV0888	BrideliaferrugineaBenth.	15.674
16	LEBV2249	Vitex donianaSweet	14.74
17	LEBV1249	Parkiabiglobosa (Jacq.) G.Don	13.814
18	LEBV0603	CombretumglutinosumPerr. ex DC.	13.744
19	LEBV1225	Lonchocarpussericeus (Poir.) Kunth	13.719
20	LEBV0996	Uapacatogoensis Pax	13.596
21	LEBV1570	Pseudocedrelakotschyi (Schweinf.) Harms	12.537
22	LEBV0864	DiospyrosmespiliformisHochst. ex A.DC.	12.493
23	LEBV2418	Elaeis guineensis Jacq.	12.408
24	LEBV1255	Pericopsislaxiflora (Benth.) Meeuwen	11.92
25	LEBV0248	Lanneabarteri (Oliv.) Engl.	11.821
26	LEBV0353	CussoniakirkiiSeem.	11.636
27	LEBV2044	Manilkaramultinervis (Bak.) Dubard	11.033
28	LEBV1032	Albiziazygia (DC.) J.F.Macbr.	10.568
29	LEBV2146	SterculiatragacanthaLindl.	9.8319
30	LEBV1022	AfzeliaafricanaSm.	9.8272

ANNEX 5: CHANGES IN FOREST AREA FROM 1976 - 1985 TO 2013 - 2014 BASED ON INTERPRETATION OF HISTORICAL AERIAL PHOTOS AND RECENT RAPIDEYE SATELLITE IMAGES

Annex 5.1: Changes in forest area in Togo

Total area	5,698,778 ha (100.00 %)				
Common area interpreted	5,138,653 ha (90.17 %)				
	aerial photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Area	% the interpreted area	Area	% of the interpreted area	
Forest	1,299,975 ha	25.30 %	1,253,170 ha	24.39 %	- 0.91 %
Dense Forests	276,025 ha	5.37 %	118,035 ha	2.30 %	
Riparian forests	229,468 ha	4.47 %	301,334 ha	5.86 %	
Open forests and wooded savannas	775,077 ha	15.08 %	786,045 ha	15.30 %	
Plantations	19,405 ha	0.38 %	47,756 ha	0.93 %	

Annex 5.2: Changes in forest area in the Region Savanes

Total area	872,444 ha (100.00 %)				
Common area interpreted	782,484 ha (89.69 %)				
	Aerial photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Area	% of the interpreted area	Area	% of the interpreted area	
Forest	129,046 ha	16.49 %	80 848 ha	10.33 %	- 6.16 %
Dense forests	4,558 ha	0.58 %	313 ha	0.04 %	
Riparian forests	43,765 ha	5.59 %	29 463 ha	3.76 %	
Open forests and wooded savannas	80,159 ha	10.24 %	50 663 ha	6.47 %	
Plantations	564 ha	0.07 %	409 ha	0.05 %	

Annex 5.3: Changes in forest area in Region Kara

Total area	1,152,875 ha (100.00 %)				
Common area interpreted	1,102,247 ha (95.61 %)				
	Aerial photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Area	% of the interpreted area	Area	% of the interpreted area	
Forest	189,754 ha	17.22 %	184,670 ha	16.75 %	- 0.46 %
Dense Forests	9,870 ha	0.90 %	1,286 ha	0.12 %	
Riparian forests	49,629 ha	4.50 %	64,321 ha	5.84 %	
Open forests and wooded savannas	129,781 ha	11.77 %	117,844 ha	10.69 %	
Plantations	474 ha	0.04 %	1,219 ha	0.11 %	

Annex 5.4: Changes in Forest Area in the Region Centrale

Total area	1,324,497 ha (100.00 %)				
Common area interpreted	1,089,417 ha (82.25 %)				
	Aerial Photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Area	% of the interpreted area	Area	% de la surface interprétée	
Forest	409,713 ha	37.60 %	301,895 ha	27.71 %	- 9.89 %
Dense Forests	93,537 ha	8.59 %	28,393 ha	2.61 %	
Riparian forests	60,124 ha	5.52 %	86,133 ha	7.91 %	
Open forests and wooded savannas	256,035 ha	23.50 %	177,901 ha	16.33 %	
Plantations	17 ha	0.00 %	9,468 ha	0.87 %	

