

Land Use Planning and Impacts on the Sustainable Management of Forest Ecosystems in Central Africa

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Introduction

Land use planning (LUP) is, generally speaking, a policy that tends to organize human activities in a predetermined geographical area, based on a long-term objective. The aim of this policy is to strengthen the social cohesion of that area at different levels. On a finer scale, the way the territory is organized establishes zones and subterritories, and for each of these it allocates objectives in line with the overall long-term objective of the LUP.

At the national level, LUP is a proactive measure of the government, which produces a framework that must then be adapted and reviewed at different levels of the national territory. There are many definitions of LUP at the national level¹. In Central Africa, this national objective initially aimed at creating conditions for economic development. However, the need arose more recently to reconcile this economic objective with the demand for sustainable management of the environment and in particular of forest ecosystems.

Although this spatial organization is the result of reflection in each case, it may be formal or informal. Long before the creation of States, patterns of land use already showed forms of organization linked to human activities and values that are part of today's landscapes, such as sacred forests.

Forests are affected by environmental issues such as deforestation, climate change, bush fires and health crises. The impact of these factors on the environment means that we must reconsider the relationships between humans and nature. But the question remains of how to reconsider these relationships. In response, the need for new forms of LUP is frequently mentioned: they would have the simultaneous aims of mitigating threats to economies, improving the well-being of societies and the environment, and stimulating long-term development dynamics. Global phenomena have led to new environmental issues and the emergence of new players and power games, thereby broadening the scope of LUP analysis. More recently, a certain model of LUP has been encouraged by donors to reconcile local development with global issues: LUP that is multi-scale (from local to national and sometimes supranational) and that combines participatory approaches based on the principles of good governance and sustainable development (Buttoud et al. 2016).

Central Africa, a region which kept its forests unspoiled for long, is now increasingly subject to deforestation (FAO 2020). Indeed, in Central Africa, the drivers of deforestation are tending to race out of control. For example, the population is growing rapidly; and among the corollaries of sprawling cities there is an ever-increasing demand on domestic markets for agricultural and forest products such as wood fuel; and new road networks are facilitating the exploitation of forest resources, not only for wood but especially for access to land and the development of agriculture

¹ Example: "Policy consisting in seeking, within the national geographical framework, the best distribution of economic activities according to natural and human resources. In land use planning, the State takes proactive action to harmoniously distribute people, activities, educational tools and transport infrastructure over its national territory. This policy is therefore in opposition to the economic laws of the simple market game. It seeks to correct geographical imbalances between regions, between cities and the countryside and between dynamic areas and deprived areas.

(Larousse online encyclopedia, 2022, "Aménagement du Territoire". Available (in French) at: https://www.larousse.fr/encyclopedie/divers/aménagement_du_territoire/20390)

(Marien et al. 2013). A new organization of spaces would be required to meet food, timber and energy production needs while preserving the ecosystems that provide water and regulation services essential to the resilience of productive spaces and people's well-being (Nyström et al. 2019).

In some countries, such as Cameroon, LUP policy is clear; in others less so. We can nonetheless often note the existence of a set of public or private actions aimed at facilitating economic development, social cohesion and environmental protection in spaces. These actions are ultimately forms of LUP.

In practice, for Central Africa we propose to distinguish two types of action. First, those decided on by central governments (i.e., “land use planning” or *aménagement du territoire* as it is known in French) or by very large regions which have structuring objectives characterized by top-down decision-making processes. Second, local actions (which can be characterized by the term “territorial development”) carried out at the initiative of various stakeholders whose decision-making processes are more bottom-up. These two decision-making processes are not compartmentalized, and the quality of LUP policy implementation depends largely on the relationship between these two approaches, which in particular influences the involvement of stakeholders and the way natural resources are effectively managed. It is also at this level of relationship that a clash occurs between custom and law and where long-term social peace and the sustainability of renewable resources are at stake.

The aim of this chapter is to take stock of the forms of LUP in four Central African countries: Cameroon, the DRC, Burundi and Rwanda. Using a comparative approach, we will identify the dynamics, opportunities and challenges of forest resources in Central Africa. Before analysing the forms of LUP in the four countries under study, we will first provide some data on land management in Central Africa.

11.1 Data on land management in Central Africa

The countries of Central Africa vary greatly in size: compared to the huge DRC, which covers 2.3 million km², Burundi, Rwanda, Equatorial Guinea and Sao Tome and Principe (STP) are all less than 30,000 km². Densely populated countries have modest forest cover (Rwanda 28 percent and Burundi 16 percent), while others such as Gabon and Equatorial Guinea are more than 80 percent forested. Some countries are situated predominantly in forest areas (e.g., Congo and Gabon), while others have arid climates (e.g., Chad and the northern part of Cameroon).

11.2 Forms of land use planning in Central Africa

11.2.1 Land use planning in Cameroon

Land use planning during the pre-colonial period in Cameroon

The forms of land use during the pre-colonial period created the customary forms still alive today. Historically, Cameroon is the only country in the CEMAC zone to have been under the colonial administration of Germany (1884-1913), Great Britain (20 percent of the territory, 1919-1961) and France (80 percent of the territory, 1919-1960). This led to a strong political and administrative impact on the adoption of the land-tenure system.

Table 11.1: General data by Central African country

Country	Area (km ²)	Population	Density (inhabitants /km ²)	HDI	GDP (USD billion)	Life expectancy (years)	Forest cover (km ²)
Burundi	27,834	11,759,805	422.50	0.423 / 1	3.08	61.20	4,537
Cameroon	475,650	23,799,022 (2018)	50.03	0.563 / 1	38.50	58.90	220,000
Congo	341,821	5,279,517	15.45	0.608 / 1	11.26	64.30	239,874
Gabon	267,667	2,074,656 (2020)	7.75	0.702 / 1	16.66 (2019)	66.20	235,900
Equatorial Guinea	28,051	2,015,334	71.85	0.588 / 1	13.32	58.40	26,912
CAR	622,984	5,745,135	9.22	0.381 / 1	2.38	52.80	269,030
DRC	2,345,410	95,784,841	40.84	0.459 / 1	47.23	60.40	1,500,000
Rwanda	26,338	12,089,721	459.02	0.536 / 1	9.51	68.70	7,247
STP	1,001	201,770	201.57	0.609 / 1	0.42	70.20	890
Chad	1,284,200	16,818,391	13.10	0.398 / 1	11.32	54.00	NA

NA: Not available.

Source: <https://www.populationdata.net>

Table 11.2: Land cover in million ha and % by country according to the main categories of the OFAC Atlas

Country	Area in million ha	Forest cover in million ha	Forest cover as % of national territory	Protected areas in million ha	Protected areas as % of national territory	Concessions in million ha	Concessions as % of national territory
Burundi	2.78	0.45	16%	0.15	5 %	0.00	0%
Cameroon	47.57	22.00	46%	4.05	9 %	6.25	13%
Congo	34.18	23.99	70%	3.89	11 %	14.50	42%
Gabon	26.77	23.59	88%	9.39	35 %	14.69	55%
Equatorial Guinea	2.81	2.69	96%	0.59	21 %	NA	NA
CAR	62.30	26.90	43%	12.31	20 %	3.02	5%
DRC	234.54	150.00	64%	33.61	14 %	12.32	5%
Rwanda	2.63	0.72	28%	0.23	9 %	0.00	0%
STP	0.10	0.09	89%	0.03	35 %	0.00	0%
Chad	128.42	NA	NA	NA	NA	NA	NA

NA: Not available.

Source: OFAC 2020

Table 11.3: Land use in Cameroon during the pre-colonial period

Periods	Key pre-colonial historical events of land occupation in Cameroon	Institutions
Between the 16th and 19th centuries	<ul style="list-style-type: none"> Cameroon was the site of large-scale migrations and population movements. Historians and sociologists generally agree that these migrations, coming from three different directions, met in Cameroon. The first migration was most likely that of Bantu tribes. The Bantu progressively advanced to the south of the country, spreading as far as Gabon and the Congo. They mixed with the Fangs during the second great migration movement, which seems to have followed the Nile and the Congo rivers divide, moving clearly from East to West. The third direction is North-South and reflects, at least in broad terms, the desire of the neighbouring peoples of the Sahara to advance towards the fertile regions of the Sudan. 	Migrating indigenous peoples
Pre-colonial era	<ul style="list-style-type: none"> Land was managed by clan chiefs or land managers in the grassroots communities. Land could not be alienated by sale, for fear of depleting family or village assets. Any member needing land for farming or cultivation had to make a request to the traditional authority or head of the family controlling the land, to ask for a portion of land, which belonged to them for the generations to come. Land security was not a concern, and people could take full advantage of their land when it was fully occupied. 	Clan leaders and communities

Table adapted by Liboum Mbonayem, based on Kenfack Essougong and Tegui (2019)

LUP during the post-colonial period in Cameroon

Cameroon's territorial organization has historically been strongly structured by the presence of several urban centres: Douala, Buea, Yaoundé, Edéa, Ebolowa, Lolodorf, and Eséka. The Government realised the need for planning to build sustainable cities based on a decentralized development plan. The country established a system of delineation that integrates all layers of administrative organizations. The country currently has 10 regions and 58 administrative districts (*départements*), 360 rural municipalities, 14 city municipalities and the major cities, which include Douala, Yaoundé, Bertoua, Limbe, Buea, Bamenda, and others. Each municipality corresponds to a group of villages headed by traditional leaders. The exploitation of natural resources has been and remains the driving force of the economy.

