

Framing the peatlands governance in the Congo Basin

Denis Jean Sonwa¹, Jean Jacques Bambuta², Rene Siewe³ and Brice Pongui⁴

Key messages

- There is a growing consensus among national and international actors about the need to protect and sustainably manage the peatlands in the central Congo Basin because of their importance for the environment and communities.
- The central Congo Basin peatlands extend over two countries, the Republic of Congo and the Democratic Republic of Congo. Consequently, permanent coordination is key if both countries' actions are to be effective in preserving the transnational peatlands.
- Coordination to protect the central Congo Basin peatlands involves not only international and regional actions, but also joint efforts of national institutions because of overlapping land uses in the peatlands.
- Ongoing efforts to improve the governance of the central Congo Basin peatlands are largely driven by national climate change efforts. These provide an intersectoral framework to inform debate for legal and institutional reforms, improve land use and management, and reduce emissions from the Republic of Congo and the Democratic Republic of Congo.

Introduction

Thirty years ago, the Cuvette Centrale was classified as an important landscape among 12 biodiversity hot spots (Kamdem-Toham et al. 2006) and the most important wetland in the Congo Basin (Devers and Vande Weghe 2007). Since 2017, the Cuvette Centrale peatlands in the Congo Basin have been a key focus of the conservation and climate change communities. The publication by Dargie et al. (2017), the most recent field study to date to map the peatlands of this region, brought a new dimension to the existing body of literature. The study revealed the existence of an important amount of peat, defined as a material with an organic matter content of at least 60 percent, to a depth of at least 0.3 m. It highlighted the potential risks to climate change that releasing the carbon stored in this important landscape could cause (Sturm 2019, Were et al. 2019).

There is consensus about the need to protect this ecosystem for the services it provides both to the local communities and the environment, and because of the

risks of mismanagement (Dargie et al. 2018). However, as suggested by Murdiyarsa et al. (2019), actions to prevent and mitigate carbon emissions from peatlands should be based on evidence, and as stressed earlier by Dargie et al. (2017: 89), "The existence of such large and previously unquantified components of the national carbon stocks of both Republic of Congo (RoC) and the Democratic Republic of Congo (DRC) provides an additional imperative for governments, alongside conservation, development and scientific communities, to work with the people of the Cuvette Centrale to pursue development pathways that will radically improve local livelihoods and welfare without compromising the integrity of this globally significant region of Earth".

Since 2017, several studies (Gumbricht et al. 2017, Miles et al. 2017, Dargie et al. 2018, Sturm 2019, Dargie et al. 2019 and Biddulph et al. 2021) have improved knowledge about the Cuvette Centrale peatlands to inform future research directions. Understanding the current governance and policy options are key to the protection and sustainable management of the newly categorized peatlands. Effective peatland governance requires a full understanding of: the role of multiple stakeholders, including their information and capacity to represent themselves; policies, standards and legislation in place; coherent incentives and disincentives for sustainable management (Consell 2009); effective channels for participation in place, and conditions and mechanisms that hinder participation (Kengoum et al. 2022).

1 CIFOR-ICRAF, Cameroon

2 Ministry of Environment and Sustainable Development, Democratic Republic of Congo

3 United States Forest Services, Democratic Republic of Congo

4 United States Forest Services, Republic of Congo

This policy brief builds on the existing body of literature and discussions with officials from the countries hosting the Cuvette Centrale peatlands. It presents a literature review on the specificity and the importance of these peatlands, the existing governance structures affecting these areas, the challenges of governing the peatlands, a description of the current efforts and recommendations for improved governance.

Specificity and importance of Congo Basin peatlands

Extent of the Cuvette Centrale peatlands

The Cuvette Centrale peatlands extend between the Likouala, Sangha, Cuvette and Plateaux departments in the RoC and the Mai-Ndombe, Equateur, Tshuapa, Tshopo, Mongala, Nord-Ubangi and Sud-Ubangi provinces in the DRC. They are about 10,600 years old and cover an estimated 145,500 km² of peat: 111,500 km² in the DRC and the remaining 34,000 km² in the RoC. This surface area only includes known peatlands in the Cuvette Centrale – countries are still to assess how much peatland exists elsewhere.