Annex 5.5: Changes in Forest Area in the Plateau Region

Total area	1,722,688 ha (100.00 %)				
Common area interpreted	1,625,272 ha (94.35 %)				
	Aerial Photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Surface	% of the interpreted area	Area	% of the interpreted area	
Forest	426 ,158 ha	26.22 %	510,806 ha	31.42 %	+5.27%
Dense Forests	136,275 ha	8.38 %	67,430 ha	4.15 %	
Riparian forests	52,482 ha	3.23 %	96,766 ha	5.95 %	
Open forests and wooded savannas	231,317 ha	14.23 %	323,037 ha	19.88 %	
Plantations	6,084 ha	0.37 %	23,573 ha	1.45 %	

Annex 5.6: Forest Area Changes in the Maritime Region

Total area	626,274 ha (100.00 %)				
Common area interpreted	539,233 ha (86.10 %)				
	Aerial Photos 1976 - 1985		RapidEye Images 2013 - 2014		+/-
	Area	% of the interpreted area	Area	% of the interpreted area	
Forest	145,304 ha	26.95 %	174,951 ha	32.44 %	+5.49 %
Dense Forests	31,785 ha	5.89 %	20,613 ha	3.82 %	
Riparian forests	23,468 ha	4.35 %	24,651 ha	4.57 %	
Open forests and wooded savannas	77,785 ha	14.43 %	116,600 ha	21.62 %	
Plantations	12,266 ha	2.27 %	13,087 ha	2.43 %	

ANNEX 6: CHANGES IN FOREST AREA BETWEEN 1988 AND 2015 BASED ON INTERPRETATION OF LANDSAT SATELLITE IMAGES

	Total area	**Forest**		**Forest**	
		1988 - 1990		1999 - 2000	
	ha	Surface	% de la surface totale	surface	% de la surface totale
Togo	5,698,778 ha	1,361, 661 ha	23.89 %	1,265,371 ha	22.20 %
Savanes	872,444 ha	110,970 ha	12.72 %	108,810 ha	12.47 %
Kara	1,152,875 ha	233,387 ha	20.24 %	193,086 ha	16.75 %
Centrale	1,324,497 ha	426,793 ha	32.22 %	357,191 ha	26.97 %
Plateaux	1,722,688 ha	438,611 ha	25.46 %	455,300 ha	26.43 %
Maritime	626,274 ha	151,900 ha	24.25 %	150,984 ha	24.11 %

Source: CN-REDD+: Interprétation des photos aériennes 1976 - 1985 et comparaison des résultats obtenus avec ceux d'interprétation des images RapidEye 2013 - 2014 et Landsat 1988 – 2015 ; DFS, Avril 2018

On the basis of the analysis and interpretation of Landsat satellite images between 1990 and 2015, the loss of forest cover in 25 years is estimated at 134,832 ha, i.e. an annual loss of 5,393 ha equivalent to 0.4% of the annual rate of deforestation. The loss of forest cover was high during the first 10 years considered, i.e. between 1990 and 2000. In 10 years, the loss of forest cover reached 96.290 ha, i.e. an annual loss of 9,629 ha (0.7% annual rate of deforestation). This period corresponds to the period of socio-political crisis in Togo which led to the invasion and destruction of areas covered by forest. During this period, Togo experienced a slowdown in support to TFPs.

The period from 2000 to 2015 saw a slowdown in terms of loss of forest cover. In 15 years, the forest has decreased by 38.542 ha or 2,569 ha of annual loss, representing a decrease in the rate of deforestation of 0.2%. This situation can be explained by the strengthening of conservation efforts and the various interventions of projects and programmes registered in favour of sustainable forest and environmental management in recent years.