Spatial organization was thus made up of a progressive construction of large territorial aggregates and roads to facilitate the exploitation of natural resources, linking the cities to areas of logging and mining or areas dedicated to agriculture or hunting.

The ambition of conserving nature started with the creation of parks and nature reserves as early as the colonial period and more recently under the impetus of international NGOs. This phenomenon, which is particularly characteristic of the southern forest area of Cameroon, is also common to other forest areas in Central Africa. This process began before independence via the allocation of land to large, mainly forestry and agro-industry concessions. This trend continued after independence, when the Government created new concessions, particularly for mining and agro-industry.

A large body of private land belonging to the State was created in this way. In the south of Cameroon, these were mainly forestry concessions and the various forms of natural parks. Meanwhile, in the residual national property, where subsistence farming was allowed, a zone was created between these large blocks of private land belonging to the State. As roads developed in the forest area, Bantu populations cleared land for agriculture and at the same time formed a territory by lineages

according to rights of clearance. In Cameroon, this phenomenon is still ongoing. The establishment of private land belonging to the State and the occupation of land by farming populations have limited the rights of indigenous forest populations to resources and spaces.

Table 11.4: Land use in Cameroon during the colonial period

Periods	Colonial period: the loss of customary land rights	Institutions
German colonial period (1884–1916)	<ul style="list-style-type: none"> • During the German colonial period, most indigenous people were deprived of their land, which could be acquired by Germans only. • In 1896, the Germans enacted a law converting all unoccupied land throughout the territory into German overseas domain property. • They then introduced a registry in which all land transactions were recorded. • German control ended with the German defeat during the First World War. 	German colonial administration
French colonial period (1919–1960)	<ul style="list-style-type: none"> • After the First World War, under the Anglo-French Declaration, Cameroon was divided into two unequal parts, with France controlling 80 percent of the territory and Britain 20 percent. • Three land-tenure systems were in force: the transcription system, the customary-land-rights recognition system and the land-registration system. However, no land certificates were issued under these three systems. • Further, despite having committed to respect local land customs, France enacted a decree converting all land that was neither individually owned nor properly registered into French State property. • To increase its control over areas, the French administration enacted another decree stipulating that all land left unused or unoccupied for a period of 10 years was the property of France. • In June 1959, the registration system was established, allowing each Cameroonian to have their customary rights recognized following a procedure which led to the issuance of a document called a “land-registration book” with probative value. In reality, however, these rights were not recognized. 	French colonial administration (French Governor and Prefect)
British colonial period (1919–1961)	<ul style="list-style-type: none"> • Great Britain, on the other hand, applied a system of indirect rule. Its main land law (Ordinance No. 1 of 1927) provided that all land, except for estates registered and recognized by the British, was indigenous land under the control and at the disposal of the prime minister, who was to hold and administer it for the indigenous peoples. • No use of indigenous land was valid without the consent of the British Government, and indigenous property rights to ancestral lands were converted into customary rights of occupation. • Under the statutory right of occupancy, non-indigenous people were given certificates of occupancy on land they acquired illegally. Unlike the Germans and the French, however, few expropriations were recorded under the British. • The British colonial administration tried to respect indigenous people’s rights to land, and the only expropriation they suffered was the conversion of 264,000 acres of land, once administered by German farmers around Mount Cameroon, into the property of the British colonial government of Nigeria. • After the expropriation of German farmers, two ordinances were signed in 1946. The first authorized the incumbent colonial governor “to acquire and use the land as he [saw] fit for the promotion of the common good of the indigenous inhabitants of Southern Cameroon,” and the second established the Cameroons Development Corporation (CDC) as the statutory body in charge of assuming control of the plantations. • In 1956, all land became the property of customary authorities, with the exception of private land known as “free land” and “leased land.” The rights of indigenous peoples were from that time protected by traditional leaders. • In addition, the British representative, the “Commissioner,” was responsible for enforcing the law and protecting all indigenous rights, but a decree authorizing the Government to acquire land for “public purposes” was also signed at that time. This measure left a possibility for taking away land from communities. 	British colonial administration (British prime minister)

Table adapted by Liboum Mbonayem, based on Kenfack Essougong and Tegua (2019)

Table 11.5: Land use in Cameroon during the post-colonial period

Periods	Post-colonial period: LUP and land reforms without recognition or protection of customary rights	Institutions
From 1961 to 1974	<ul style="list-style-type: none"> At independence, the two parts of Cameroon inherited two separate legal and administrative cultures, those of France and Great Britain. Following reunification in 1961, the “francophone” leadership in the federation became dominant. For this reason, all governance subsystems from the British colonial domination were replaced by those rooted in the French political and administrative tradition. Decree No. 63-2 of January 1963 annulled all laws that gave powers to traditional authorities to manage land issues and related institutions, and it annulled all claims to land rights supported by customary instruments. After unification in 1972, an attempt was made through the Land Ordinances of 1974 to harmonize all existing land laws into one law applicable throughout the country. The 1974 ordinances made the State the owner of all land in the country. 	Cameroonian administration in charge of property
Summary of laws and strategies with a direct or indirect impact on land security since 1974	<ul style="list-style-type: none"> Ordinance No. 1974-1 to establish the rules governing land tenure. Law No. 1976-25 to establish regulations governing cadastral surveys and records. Decree No. 1976-165 to establish the conditions for obtaining land certificates. Ordinance No. 1974-2 to establish the rules governing public tenure. Decree No. 1976-166 to establish the terms and conditions of management of national lands. Decree No. 1976-167 to establish the terms for the management of private land belonging to the State. Decree No. 1976-165 to establish the conditions for obtaining land certificates Law No. 1980-22 to repress infringement on landed property and state lands. Decree No. 1984-311 to establish the conditions for the application of Law No. 1980-22 on the punishment of infringements of land and property rights. Law No. 1985-09 to establish the procedure for expropriation in the public interest and the conditions for compensation. Decree No. 87-1872 to implement Law No. 1985-9. Law No. 1994-1 to lay down forestry, wildlife and fisheries regulations. Decree No. 1995-146 to amend and supplement certain provisions of Decree No. 1976-167 to establish the terms and conditions of management of the private property of the State. Law No. 96-12 on the Framework Law on environmental management. Decree No. 1997-116 to lay down the terms and conditions of implementing law n°96/14 of 5 August 1996 governing the transportation by pipeline of hydrocarbons originating from other countries. Law No. 2001-1 to establish the Mining Code. Law No. 2002-003 to establish the General Tax Code. Law No. 2002-13 to establish the Gas Code. Law No. 2004-017 to lay down guidelines on decentralisation. Decree No. 2005-481 to amend and supplement some provisions of Decree 1976-165 to establish the conditions for obtaining land certificates. Law No. 2011/008 of 6 May 2011 to lay down guidelines for territorial planning and sustainable development in Cameroon. The National Programme for Sustainable Territorial Development (SNADDT) (2016). Methodological guide for developing the Local Land-Use Management and Sustainable Development Plan (PLADDT) (2019). Law No. 2019-024 on the general code of decentralized local authorities. Law No. 2004-003 regulating urban planning. 	Ministry of the Economy, Planning and Regional Development (MINEPAT) Ministry of Decentralization and Local Development (MINDDEVEL), Ministry of Forestry and Wildlife (MINFOF), Ministry of the Environment, Protection of Nature and Sustainable Development (MINEPDED) Ministry of State Property, Surveys and Land Tenure (MINDCAF) Ministry of Mines, Water and Energy (MINEE) Ministry of Finance (MINFI)

Table adapted by Liboum Mbonayem, based on Kenfack Essougong and Teguis (2019)

In 2016, the National Programme for Sustainable Territorial Development (SNADDT) enabled Cameroon to undertake a process of spatial organization and rational development of its national territory at different levels and scales on the basis of its “Vision 2035” (MINEPAT 2016). Vision 2035 is based on five priorities: (1) development of human capital; (2) governance; (3) transformation of agricultural systems to ensure food security; (4) development and better use of resources; (5) development of information and communication technologies, for integration into a globalized world; (6) national integration through the development of basic infrastructure in the transport and energy sectors, etc.; and, finally, (7) regional and local development and decentralization. Climate and environmental issues are not explicit here but are covered through agriculture and management of resources (MINEPAT 2019).