Demography in the Cuvette Centrale area

Approximately 11.1 million people live in the Cuvette Centrale area. This comprises 10.3 million inhabitants in the Central Basin of the DRC (MINSANTE, 2021) and 802,786 inhabitants in the Likouala, Sangha, Cuvette and Plateaux departments of the RoC for the year 2018 (République du Congo 2020). This fast-increasing population includes the Bantu and some nomadic and semi-nomadic indigenous communities. Most of these communities rely on peatlands for their livelihoods (Riddell 2013). According to the Nationally Determined Contribution of the RoC, this population is among the most vulnerable, with low adaptive capacity due to poverty (République du Congo 2021). The same is observed in the DRC (République Démocratique du Congo 2021).

Potential of the Cuvette Centrale peatlands

The Cuvette Centrale is covered by wetlands. Biddulph et al. (2021) provide a glimpse of knowledge about the richness of biodiversity. The area is home to megafauna, including lowland gorillas and forest elephants. It contains the first ever transnational Ramsar Site, Ntokou-Pikounda National Park and nature reserves on both sides of the Congo River. According to experts, beyond its rich biodiversity, the Cuvette Centrale peatlands are the most extensive of all tropical peatland complexes. The peatlands contain 30.6 petagrams (30.6 × 10¹⁵ g) of soil carbon, more than the above-ground carbon stored in the tropical forests of the entire Congo Basin (Dargie et al., 2017). They also feed the Congo River during low water periods, thus

helping to maintain the ecosystem's equilibrium (Datok et al. 2022). Because the peatlands cumulate above- and below-ground carbon, the Cuvette Centrale peatlands are central to debates on the DRC and RoC's climate change policies. Conservation of the Congo Basin peatlands is seen as a potential way to generate financial, environmental and social benefits.

Threats to the Cuvette Centrale peatlands

As observed by Roucoux et al. (2017) and Dargie et al. (2019), pressures are growing on peatlands in the world but those on the Congo Basin *“are not yet contested or subjected to land grabs by corporations or states, yet are still valuable to the people who use them”*. However, the intensive production of livelihoods by communities could turn into pressure on peatlands. For the moment, none of the sites under the Ramsar Convention in the Cuvette Centrale are registered in the Montreux Record as likely to be modified because of technological developments, pollution or other human interventions (Ramsar 2020). However, two conditions must be met if wetlands — and thus, peatlands — are to remain: there should not be deforestation, and watersheds that sustain the humidity of the peatlands should continue to play their role (Wösten et al. 2008). The DRC's government recently auctioned oil exploitation titles in the Cuvette Centrale peatlands, showing that despite these optimistic research results, the Cuvette Centrale peatlands remain likely to face growing pressure in the near future. Figure 1 shows the current extent of and threats to Congo Basin peatlands.

Governance structures of Cuvette Centrale peatlands

The Cuvette Centrale peatlands are under the national jurisdiction of two countries: the DRC and RoC. However, international, national and sub-national frameworks are involved, and sometimes compete, in the current management structure of the wetlands. This leads to the presence of a variety of actors that must cooperate, despite the diversity of their objectives, interests and capacity, to influence the management of the peatlands.

From the international perspective, the Cuvette Centrale area includes several Ramsar Sites, including Grands Affluents; Ngiri-Tumba-Mai-Ndombe; Tchicapika-Owando; Lac Télé/Likouala-aux-Herbes; Ntokou-Pikounda; Sangha-Nouabalé-Ndoki. They are now all part of a larger Ramsar Site named *“Complex transfrontalier Lac Télé-Grands Affluents-Lac Tumba”* (Ramsar 2017). The DRC and RoC are part of the International Tropical Peatland Center's initiative to strengthen south-south cooperation.