ANNEX 7: LIST AND DEFINITIONS OF LAND USE CLASSES SELECTED IN THE FRAMEWORK OF THE REDD+ PROCESS IN TOGO AND LINK WITH THE FOREST CODE OF TOGO

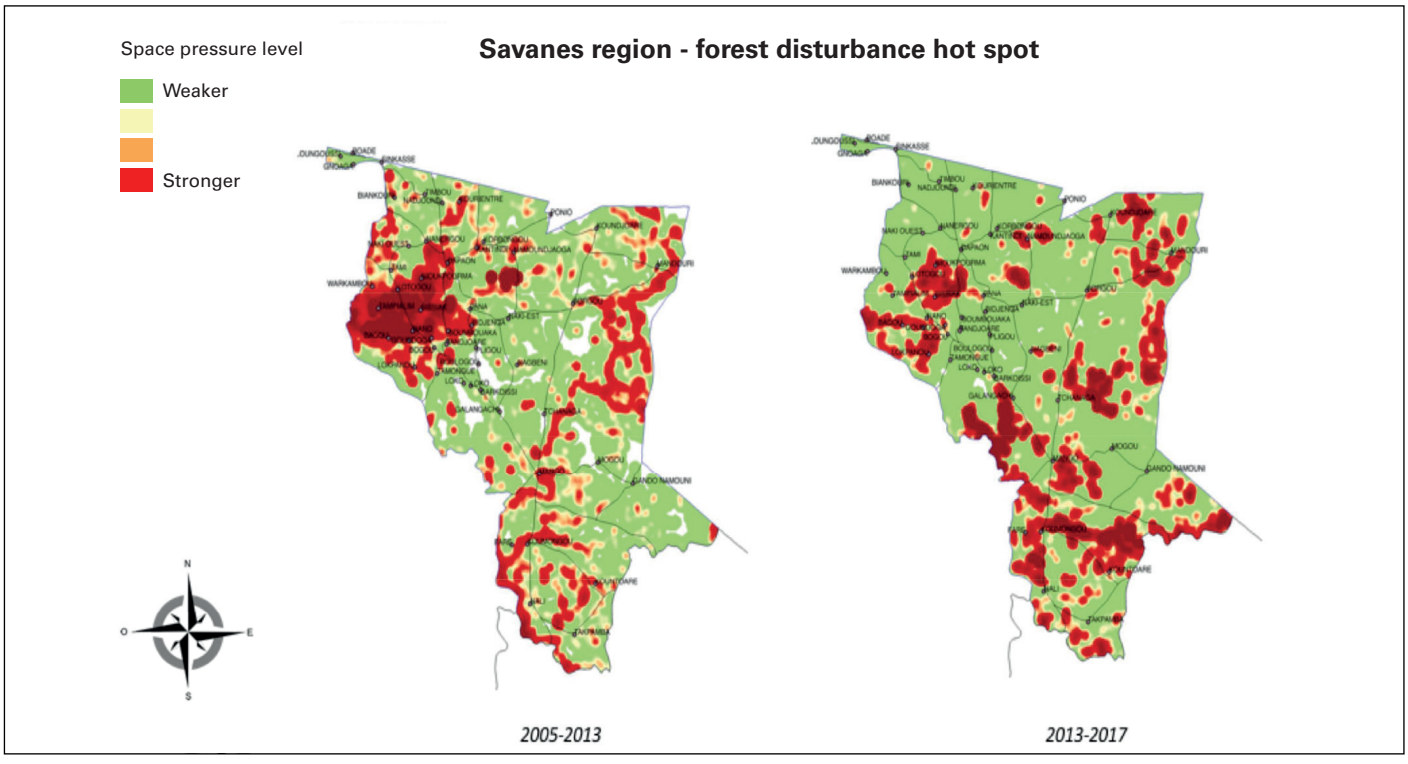
LAND USE CLASSES	DEFINITIONS
Natural forest	Natural forests are forests composed of native trees that have not been planted by man, i.e. forests excluding plantations.
Dry dense forests	Closed stand with trees and shrubs reaching various heights but generally smaller in size than dense semi-deciduous and deciduous forests; most trees in the upper storeys lose their leaves for part of the year; the undergrowth consists of either semi-deciduous or deciduous shrubs and here and there are clumps of grasses on the ground.
Open forests	Open forests are open stands with small and medium sized trees with more or less jointed tops, with the entire canopy largely filtering light. They have a more or less partially dominant grass cover and an almost continuous tree stratum (10-20m and 40-60% canopy cover).
Riparian Forests/galleries	Forests along streams of generally narrow, true widths of up to 300m
Coffee-cocoa agro-forestry	More or less closed forest stands with a tree layer of native species and a shrub layer of introduced species (coffee-cocoa).
Other semi-natural forests	More or less closed forest stands where native species coexist with introduced species other than coffee-cocoa.
Forest plantations	Forest stands established by planting and/or seeding in an afforestation or reforestation process. They are composed either of introduced species or of stands of native species subject to intensive management and obeying the following criteria: one or two planted species, of even-aged class, with regular spacing.
Regrowth	Includes formations on cultivated land of relatively long duration (more than 8 years) and pioneer fronts which are edges where processes of forest reconstitution from savannah are taking place; vegetation reaches a height of more than 5 meters.
Mangroves	Forests related to current marine alluvial deposits and dominated by the presence of mangroves.
Swampy formations	Forest stands on permanently waterlogged ground; sometimes these swampy forests consist almost entirely of raffia palm groves (raffia palm groves)
Savannah	A stand consisting of a large, continuous, continuous carpet of grass, with or without trees or shrubs.
Wooded Savannah	Variant of savannah in which tree and shrub form a clear canopy allowing plenty of light to pass through.