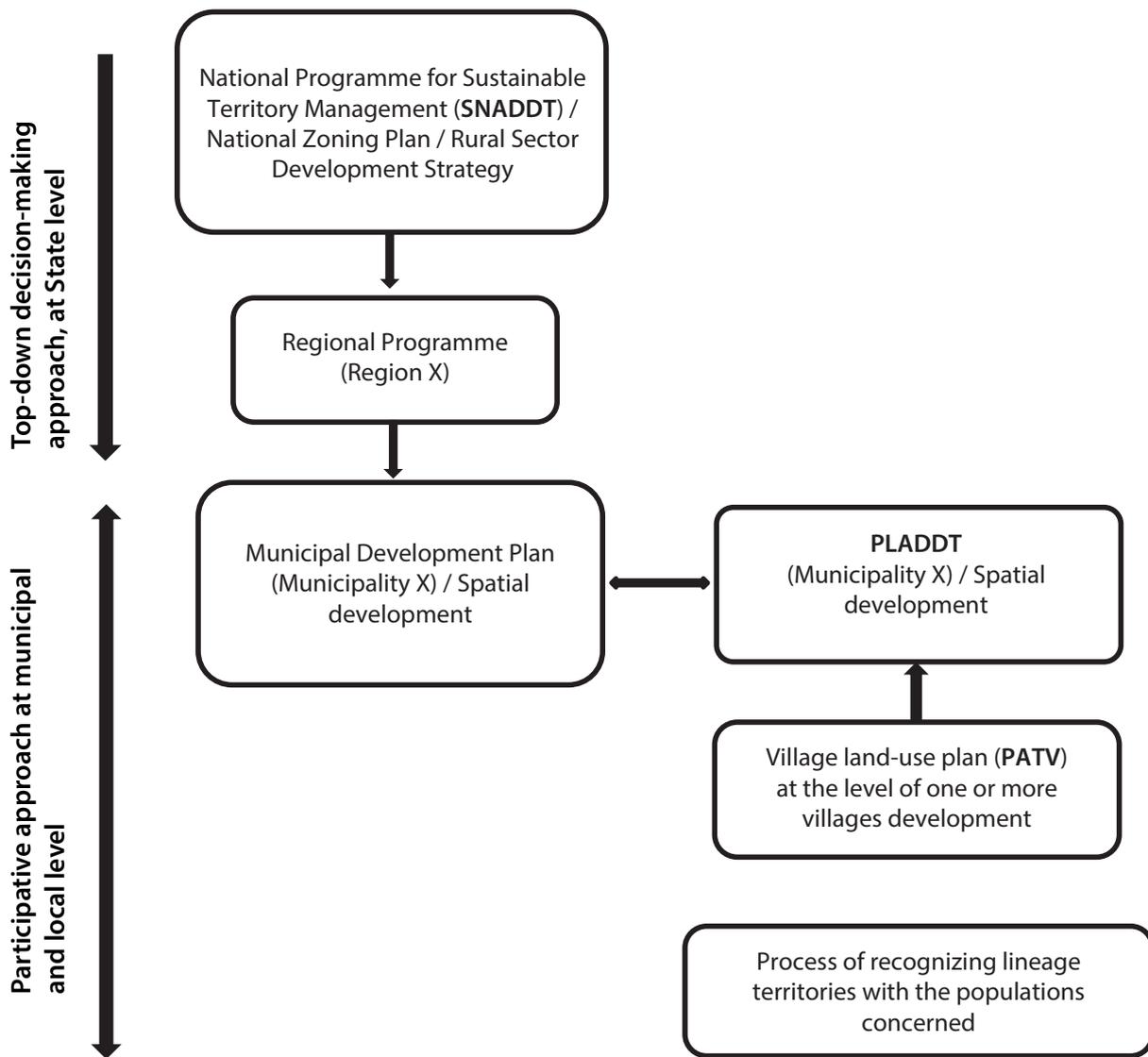


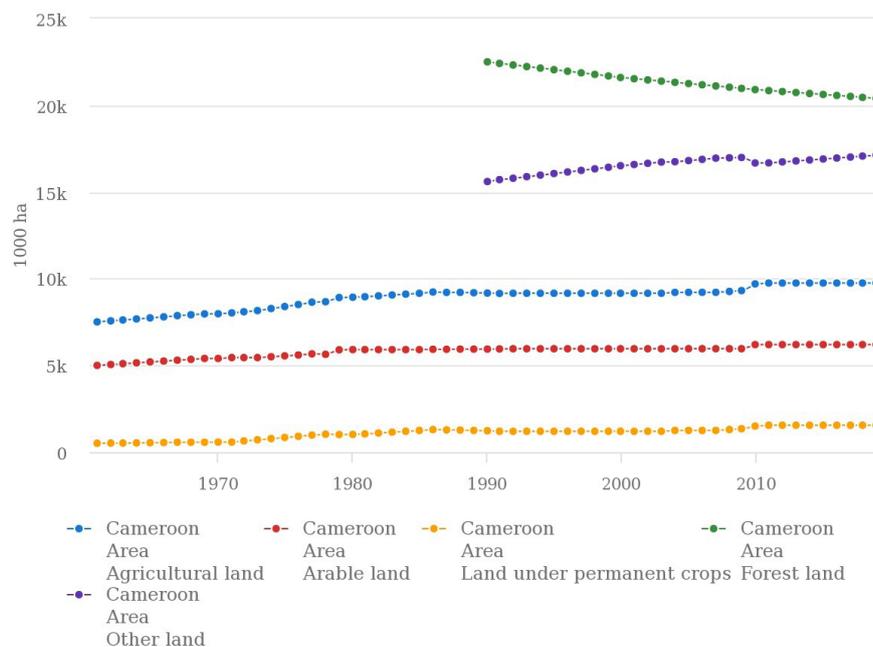
Figure 11.1: Recognition of lineage territories, or how to integrate local populations into the SNADDT process in Cameroon. A way for LUP to link a bottom-up participatory process and national planning.

Source: Adapted from the “Methodological guide for the development of the Local Land Use and Sustainable Development Plan - PLADDT” (MINEPAT 2021)

New large aggregates have been created at the impetus of international NGOs. These include protected areas as well as State-owned community forests. Decentralization leads to the creation of property owned by decentralized State property, such as municipal forests. All this reduces the space legally available for subsistence agriculture, which becomes limited to the interstices between these large aggregates. It is in these interstices that social tensions are concentrated. In practice, community and municipal forests are often occupied by subsistence farming based on customary law. Various types of rights consequently overlap on the same spaces, thereby generating conflicts, between sectors, for example. Mining or agro-industrial concessions can overlap with forest concessions, all the more so because each ministry tends to work in silo with little interministerial coordination. Conflicts between customary law and formal State law may emerge, as the customary constitution of territories by lineages is not recognized by formal law dating from the colonial period and may be challenged by the creation of private land belonging to the State (Kenfack Essougong and Tegua 2019).

In this context, the ongoing efforts to better organize Cameroon’s LUP are crucial and offer hope to find solutions to mitigate these potential conflicts due to the way the current territory is organized. The State relies on its national LUP and sustainable development scheme (SNADDT) approved by the MINEPAT in 2016, which provides a comprehensive and large-scale overview of planning to meet the legitimate development requirements of the country.

The smallest LUP level is the Municipal Development Plan, revised every five years now since 2006 as part of the National Community-Driven Development Programme. This Municipal Development Plan could become law locally, and its implementation should be based, at village level, on Local Land-use and Sustainable Development Plans (PLADDT). Recognition of the customary organization of land in the Municipal Development Plan via the PLADDT would make it possible to integrate custom into the law and prevent land conflicts. As the territory of the municipality includes several villages, each of which corresponds to one or more lineages, the local Municipal Development Plan should be preceded by a process of recognizing the territories of these lineages, carried out with the



Source: FAOSTAT (Sep 03, 2021)

Figure 11.2: Curve chart of land-use allocation areas in Cameroon

Source: Curves generated online on this website: <http://www.fao.org/faostat/en/#compare> (2021)

Box 11.1: From lack of land use planning coordination to conflict

Ampel Village is located in the municipality of Mindourou, in eastern Cameroon, on State-owned land. The farmers there are angry. They are wedged between two blocks of a forestry concession (a forestry logging unit). They have limited space, yet their cultivation practices consist in opening up fields in forests or old fallow land. They need to “break the forest” to eat, because there are no more available spaces and because fallow land is getting less and less rest, and then becomes very poor in nutrients and therefore less and less suitable for agriculture.

In 2019, the future of the farmers was bleak, before an event gave them hope. Bulldozers from a company commissioned by the Ministry of Public Works began to upgrade an old road that once connected the municipality of Mindourou to Eschou Village, located in the district of Abong-Mbang. This road had not been usable for a long time because it had been partly covered again by the forest. For the local people, this road-upgrading project meant they could create fields along the road and – for a while – no longer worry about lack of space. But the roadwork was stopped right away by the Ministry of Forests and Fauna (MINFOF) on the grounds that the road would cross a forestry logging unit, which is against forest law. This halt to the bulldozers provoked fury among the local people; it led to demonstrations broadcasted on television, some pushing and shoving, and strong resentment among the local populations towards the forest concession holder, who was deemed responsible for the situation. The lack of coordination between two ministries had harmful effects at the local level.

In the end, construction work on the Ampel-Eschou road resumed, and a decision was reached in favour of the local people, against the advice of the MINFOF. This decision was taken at a meeting chaired on 17 May 2021 in Yaoundé by the MINFOF Secretary-General, in the presence of the mayors of Messamena and Mindourou, the coordinator of the programme for the Integrated Development and Planning Programme of the Dja Mining Loop and the Adjacent Border Area (PADI DJA), operators of the forest sector, and some senior staff at the MINFOF.

populations concerned. The PLADDT is the decision-making process which should make it possible to determine the right relationship between customary rules and the Municipal Development Plan, by involving the village populations. Implementation of the PLADDT is in its start-up phase.

11.2.2 Land use planning in the DRC: a giant awakens

Describing LUP in the largest country in the Congo Basin, the Democratic Republic of the Congo (DRC), is a challenging task given the long and complex path the country has taken in its territorial organization. Nevertheless, it is possible to summarize the key points on this topic by starting with a brief historical analysis of LUP in the DRC before discussing interactions between forest ecosystem management and LUP.

Brief historical analysis of LUP in the DRC

The development of LUP in the DRC has experienced ups and downs. In 1949, before independence, the goal of the initial LUP attempts was to increase the profits of mainland Belgium. More than 70

years went by without LUP being organized by a policy or a new law. Since 2015, some progress has been made, leading to the production of a draft legislation and a draft LUP policy is under discussion in Parliament. Table 11.6 gives an overview of LUP organization in the DRC, with periods, key events and institutions involved in the process.