At the regional level, the Central African Forest Commission and the International Commission of the Congo-Oubangui-Sangha Basin are involved in the

Congo Basin: extent of peatlands and threats

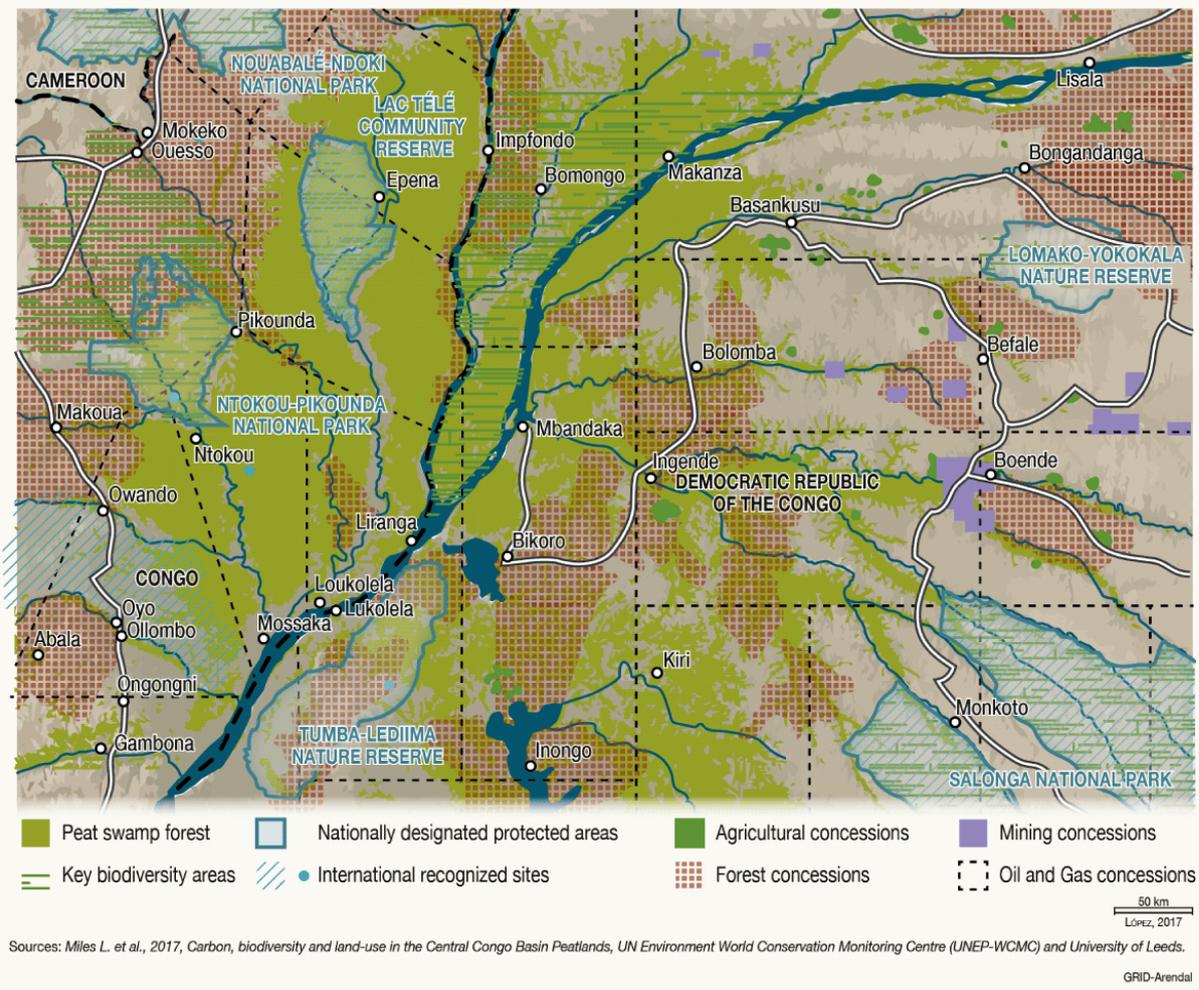


Figure 1: Congo Basin: extent of peatlands and threats

Cartographer: Nieves Lopez Izquierdo (Source: <https://www.grida.no/resources/12534>)