LAND USE CLASSES	DEFINITIONS
Wooded Savannah	Variant of savannah in which trees and shrubs are scattered among the grassy mats, with a slight dominance of trees reaching the size of trees in the forest.
Shrubby savannah	Variant of savannah in which the shrubs alone are present in the grassy carpet
Grassy Savanes	Variant of savannah in which trees and shrubs are absent from the grass mat.
Periodically flooded formations	Formations on temporarily waterlogged ground
Bushes	Formation strongly anthropized by long cultivation or by a succession of crops and fallows; low density of woody vegetation includes forest fallows where the height of woody vegetation is less than 5m. Refers to woody vegetation derived from the clearing of natural forest for shifting cultivation. It is part of a forest fallow system which consists of a mosaic of various phases of reconstitution. The fallow cycle is short and the vegetation will not reach a height of 5 metres.
Crops/Fallow	Formation strongly anthropized by long cultivation or by a succession of crops and fallows; low density of woody vegetation includes forest fallows where the height of woody vegetation is less than 5m. Refers to woody vegetation derived from the clearing of natural forest for shifting cultivation. It is part of a forest fallow system which consists of a mosaic of various phases of reconstitution. The fallow cycle is short and the vegetation will not reach a height of 5 metres.
Bare ground, rocks, quarries and beaches	These are areas without vegetation, rocky areas or mining quarries.
Agglomerations and infrastructures	All areas of artificial construction, housing, roads and urban or rural settlements.
Bodies of water and rivers	These are the areas of rivers, lakes, water reservoirs.

ANNEX 8: LAND USE CLASSES SELECTED FOR MAP PRODUCTION

Different trainings	Sub-classes	Classes retained
Forest lands	Dense forests (dry dense forests, semi-deciduous dense forests, forest recruits) and coffee-cocoa agroforests	Dense forests
	Riparian forests (forest galleries and riparian forests) and swampy formations	Riparian forests
	Clear drills and wooded savannas	Open forests
	Plantations (Khaya, Teck, Eucalyptus, etc).	Plantation
	Copse	
	Mangroves	
Savannah formations	Wooded/arboreal savannah	Shrubby Savannah
	Grassy Savanes	Grassy savannah
	Prairies	
Cultivated land	Crops and fallow land (agroforestry parks, rotational parks, palm, shea, coconut, orchard, fallow land) Treeless crops (sugar cane fields, rice fields, etc.).	Agricultural areas
Establishments	Agglomerations and infrastructures	Urban area
	Urban Plantations	
Wetlands	Bodies of water and rivers	Watercourses
	Swamp	Swamps
Other lands	Bare ground, rocks, quarries and beach	Bare ground

ANNEX 9: SPATIAL AND TEMPORAL ANALYSIS OF DEFORESTATION AND DEGRADATION FOR THE SAVANES, KARA, CENTRALE, PLATEAUX AND MARITIME REGIONS RESPECTIVELY.