In a huge country like the DRC, LUP is a challenge. For a long time, the DRC lacked a harmonized overall LUP policy. The many usage conflicts in the use of space and resources are due to several shortcomings: the absence of a law on LUP and of a sectoral legislation (land or mining code) developed in a cross-cutting way, lack of tools such as a national development plan or provincial plans –at all administrative levels (national, provincial, local). In addition, a poor sharing of responsibilities and a lack of coordination among ministries went counter to consistent LUP management (Ministère du Plan DRC 2019; Ministère de l'Aménagement du Territoire DRC 2020).

As part of the implementation of its development strategy, the Government intends to carry out a series of actions to ensure more coherent national LUP and to make production and residential areas less isolated. This will give people the opportunity to live in decent housing and provide economic activities with adequate means of production, transport and communication. To this end, three objectives have been assigned to the strategies under consideration (DRC 2019):

1. Strengthen the institutional capacities of the Ministry of Land Use Planning (*Ministère de l'aménagement du territoire*) through (i) the establishment of a framework for interministerial consultation on LUP and (ii) the development of an institutional and legal framework, including a framework law on LUP, etc.
2. Provide the country with legal and regulatory frameworks as well as planning tools in the field of LUP. These would include: (i) the development of the national LUP programme and sectoral maps, (ii) the development of legal and regulatory texts, and (iii) support for the development of provincial plans.
3. Improve living conditions and provide more balance for spaces through (i) the construction of social housing and (ii) the delimitation of strategic and housing spaces.

The preparation and submission of a draft legislation and a national LUP policy is arguably one of the most significant advances in this sector. In fact, the DRC has never reached this level of LUP before. In principle, in the near future the DRC will adopt a law and a national LUP policy, broken down into national and provincial plans.

The absence of such a policy and law has long been one of the causes of the great number of conflicts related to the use of space and resources. Competition among the various sectoral ministries responsible for land use had increased owing to a lack of alignment of sectoral legislation (on land, mining, forestry and agriculture). In addition, the critical lack of data and data exchange had led to conflicting views on land use and many conflicts in the use of space and resources. For example, there has been much overlap among usage for mining, forestry and agricultural activities.

Making LUP a reality requires not only preparing a draft law and a national policy, but also implementing them. Successful implementation is undoubtedly not without risk, given that this will be the first time the DRC adopts a law and national policy on LUP. The essential aspects to be taken into account for optimal LUP are its technical and cross-cutting nature, the success of the country's decentralization, the effectiveness and efficiency of the monitoring and evaluation system promoted in these draft laws and policies, and the financial and human resources. In this regard, the UNDP has identified several operational, strategic, political, financial and organizational risks (MECNT 2017).

The DRC has several assets that can help it make LUP a reality. These include involvement by the institutions that worked together in the way land use planning is organized, the work on the implementation of REDD+, the existence of draft legislation and draft national policy on LUP, as well as the past experiences in trying to organize land use planning.

During the past decade, environmental issues have been included in an LUP, which was originally designed to better exploit the country's resources (e.g., agriculture, mining and timber). With the adoption of the national REDD+ framework strategy in 2012, LUP has become enshrined as one of the seven pillars of this strategy. It goes without saying that forest degradation, deforestation, and the restoration or sustainable management of forest ecosystems can be negatively or positively impacted depending on the organisational quality of the LUP in the DRC.

LUP is indirectly recognized as the main underlying cause of deforestation and degradation of forest ecosystems (MECNT 2017). At COP26 in Glasgow, on 2 November 2021, the DRC and the Central African Forest Initiative (CAFI) signed a second letter of intent covering the 2021–2031 period; it takes LUP into account among the 10 key sectors. The main political commitments that the DRC must make a reality between now and 2031 include the systematic integration of high-value forests, peatlands and the concessions of local forest communities into the LUP processes and plans so that they can be preserved and centralized, as well as the publication of land-use contracts applying to agriculture, forests, mines and hydrocarbons. As for the political milestones to be reached

Table 11.6: Overview of LUP organization in the DRC

Periods	Key events	Institutions
Prior to independence in 1960	<ul style="list-style-type: none"> • During the colonial period, aspects of an LUP policy were developed: transport infrastructure and facilities for the colony, as well as the creation of cities and urban areas. • 1949: Adoption of the 1949–1959 ten-year plan and the decree on the urbanization of the Congo, aimed at structuring the existing cities and urban areas. • 1957: Promulgation of the urban planning decree as a regulatory reference for territorial planning. 	Colonial authority
1960–1970	<ul style="list-style-type: none"> • 1965: LUP was put under the supervision of the Office of the High Commissioner for National Planning and Reconstruction, attached to the Presidency of the Republic. • 1969: LUP was attached to the Ministry of State in charge of Planning and Scientific Research. • 1969: LUP was made part of the Ministry of Public Works (TPAT) in the form of a directorate called “<i>Direction de l'aménagement du territoire</i>”. 	Presidency, Office of the High Commissioner for Planning and National Reconstruction; Ministry of State in charge of Planning and Scientific Research; Ministry of Public Works
1971–1980	<ul style="list-style-type: none"> • 1973: Adoption of Law No. 1973-021 on the general property regime, land-tenure and real estate regime and securities regime, amended and supplemented by Law No. 1980-008. • 1974: Merger of the LUP and Urban Planning directorate (which had been a division) into a single directorate called “<i>Direction de l'aménagement du territoire</i>.” • 1975: Creation of the public works and LUP department attached to the Land use and Urban Planning Office (<i>Bureau d'Études d'Aménagement et d'Urbanisme</i>) 	Presidency; Ministry of Public Works

Continued on next page

Table 11.6: continued

Periods	Key events	Institutions
1981–2005	<ul style="list-style-type: none"> • 1982–2004: Five drafts of the LUP National Programme are prepared at the national level. At the regional level, two regional LUP programmes for Bas-Zaire and Greater Kivu (Nord-Kivu, Sud-Kivu and Maniema) were drafted, as there were studies on specific areas (five studies of development centres). At the urban level, studies on cities were carried out. • Further reflection was carried out on a national LUP policy and on draft LUP legislation. The work developed throughout this period was not accompanied by the political ownership which was supposed to improve it in view of it being adopted and put into practice institutionally. • 1988: The Urban Planning Division was upgraded to the Ministry of Urban Planning. • 2002: Forest Code and Mining Code adopted. 	Office for Spatial and Urban Planning (<i>Bureau d'Études d'Aménagement et d'Urbanisme</i> - BEAU)
2006–2014	<ul style="list-style-type: none"> • 2008: Creation of the Ministry of Decentralization and LUP (DECAT) • 2010: Establishment of the LUP Support Unit. • 2011: Decentralization and LUP come under the Ministry of the Interior and Security. Adoption of the Law on Agriculture and the Law on the Environment. • 2012: (i) LUP comes under Urban Planning and Housing, Infrastructure and Public Works and Reconstruction; (ii) National REDD+ framework strategy adopted. • 2013: National consultations and advocacy for the LUP sector in the DRC. 	Ministry of the Interior and Security; Ministry of Decentralization and LUP; Ministry of Urban Planning and Housing, Infrastructure and Public Works and Reconstruction; Presidency
2015–2020	<ul style="list-style-type: none"> • 2015: (i) Launch of work to provide LUP with an autonomous administration; (ii) Support from the WRI and CODELT to reflection on the launch of LUP reform in the DRC; (iii) Approval of the Strategic Guidelines Document for the drafting of the national LUP policy and a national LUP programme (June 2015) • 2016: Approval of the Framework and Organic Structures of the LUP General Secretariat by Order No. CAB.MIN/FP/PIM/CA/WBC/071/2016. • 2017: (i) Creation of the Ministry of Public Works and Urban Renovation; (ii) Establishment of LUP provincial divisions; (iii) Launch of a Support Programme for LUP reform. • 2018: Recruitment of national experts. • 2019: (i) Change of name to Ministry of LUP; (ii) Validation process for a national LUP policy document and a draft legislation on LUP; (iii) WRI contracted for LUP technical support. • 2020: Draft legislation on LUP submitted to Parliament. 	UNDP; Ministries of LUP, Planning, Decentralization, Urban Planning, Infrastructure and Environment, FONAREDD; programme and project implementing organizations, universities, civil society, international cooperation agencies, etc.; WRI and CODELT; Idea Consult & AED Consult as well as STUDI International; CAT (Congo Agriculture Technology); Parliament

Table adapted by Blaise-Pascal Ntirumenyerwa Mihigo, 2020, based on information from Deliverable 3: National LUP policy document (Ministère du Plan DRC 2019)

in 2023, the following were adopted: enactment of the law on LUP, development of a national directory of soil and subsoil natural resources, establishment of an arbitration process dealing with land-use disputes, and production of an LUP atlas. In view of the above, it is likely that LUP will increasingly contribute to the management of forest ecosystems in the DRC, the largest country in the Congo Basin.

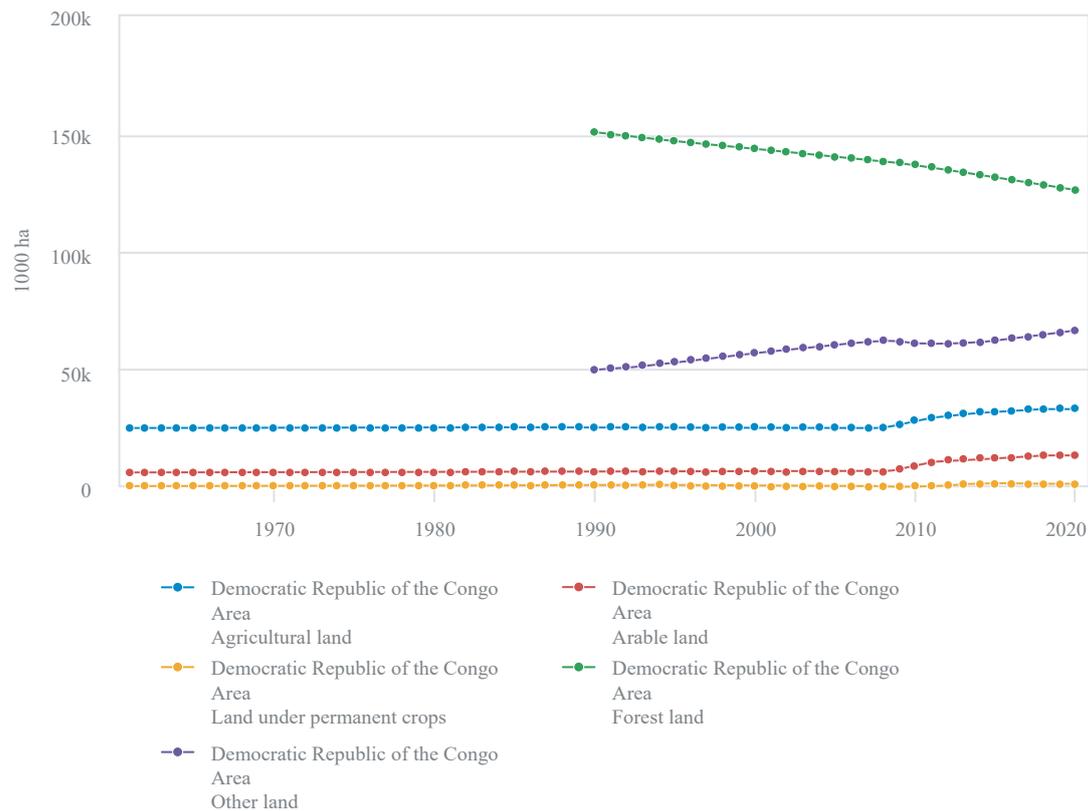


Figure 11.3: Curve chart of land-use allocation areas in the DRC

Source: Curves generated online on this website: <http://www.fao.org/faostat/en/#compare> (2021)

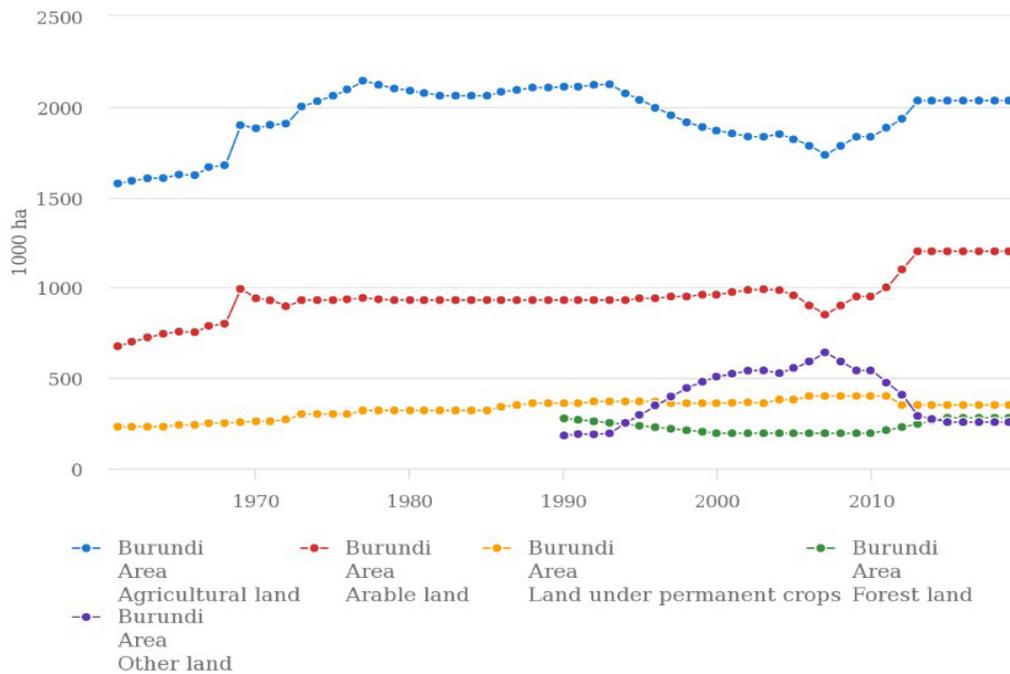
11.2.3 Land use planning in a landlocked mountainous country: Burundi

Land management and the emergence of LUP in Burundi

Burundi is a very ancient kingdom, where the king, the *Mwami*, had control over all lands and power to take them away or allocate them. He was assisted in this task by an administration and advisers, the *Bashingantahe*, an institution whose members were selected for their wisdom. Some groups, such as the Batwa (Pygmies), were traditionally excluded from access to land. This power was withdrawn from the *Mwami* and his advisers in 1960.

The history of LUP in Burundi was marked by the introduction of various cash crops (e.g., oil palm, coffee, tea and cotton) in the form of industrial plantations associated with artisanal village plantations. Later, forest and agroforestry plantations continued to change the Burundian landscape significantly. These large plantations, which contribute to the way the territory is organized, were created by the coercive power of the various administrations before and after independence.

Burundi experienced two different administrations during the colonial period: German administration from 1898 to 1919 and Belgian administration from 1919 to 1962. It was the Belgian administration that had the greatest impact on land management and thus on LUP in Burundi. Following independence in 1962, Burundi had difficulty establishing an LUP that could take into account both the powers of the post-colonial State and the practices of the population under the



Source: FAOSTAT (Sep 03, 2021)

Figure 11.4: Curve chart of land-use allocation areas in Burundi

Source: Curves generated online on this website: <http://www.fao.org/faostat/en/#compare> (2021)

circumstances of a continuous fragmentation of land and of insecurity in the neighbouring Great Lakes countries, which had suffered from multiple crises.

The history of LUP in Burundi can be summed up by the issue of land reform, which tried to deal with the organization of land before, during and after the colonial period. Burundi is today the third most densely populated country in Africa, with a density of more than 300 inhabitants/km². One of the causes of the continuous fragmentation of land is the form of land inheritance. Land inheritance is carried out by lineage and by family. It has led to the reduction of the agricultural area to less than 0.5 ha of arable land per farm (Ndikumagenge 2018).

Brief historical analysis

Table 11.7: The colonial period in Burundi

Periods	Key events during the colonial period: from king-owned land to State-owned land	Institutions
1910	<ul style="list-style-type: none"> Start of oil palm tree cultivation extension along Lake Tanganyika. 	German administration
1913	<ul style="list-style-type: none"> Destruction of oil palm trees, considered as tsetse fly hosts, to eliminate sleeping sickness. Local populations resisted this measure, as they already understood the importance of the crop. 	German administration
1925–1930	<ul style="list-style-type: none"> In contrast to German practices, supervision of industrial and “indigenous” plantations, with introduction of pre-selected oil palm nuts. Obligation to plant 10 to 30 palm trees per family. Rule imposing oil palm loosened; local populations forced to plant cotton and coffee instead. Decline in oil palm production. 	Belgian administration with power under the king

Continued on next page

Table 11.7: continued

1930–1931	<ul style="list-style-type: none"> • First artificial (State-owned) forest plantations and roadside trees. • Obligation by the Belgian administration to create municipal woodlands, the area of which depended on the number of taxpayers. • Obligation to plant coffee. 	Belgian administration with power under the king
April 1948	<ul style="list-style-type: none"> • Judgment by the Urundi Territorial Court stipulating that “the land issue [was] intimately linked to political power.”: “The main income of the chiefs shall come from land – fallow, field or pasture – and their power largely resides on their ability to award it or deprive people of it.” • Extension to Rwanda-Urundi of a fundamental rule of land law applied to their colony in the Congo, which stipulated that “the lands occupied by the indigenous populations, under the authority of their leaders, shall continue to be governed by local customs and usages.” 	Belgian administration with power under the king
1948	<ul style="list-style-type: none"> • Establishment of a forestry service responsible mainly for preserving natural forests and managing economic woodlands. 	Belgian administration with power under the king
1950	<ul style="list-style-type: none"> • Creation of peasant settlements, i.e., areas where inhabitants are grouped. These peasant settlements were created and regulated by the Belgian administration to develop sparsely populated areas and to introduce new export crops in Gihanga (Bubanza Province), Mutimbuzi (rural Bujumbura) and Bukemba (Rutana). The inhabitants consequently suffered from precarious conditions because their rights to grow export crops were taken away if schedules were not met. 	Belgian administration with power under the king
26/09/1960	<ul style="list-style-type: none"> • Legislative order abolishing the rights of the <i>Mwami</i> and the Baganwa to land, following elimination of monarchical power. 	Belgian administration
1962–1986	<ul style="list-style-type: none"> • Independence of Burundi in 1962. • No fundamental changes to Belgian land law until enactment of the Land Code. 	Administration by independent Burundi

Source: Prepared by the authors

Table 11.8: The post-colonial period in Burundi

Periods	Key events during the post-colonial period: the emergence of LUP	Institutions
01/09/1986	<p>First land code of Burundi (and of the subregion).</p> <p>The status quo between the two land ownership theories is maintained (exclusive State ownership of land and the recognition of land ownership by individuals).</p>	Administration by independent Burundi
1989	Establishment of the Ministry of LUP, Environment and Tourism (MINATE).	Ministry of LUP, Environment and Tourism
1992	<p>Start of rural consultations on the land code.</p> <p>Proposal for a draft land code on the pre-eminence of State law over all land. Not accepted due to lack of consensus.</p>	
1965, 1972, 1988, 1993	<p>Successive political crises and civil wars followed by internal and external displacements, with impacts on land in Burundi and neighbouring countries.</p> <p>Gradual decline of customary practices, alienation of municipal plantations.</p>	
2004	<p>Thanks to support from FAO, proposal for a project for reform that maintains a dual situation of individual property and State property.</p> <p>Initial proposal for “specialized LUP” which gives the State the right to impose certain types of crops on certain regions in order to promote agricultural production. Proposal not adopted during the consultations.</p>	
June 2005	Villagization policy to free up agricultural land and provide access to development infrastructure (e.g., for water, electricity, schools, health centres and income-generating activities).	