Kara region - forest disturbance hot spot

Space pressure level

Weaker

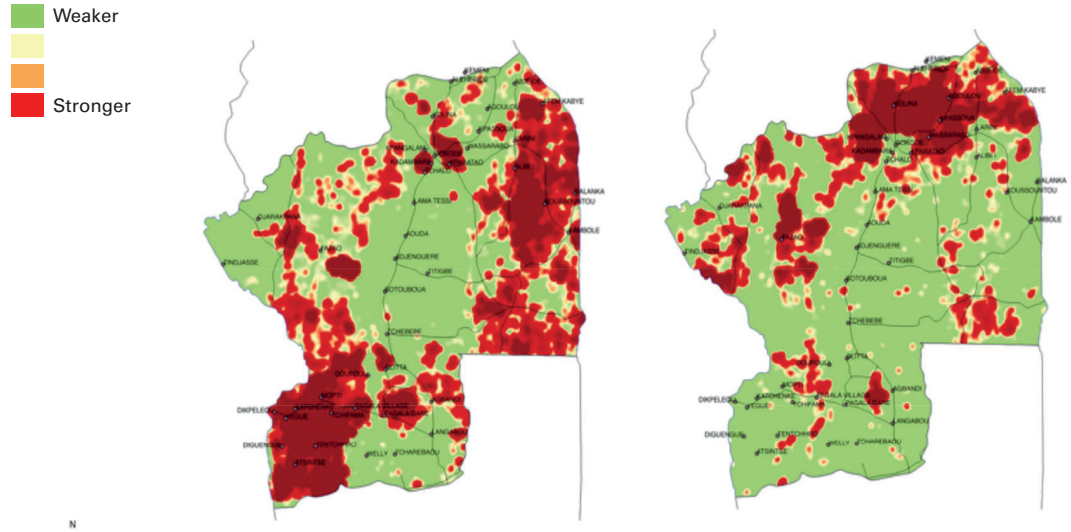
Stronger

Centrale region - forest disturbance hot spot

Space pressure level

Weaker

Stronger

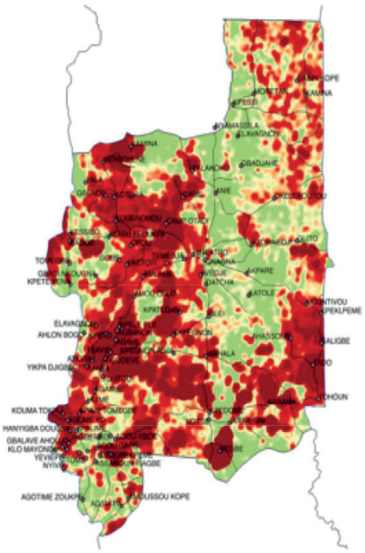


Plateaux region - forest disturbance hot spot

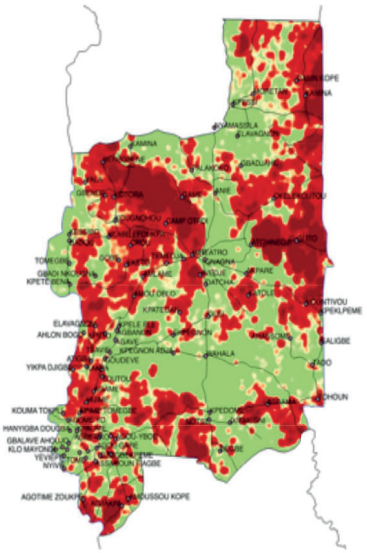
Space pressure level

Weaker

Stronger



2005-2013



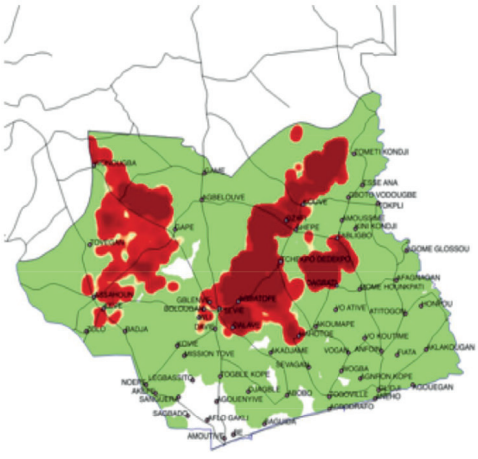
2013-2017

Maritime region - forest disturbance hot spot

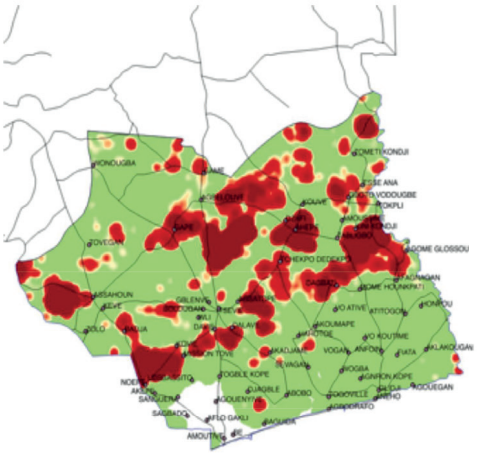
Space pressure level

Weaker

Stronger



2005-2013



2013-2017

ANNEX 10: AREAS IN HECTARES AND PROPORTIONS OF LAND USE STRATA BY REGION FOR 2017, 2013 AND 2005 RESPECTIVELY

Table A10.1: Area in Ha and Proportions of Land Cover Strata by Region for the Year 2017

2017 Mapping										
	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region	
Strata or Classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Dense Forests	2 092	0.2	13,798	1.2	20,377	1.4	67,503	3.7	22,117	3.4
Riparian forests	37,659	4.2	68,447	5.7	108,475	7.7	118,494	6.5	20,069	3.1
Open forests	31,244	3.5	64,729	5.4	77,302	5.5	143,826	7.9	30,158	4.6
wooded Savanes and forest recrus	1 431	0.2	39,765	3.3	12,0101	8.5	123,747	6.8	93,269	14.3
Plantations	750	0.1	0	0	0	0	966	0.1	4,952	0.8
Wooded and shrubby Savanes	387,122	43.5	499,617	42	499,366	35.3	499,101	27.3	239,107	36.5
Grassy Savanes	139,250	15.7	143,968	12	61,262	4.3	305,792	16.7	54,404	8.3
Cultivated areas	267,992	30.1	336,946	28	496,812	35.2	487,900	26.7	74,434	11.4
Agglomerations	17,491	2	30,801	2.6	29,595	2.1	71,019	3.9	64,713	9.9
Watercourses	2,165	0.2	615	0	87	0	11,746	0.6	8,863	1.4
Bare soil and quarries	1,431	0.2	0	0	0	0	0	0	1,432	0.2
Swamps	0	0	0	0	0	0	0	0	40,984	6.3
Coastal areas	0	0	0	0	0	0	0	0	12	0
No-data	427	0	0	0	0	0	0	0	0	0
Total	889,054	100	1,198,686	100	1,413,377	100	1,830,094	100.0	654,514	100.0

Source: MEFR, 2018. Study on land use and future strategic options for land-use planning in Togo

Table A10.2: Area in ha and proportions of the binary forest/non-forest map for the year 2017

	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region		Total	
Strata or Classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Forests	73 176	8.2	186 739	15.6	326 255	23.1	454 536	24.8	170 565	26.1	1 211 271	20.2
No-Forests	37 659	4.2	68 447	5.7	108 475	7.7	118 494	6.5	20 069	3.1	4 774 454	79.8
Total	31 244	3.5	64 729	5.4	77 302	5.5	143 826	7.9	30 158	4.6	5 985 725	100

Source MEFR, 2018. Study on land use and future strategic options for land-use planning in Togo

Table A10.3: Area in Ha and Proportions of Land Use Strata by Region for the Year 2013

	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region	
Strata or Classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Dense Forests	1,410	0.2	32,127	2.7	72,471	5.1	91,002	5	22,817	3.5
Riparian forests	35,978	4.1	67,237	5.6	81,106	5.7	127,549	7	22,161	3.4
Open forests	49 417	5.6	117, 015	9.8	151,014	10.7	328,356	17.9	92,407	14.1
wooded Savanes and forest regrowth	0	0	3,049	0.3	79,624	5.6	27,484	1.5	31,294	4.8
Plantations	750	0.1	0	0	0	0	966	0.1	8,803	1.3
Wooded and shrubby Savanes	555,361	62.8	730,094	61	405,673	28.7	511,221	27.9	258,440	39.3
Grassy Savanes	111,367	12.6	2,429	0	190,740	13.5	326,345	17.8	65,753	10
Cultivated areas	111,503	12.6	203,108	17	407,248	28.8	341,939	18.7	57,550	8.8
Agglomeration	15,088	1.7	29,133	2.4	25,607	1.8	63,403	3.5	52,430	8
Watercourses	2,165	0.2	23	0	87	0.01	11,746	0.6	8,947	1.4
Bare soil and quarries	0	0	0	0	0	0	0	0	684	0.1
Swamps	33	0	38	0	0	0	0	0	34,996	5.3
Coastal areas	0	0	0	0	0	0	0	0	684	0.1
No-data	609	0.1	9 331	1	0	0	0	0	0	0
Total	883,681	100	1,193,584	100%	1,413,570	100	1,830,011	100	656,966	100