Continued on next page

Table 11.8: continued

Periods	Key events during the post-colonial period: the emergence of LUP	Institutions
2008	Proposals for decentralized land management supported by two projects financed by Swiss cooperation and the European Union, with the goal of partially relieving backlog in the already saturated courts of Bujumbura, the capital.	Ministry of LUP, Environment and Tourism
2008	Creation of the Ministry of the Environment, LUP and Urban Planning.	Ministry of Environment, LUP and Urban Planning
2008	Letter on urban and housing policy.	
2009	Four strategic land policy priorities established in Burundi, via an action plan implementing a strategy and proposing a system for managing it and making it consistent with the other sectoral actions involved in land management. The four priorities: (1) Reform of land legislation through the adoption of laws on new land systems based on modernization of the land system, simplification of procedures and decentralization of land management. (2) Restructuring and modernization of land management services with a view to improving public services. (3) Decentralization of land management: implementation of a local legal and institutional framework to strengthen the capacities of municipalities. (4) Inventories of municipal land to update knowledge on available land and its occupancy.	
2010	Drafting of 11 provincial LUP programmes across 11 provinces. The following major advances were made as a result of these programmes: General territorial survey to determine large areas at the province level, including the forest areas sought after by landless peasants, and to determine the pillars of the economy focused on agriculture, fishing (along Lake Tanganyika), agro-industries and artisanal activities (e.g., wood, coffee, tea, palm oil, clay work and craft art). Drafting of an analysis on the existence and diversification of natural resources, the population structure, the status and distribution of social and collective infrastructure and facilities, the level of urbanization, and tourist sites. The demographic outlook for the year 2025 was aligned with Vision 2025. Setting priorities for the national strategy of land use, set with clear basic principles such as the distribution of large-scale infrastructure, the creation of villages with modern facilities and the major development themes. These latter are: (i) urban development, (ii) rural development, (iii) regional integration (interdependence with neighbouring countries with regard to industrialization, energy, skilled labour, security, and access to remote areas).	
2011	Creation of the Ministry of Water, the Environment, LUP and Urban Planning, which has the new dimension of management of water resources and sanitation.	Ministry of Water, the Environment, LUP and Urban Planning
2011	Drafting of Vision 2025 to provide a framework that will guide the implementation of sustainable development strategies and policies. This vision is based on the following priorities: (i) good governance and State capacity building, (ii) human capital, (iii) economic growth and poverty reduction, (iv) regional integration, (v) demography, (vi) social cohesion, (vii) LUP and (viii) partnership. With regard to LUP, Vision 2025 aims “to establish a villagization and urbanization policy that will significantly increase the rate of urbanization from 12 percent to 40 percent by 2025.” It also seeks to “make LUP an important priority of its economic and social development policy with a view to facilitating the organization of the management of national space.”	
2012	With the support of FAO, the establishment of a REDD and MRV project to determine the activities to be implemented as part of REDD and MRV.	
2018	Drafting of the 2018–2027 National Development Plan with strategic orientations including environmental protection, climate change adaptation and improvement of LUP.	

Source: Prepared by the authors

Land use planning limited by shortage of land

The main challenges facing Burundi, which are interrelated, are population density, degradation of natural resources and the fact that the country is landlocked. Burundi is a densely populated country. It is predominantly agricultural, mountainous and has limited space. The population is growing at a rate of 3.1 percent per year, doubling every 24 years (Ndikumagenge 2018).

LUP and environmental problems have always been interrelated there. Institutionally, before 1960, spaces were managed by the king. When the country became a republic, LUP was integrated into various ministries, including the Ministry of LUP and the Environment (MINATE) and the Ministry of Water, Environment, LUP and Urban Planning (MEEATU). The management of natural resources was thus included very early in Burundi's LUP, as the Belgian administration created forest plantations as early as 1930 to meet the firewood needs of the local populations and of the first industrial activities.

The challenge of LUP in Burundi is to maintain the agricultural economy, and at the same time to preserve the productive capacities of land and natural resources. Burundi has always been looking for export products to support its economy. The development of industrial export crops (e.g., tea, quinine, coffee) has been a factor behind deforestation since the 1930s. Tea and coffee were for a long time the main resources of the country, but now they are second after gold and rare metals. Over the past 20 years, artisanal mining has been a factor behind the deforestation of the remaining natural forests (Ndikumagenge et al. 2018).

The objective of LUP is to provide public services and to guarantee food security and export revenues, and at the same time to preserve ecosystems. The factors that structure LUP have been identified in the provincial development programmes: cities and villages, public facilities and infrastructure (e.g., roads, streets, drinking-water supply, electricity and telecommunications). The functioning of the framework between the local, communal, provincial and national levels depends heavily on road infrastructure and on effective coordination between the different administrative levels.

The greatest challenge is to implement the LUP programmes according to the guidelines proposed.

One of the major points at stake about LUP is to guarantee equitable access to basic services and infrastructure (e.g., water, roads and trails) to all citizens from all provinces. But this is not easy in a rural and mountainous country with isolated and very hilly areas. In some areas, houses are built on very steep slopes. The urbanization rate is currently estimated at less than 12 percent, which is very low. The African average was 40 percent in 2018. Cities indeed play a driving role in development, as they enable access to services for a greater number of people. As for the villagization policy in rural areas, it has been ineffective despite it having been around for a long time. More generally, the rural world lacks basic infrastructure, roads, tracks, drinking water, electricity and telecommunications (Ndikumagenge et al. 2018).

Another objective of LUP is the protection of natural resources, in particular water and soil management and the fight against erosion. For this latter there is persistent use of unsuitable techniques, such as anti-erosion ditches. Many concrete problems exist, such as the clearing of natural areas; illegal logging and violation of land boundaries during successive political crises; and poor water control, with very little rainwater collection, storage and management. In the very densely populated coffee-growing provinces, the relationship between food crops and coffee is changing as food crops begin to be grown under coffee trees. Finally, some cities face new challenges

related to the prevention of environmental degradation, including waste management, sewage disposal and sanitation.

City-countryside relations are also a challenge for LUP, given that the rural world is not very monetized. With most rural populations living off home consumption, rural areas lack integration into the national economy. In addition, urban areas tend to encroach on agricultural land. This leads to conflicts in land use between housing and agriculture, disputes over water use, and the search for construction materials that are a factor behind environmental degradation. In Burundi, the rate of increase of the urban population was 5.1 percent between 1990 and 2008 and even reached 6–7 percent in the provinces of Gitega and Ngozi (MEATU 2010; Ndikumagenge et al. 2018).

The implementation of LUP programmes is hampered by a lack of mastery of LUP techniques and governance. The Government itself does not always respect urban planning, and the people do not respect State-owned land.

As forests have recently been placed under the Ministry of the Environment and Agriculture, there are risks that the importance of forests will be forgotten, that forest budgets will be reduced, and that the higher-level civil servants with solid experience in forest policy may be dispersed among several departments. Institutional conflicts and disputes between the people and the Government are multiplying, for example to demand the restitution of former land and pastures that have been converted into plantations.

Meanwhile, demographic pressure is having an impact on forest ecosystems. Forestry agro-socio-ecosystems, and then agro-industries, have strongly modified the Burundian landscape for a long time. Yet, Burundi has more forest cover than 100 years ago, thanks to the efforts of successive governments and the support of many technical and financial partners – this despite the impacts of various political crises. However, there is a great risk that these forest areas could be reduced. To cope with these land use constraints, Burundi must devise new agroforestry models that take into account not only climatic conditions and population densities, but also the expectations of the private sector, such as food-crop and coffee combinations, the promotion of agroforestry plantations including oil palm, and the integration of livestock farming into State-owned woodlands.

Finally, the rehabilitation of communal woodlands must be included in the new LUP programmes. Research on erosion over the last 30 years highlights the contribution of plantations and natural spaces to the fight against erosion (Besse 1991).

LUP in Burundi: a product of the State and farmers

LUP in Burundi is a public action: its purpose is to provide guidance for population distribution, for the activities of the population, and for facilities and infrastructure in a given space, all the while taking into account national and global policies. However, in the specific context of the country and its history, the old patterns of space specialization – for example a single agro-industrial crop in a given space – are giving way to more integrated models to meet several needs in increasingly small spaces.

Given the country's demographic and environmental constraints, LUP in Burundi must take into account five elements (natural, social, economic, financial and infrastructure). It must also consider the geopolitical issues of the subregion, such as migration, which may impact its territory.

As the State has a significant sovereign role in this LUP process, it is essential to take into account land use management through peasant practices related to the modes of transmission of land capital. The search for land, to enable the extension of profitable cash crops such as oil palm, will increase competition between cash crops themselves and between cash crops and food crops, and it will exacerbate the pressure on the areas occupied by forest plantations and nature reserves.

11.2.4 Rwanda: a densely populated and mountainous country that preserves its natural parks

Like Burundi, Rwanda is also densely populated, with more than 12 million inhabitants and an average density of nearly 459 inhabitants/km². Because of this density, cultivated land tends to develop at the expense of forest cover. One of the major challenges of Rwanda has long been to contain the effects of water erosion in a densely populated mountainous country which still relies heavily on agriculture.

In this context, proactive environmental protection policies, in the form of the creation of many protected areas, have had a marked effect on the country. This is how Rwanda enjoys 28 percent forest cover. About 9 percent of the country is classified as a protected area, and 70 percent of land is allocated to agricultural or forestry activities (source: OFAC, see Table 11.2). In the western part of Rwanda, dense natural mountain forests and forest plantations can be found.

In the extension of the north-south axis of the Congo-Nile Ridge lies the Nyungwe National Park to the south and, a little further north, the Gishwati Reserve. One of Rwanda's great treasures is its Volcanoes National Park, an integral part of the Virunga transborder complex, which offers the possibility of visiting mountain gorillas in their natural environment. To the east, Akagera Park offers a good potential outlook for savannah fauna. Dry forests in low-elevation areas of the east contrast with high-elevation forests in the west.

History of the importance of the environment and national parks in Rwanda's land use planning

In Rwanda, environmental conservation policies have had an influence on its LUP. This history dates back to the beginning of the 20th century, with the start of Belgian colonization in Ruanda-Urundi territory. Reforestation work began as early as 1920. Albert Park was established in 1925, followed by two reserves in 1934 (see Table 11.9). These environmental initiatives were also accompanied by an extensive soil conservation campaign initiated by INEAC, which later became the Institute of Agricultural Sciences of Rwanda (ISAR) in 1937. They initially took place in research stations, before spreading to the whole country. In 1947, soil conservation work was made mandatory by colonial legislation. This policy was abandoned at the time of independence, because it was perceived as statute labour. After independence and especially from 1977, environmental action programmes were launched within the framework of annual themes: habitat (1977), livestock (1978), soil protection and conservation (1980), rural hydraulics (1981), the fight against erosion (1982), and reforestation (1983) (Rwanyiziri 2020).

In 1933 and 1934, natural parks were created in a coercive and authoritarian manner: a series of laws and rules were adopted contrary to the interests of local people. As a result of this policy, people were dispossessed of their land and their resources (pastures, artisanal activities, pharmacopoeia, etc.) (Mbuzehose 1995). After independence, the new rulers authorized some clearing in the

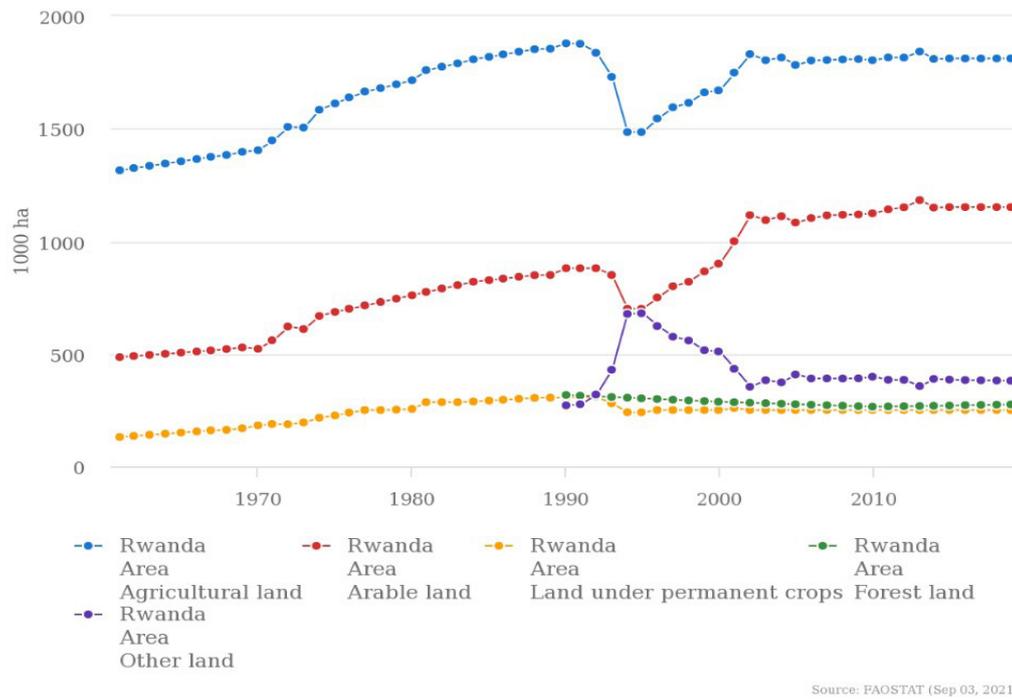


Figure 11.5: Curve chart of land-use allocation areas in Rwanda

Source: Curves generated online on this website: <http://www.fao.org/faostat/en/#compare> (2021)

parks. In 1967, for example, in Volcanoes Park, 10,000 ha were converted for pyrethrum cultivation (Rwanyiziri et al. 2020). Akagera National Park was infested with the tsetse fly and did not undergo much change in the first 10 years after independence. In contrast the Nyungwe Forest Reserve has been cleared on all sides (east and west) by farmers since 1958, as the land is fertile.

The forms of LUP and their implementation

As in many countries, LUP in Rwanda has been structured by the development of cities and roads. However, the development of spaces devoted to environmental protection has greatly influenced the structuring of the territory.

Against this backdrop, the role of international NGOs and bilateral aid has been important for the organization of Rwandan territory. In 1967, thanks to the authorization of the Rwandan Government and to logistical and financial support from American conservation NGOs, a research centre called the Karisoke Research Center (KRC) was created by Dian Fossey. In 1986, the Belgian Administration for Development Cooperation (AGCD), the Belgian bilateral cooperation agency, decided to finance the “Tourism and National Parks” project for four years. In 1987, the natural forest of Nyungwe found a good partner in the Zoological Society of New York (now the Wildlife Conservation Society - WCS), which went on to seriously address the main problems in the protection of its resources. The ORTPN and the WCS helped create the Nyungwe Forest Conservation Project (PCFN). These efforts continued thanks to financing from the German Technical Cooperation Agency (GTZ) in October 2000 via the Protection and Restoration of the Akagera Natural Resources project, then via the PRORENA, whose goal was to restore the Akagera National Park within its new boundaries.

The Rwandan governments have always been very willing to combine environmental protection and tourism in order to diversify the economy, as demonstrated by the creation of the ORTPN in 1974.

Table 11.9: Start of LUP during the colonial period in Rwanda

Periods	Key events during the colonial period: the emergence of LUP	Institutions
1925	Creation of Albert Park.	Belgian administration
1933	Following the London Convention of 1933, Belgium created Rwanda's first two forest reserves: <ul style="list-style-type: none"> The highland natural forest reserve on the Congo-Nile divide corresponded to the former boundaries of the natural forests of Nyungwe, Cyamudongo and Mukura. The second, the volcano mountains, corresponded to the boundaries of Albert National Park in its Rwandan part. 	Belgian administration
1934	<ul style="list-style-type: none"> Borders of the Volcanoes and Akagera National Parks became delineated. Creation of two national parks in Ruanda-Urundi territory. The first park, the Volcanoes National Park, was created in 1925, but its boundaries were later set in 1934 along with the boundaries of Albert National Park. The second park, Akagera, was created in the northeast of Rwanda in an area that was then sparsely populated due to the tsetse fly. 	Establishment of the National Parks Institute of the Belgian Congo
1959	<ul style="list-style-type: none"> Creation of a corps of national park rangers in Ruanda-Urundi to provide armed protection for all national parks in the territories under Belgian administration. 	Belgian administration
1960	Independence of Belgian Rwanda.	
1967	Creation of a research centre to protect gorillas, under the impetus of an American NGO.	Karisoke Research Center (KRC) by Dian Fossey
1974	Government desire to combine environmental protection and tourism.	Rwandan Office of Tourism and National Parks (ORTPN).
1992	Creation of a ministry dedicated to the environment, following the Rio World Congress on Biodiversity and Sustainable Development.	Ministry in charge of environment and tourism.
1990-1994	Conflict and genocide against the Tutsi.	
2001	Government decision to strengthen the environmental sector.	State Secretariat for Environmental Protection + Rwandan Environmental Management Office (ORGE).
2003	With the aim of involving local people in the management of protected areas, ORTPN was restructured into two agencies.	The Rwandan Conservation Agency (RWA) and the Rwandan Tourism Agency (RTA).
21 st century	The restructuring of ORTPN became a turning point in the country's nature conservation policies, as it established a community-based conservation programme for the first time.	
Early 21 st century (specifically, in 2002)	Fierce battle between nature conservationists, conservation NGOs in particular, and development promoters, represented by the various governments in power. Decrease in the size of protected areas and exclusion of populations that practice certain activities within those areas (the forest Batwa in particular).	

Source: Table developed by the authors, based on Rwanyiziri et al. 2020

However, conservation policy was carried out against the will of the people, as was the case during the colonial period. The second mission of the ORTPN was to ensure the promotion of tourism and to implement all means that could contribute to the development of this economic sector.

Since 2002, considerable efforts have been made to resolve the many conflicts between protected areas and local people. Conservation has become community-based, and participatory methods have been used to anticipate conflicts. These methods, which have helped find solutions to alleviate the conservation constraints imposed on local communities, include better sharing of tourism revenues, access to resources in and near protected areas, and financial compensation for the destruction of crops by wild animals.