Source MEFR, 2018. Study on land use and future strategic options for land-use planning in Togo

Table A10.4: Area in ha and proportions of the forest/non-forest binary map for the year 2013

	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region		Total	
Strates ou classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Forest	87,555	9.9	219,428	18.4	384,215	27.2	575,357	31.4	177,482	27	1,444,037	24.2
No-Forest	796,126	90.1	974,156	81.6	1,029,355	72.8	1,254,654	68.6	479,484	73	4,533,775	75.8
Total	883,681	100	1,193,584	100	1,413,570	100	1,830,011	100	656,966	100	5,977,812	100

MEFR, 2018. . Study on land use and future strategic options for land-use planning in Togo

Table A10.5: Area in Ha and Proportions of Land Cover Strata by Region for the Year 2005

	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region	
Stratas or Classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Dense Forests	7,548	0.8	44,603	3.7	42,368	3	92,190	5	23,117	3.5
Riparian forests	46,348	5.2	69,166	5.8	110,028	7.8	157,896	8.6	19,111	2.9
Open forests	58,172	6.5	140,525	11.7	342,600	24.3	412,187	22.5	125,800	19.1
Wooded and shrubby Savanes	1,034	0.1	3,448	0.3	70,599	5	39,037	2.1	0	0
Plantations	0	0	1,431	0.1	0	0	966	0.1	11,057	1.7
Wooded and shrubby Savanes	687,283	77.2	795,741	66.5	375,135	26.6	829,575	45.3	264,954	40.2
Grassy Savanes	0	0	3,281	0.3	147,853	10.5	62,961	3.4	108,981	16.5
Cultivated areas	73,077	8.2	105,557	8.8	303,504	21.5	181,352	9.9	33,530	5.1
Agglomeration	13 232	1.5	26,892	2.2	18,310	1.3	40,625	2.2	30,663	4.7
Watercourses	2,165	0.2	23	0	87	0	11,746	0.6	8,868	1.3
Bare soil and quarries	0	0	0	0	0	0	623	0	204	0
Swamps	0	0	0	0	0	0	0	0	32,509	4.9
Coastal areas	0	0	0	0	0	0	0	0	30	0
No-data	1,034	0.1	5,533	0.5	0	0	1,845	0.1	0	0
Total	889,893	100	1,196,200	100	1,410,484	100	1,831,003	100	658,824	100

Source: MEFR, 2018. Study on land use and future strategic options for land-use planning in Togo

Table A10.6: Area in ha and proportions of the forest/non-forest binary map for the year 2005

	Savanes Region		Kara Region		Centrale Region		Plateaux Region		Maritime Region		Total	
Stratas or classes	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%	Surface (ha)	%
Forests	113,102	12.7	259,173	21.8	565,595	40.1	701,310	38.3	168,028	25.5	1,807,208	30.2
No-Forests	775,757	87.3	931,494	78.2	844,889	59.9	1,127,848	61.7	490,796	74.5	4 170,784	69.8
Total	888,859	100	1,190,667	100	1,410,484	100	1,829,158	100	658,824	100	5,977,992	100

ANNEX 11: LIST OF WORKS CONSULTED

Studies carried out as part of the REDD+ preparation process in Togo

MEFR, 2017; Analysis of the legal and regulatory framework and preparation of implementation texts in the context of REDD+ in Togo;

MEFR, 2017. Study on the determination of periods for early fires according to the ecological regions of Togo;

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MEFR, 2018. Study on land use and future strategic options for land-use planning in Togo;

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