International discussions on the environment have also influenced the way Rwanda has arranged to manage its spaces. In 1992, Rwanda participated in the Rio de Janeiro Summit on Biodiversity and Sustainable Development. That same year, a ministry in charge of the environment and tourism was created.

The 1990–1994 war, which culminated in the genocide against the Tutsi, had significant impact on the environment. Not only were the parks the scene of clashes, but the conflict also greatly destabilized the normal operations of the ORTPN. Akagera National Park was the first protected area affected by the war and was even looted at the beginning of the war.

Despite these adverse events, Rwanda now has four national parks and nature reserves throughout the country. They contribute to its economy and help maintain the quality of its environment.

However, this form of LUP was at first directed against indigenous peoples, as it opposed traditional rights to use forest land and products and put them in a precarious or illegal situation. When the parks were created, the Batwa hunters were deprived of their main activity or became poachers out of necessity. Conservation mitigation measures, which aimed at improving the lives of people near the parks, have had effects especially when accompanied by greater public investment in rural infrastructure such as passable roads, schools and health centres.

11.3 Can LUP reconcile development and ecosystem conservation?

Achieving the Sustainable Development Goals (SDGs) in Central Africa is not so simple, because some objectives are in principle contradictory. In the context of Central Africa, reducing poverty (SDG 1) and ending hunger (SDG 2) while preserving life on earth and ecosystems (SDG 15) requires finding compromises, and LUP is definitely one of the tools to identify these latter.

The various countries examined here have made significant efforts in developing public policies to enable them to design their LUP. These have created the conditions for development compatible with both better management of their resources and economic development to combat poverty. However, these efforts are hampered by two complex phenomena: on the one hand, the resistance stemming from power games – often between State institutions – and, on the other, the vulnerability of natural resources to the growing demands of a rapidly expanding population.

People want services and infrastructure more than anything, whether in the cities or in the countryside. In the latter, people demand roads (to better sell their agricultural products), schools and health centres. They also want a good environment, which starts with having access to clean

water. These demands bring people into conflict with conservation advocates, who argue for limiting road development in forest areas (Alamgir et al. 2017). Roads symbolize development and are expected by local stakeholders, but they are criticized by some scientists for their impact on biodiversity (Laurence et al. 2009; Gibson et al. 2011). These roads, sometimes initially laid out for logging, agro-industry or mining, are then used for all sorts of activities and especially small-scale subsistence farming, which takes over land along the roads. Today, road development has an undeniable impact on ecosystems, by contributing to the direct causes of deforestation, for example in the DRC (Kleinschroth et al. 2019). This does not have to be the case. By making road development conditional on local governance models, such as contracts with local people who desperately need the roads for their development, it should be possible to reconcile environmental protection and inclusive development. These new governance models are still under construction but could build on local planning processes such as those being developed in Cameroon (see Figure 11.1 PLADDT above).

In all the countries, the primary goal of LUP has been to ensure development and provide people with basic services. In Central Africa, with the exception of Rwanda and Burundi, environmental matters were introduced relatively late into LUP objectives. The evolution of these objectives has varied according to the institutions in charge of them.

For example, in the DRC, after independence LUP was associated with public works, then with urban planning: the aim was to develop the country's many natural resources, to support the economy, to serve remote areas and to manage the rapid and poorly controlled development of cities. More recently, starting in 2015 with the support of environmental NGOs, the issue of ecosystem conservation, in particular thanks to REDD+, has been included within LUP at the national and subnational levels in the DRC.

Cameroon also continues to see tension between development and conservation. Implementation of the LUP programme at the national level is in practice managed only by the administrative office in charge of the LUP programme, but contradictorily also concerns at least six other ministries (see Table 11.5) whose various missions include mining, water, energy, forests, environment, land registry, LUP, and local development. These ministries sometimes have very different interests and approaches, thereby raising governance issues that call into question the effective implementation of LUP. Ministries tend to operate in silos, each defending its areas of competence with little effective interministerial coordination. In Cameroon, MINEPAT is a powerful ministry, responsible for economy, planning and LUP with the purpose of playing a coordinating role with the technical ministries working on forests, mines and the environment, but in practice this coordination remains difficult. These cross-sectoral governance challenges are not unique to Cameroon. The power games produce conflicts and make the design phase of development plans endless, thus delaying effective implementation of these plans all the more (e.g., DRC and Cameroon).

Conservation of forest ecosystems has often been carried out by coercion since colonial times, and this trend continues to this day. Because there are natural parks and permanent forest areas, local populations lose usage rights, which is a cause for disputes.

In addition to the old forms of zoning initiated since the colonial era, there are now new territorial divisions stemming from decentralization or initiatives from international players. For example, in Cameroon, delimitation of municipal forests is now linked to decentralization, and that of community forests is linked to initiatives aimed at social and environmental objectives launched by environmental NGOs.

Rwanda has developed an original model, whereby LUP is characterized not only by large-scale infrastructure (e.g., roads and cities) as elsewhere, but also by the presence of protected areas. The country has recovered from the 1994 genocide, and its model for managing protected areas – supported by the international community and in a context of peace – has made it possible to overcome certain tensions with the people living near those areas, who lack space, as in the neighbouring country of Burundi. At the cost of compromises with local populations, Rwanda has been able to transform conservation into a sustainable source of income and develop tourism through a series of measures dealing with hotel and transport infrastructure and visa requirements. As the tourist is very fearful by nature and because Rwanda has also become an exception in the Congo Basin in terms of security, this model does not necessarily seem replicable, as many countries in the region are still experiencing cycles of violence (e.g., the DRC, Cameroon and Burundi).

In Burundi, continuing to have natural parks and planted forests is contested by people who lack land to cultivate food crops. New development models are encouraging the use of participatory approaches, but increasingly carving up land for parks and forests, or just maintaining existing ones, is causing real land-tenure tensions that add to the other tensions in the country.

International actors still have significant influence on LUP in Central Africa. Private actors, international NGOs, and extractive and agribusiness industries influence decisions in order to create development corridors and roads that impact ecosystems (Laurance et al. 2015). These interventions sometimes create conflicts due to overlapping land-use rights, for example between mining permits and nature reserves (Schwartz et al. 2012). To prevent these conflicts, it is necessary to develop new models of governance at the local level, as mentioned above.

International agencies, development partners and environmental NGOs act on LUP through the creation of nature reserves, biodiversity corridors and global policies such as REDD+ (and its variations such as forest landscape restoration). Two programmes have been remarkable in Central Africa. The CARPE programme has promoted a landscape-wide approach to LUP, with the goal of reconciling conservation and improvement in people's lives. This project, supported by the United States Government and adopted by COMIFAC and the CBFP, lasted about 20 years. It covered six countries: the DRC, the Republic of Congo, the Central African Republic, Cameroon, Gabon and Equatorial Guinea. The EU ECOFAC programme started in 1993 and has been going on for nearly 30 years. This conservation programme takes into account the uses of Central African forest ecosystems. ECOFAC also strives to promote regional coordination processes for conservation while mainstreaming socioeconomic aspects. It is within this framework that it supported the creation of protected areas decided on by the governments of Central Africa following the Rio Summit in 1992, including transboundary areas. This was the idea that produced the Network of Protected Areas of Central Africa (RAPAC).

LUP must increasingly take into account migration phenomena, which is occasionally cross-border and which also have repercussions on the environment and the potential emergence of conflicts. For transhumant herds, it is possible to provide for passages far from farmers' fields and nature reserves. As for people displaced by political and climate crises, in addition to emergency assistance there is a need for support for the sustainable management of renewable resources in host areas. This will help prevent the irreversible degradation of ecosystems in the host areas and also integrate the local populations, who are sometimes almost as poor as displaced populations, into that management. (see Box 12.1 of Chapter 12). Finally, sometimes the goal of LUP is to reconcile the not always easy coexistence between local populations and wild animals. For example, sometimes LUP can provide for the circulation of wildlife through biodiversity corridors compatible with farmers' activities (Doumenge et al. 2020).

Conclusions: For better knowledge of LUP in Central Africa

In most of the countries of Central Africa, LUP seems to be progressing too slowly as a set of national public policies for peaceful development. One cause often pointed out by all development stakeholders is governance. But another is the real difficulty of reconciling interests, especially between economic development and the preservation of natural resources. Yet, the challenges ahead are demographic and climatic. These will bring direct effects, such as population displacement and fires, and indirect effects in the form of degradation of food resources, natural forests and biodiversity.

Much remains to be done to invent the forms for managing the links between the various territorial entities: between cities and countryside, between agricultural and forestry areas, between the interstices nestled between large park or forest areas, and between countries in the case of cross-border park or forest areas. Some tools for reconciling interests are already in place. Experiences in Rwanda and Cameroon show that through innovations in local governance it would be possible to implement LUP that allows for both national and local development, while sustainably limiting the degradation of renewable resources and ecosystems.

What are the best institutional arrangements to facilitate LUP implementation? We can see that LUP is very different from one country to another. For example, in Cameroon LUP is integrated into the Ministry of the Economy, while the DRC has a ministry solely dedicated to LUP. But which system is more effective than the other: a powerful ministry or a specialized ministry?

This brief overview of the forms of LUP at work in the Congo Basin should be followed by real comparative studies by country, in order to provide some answers to the issues and questions mentioned above and in particular on their implementation. Despite the efforts already made as part of some programmes (e.g., CARPE and ECOFAC), we still lack data on the characteristics and effects of current LUP. This is why there is a pressing need to provide information and awareness-raising on LUP, targeting politicians, the scientific community and the general public.