management of forested areas, including swamps. The DRC and RoC are members of the latter, which is in charge of ensuring integrated management of water resources in the Congo Basin. The CARPE (Central Africa Regional Program for the Environment) program was instrumental in building biodiversity conservation objectives and responses. Regular reports assessed the state biodiversity sites the Congo Basin, through OFAC (Central Africa Forest Observatory). The Central African Forest Initiative (CAFI) also supports the DRC and RoC to mainstream peatland in the national REDD+ initiatives. The first agreement between the Central African Forest Initiative and the RoC (in September 2019) and the DRC (in November 2021) emphasized the need to protect peatland ecosystems.

At the national level, in both the DRC and RoC, the peatlands fall under the responsibility of a number

of ministries because of the multiplicity of wetlands' land covers, resources and uses. Laws that pertain to wetlands and peatlands include water, land tenure, forest, environmental and land use planning regulations. The Ministry of Forest Economy in the RoC and the Vice Prime Ministry of Environment and Sustainable Development in the DRC are the main governmental actors because of the forest cover and watershed that extends into both countries. Part of the Cuvette Centrale is managed through national conservation initiatives. Miles et al. (2017) identified that several mining, gas and oil exploitation permits were granted in the forested peatland of the Cuvette Centrale, while they noted that the status of several parts of the peatlands remain unknown.

National planning ministries are key actors in the management of national land, including peatlands. Local

communities and indigenous peoples living in the Cuvette Centrale also play a key role in the use of these landscapes.

The relations between the Ramsar Convention Secretariat, the government agencies of DRC and RoC, the managing institutions of protected areas and national parks, local and indigenous communities, and the private sector operating in neighbouring areas, has not been documented so far. It is important that this gap in knowledge is addressed through further research.

Governance challenges for the sustainable management of the Cuvette Centrale peatlands

The DRC and RoC are making progress to put in place national policies to design specific regulations for peatland management. These are built around several key questions raised in both national and international policy contexts, including during COP26 in Glasgow in 2021. The challenges include the following aspects:

The definition of peatland depends on national circumstances. There is not a commonly agreed definition of what a peatland is (USAID, USFS, CODELT 2021). For example, the Dargie et al. (2017) and Gumbricht et al. (2017) definitions differ. Dargie et al. (2017) describes a layer of partially decomposed vegetation, with a minimum thickness of 30 cm and an organic matter content of at least 65 percent. Gumbricht et al. (2017) requires only 50 percent organic matter. Depending on which definition is used, a wetland may be considered a peatland. This may influence policy decisions. At a COP26 side event, the DRC's environment ministry highlighted that such decisions may influence policies in urban Kinshasa, for instance, where neighbouring wetlands are suspected to also include peats. The USAID, USFS, CODELT 2021 report also explicitly recommended that, once agreed, this definition should be included in the DRC's Law 15/026 of December 31, 2015, which does not distinguish wetland from peatland.

The status of the peat in carbon policy. The status of peat is mainly based on the importance of its ecosystem functions. The presence of peat is now included in the DRC and RoC's Nationally Determined Contribution. Providing peat and peatland status is thus central to global efforts to mitigate climate change by reducing emissions from deforestation and forest degradation.

Understanding the extent of peats beyond the Cuvette Centrale. The Cuvette Centrale is not the only area where peatlands are thought to be found in the DRC and RoC. Other parts of both countries include wetlands that could potentially include peat. However, these peatlands might be of smaller size and not contiguous. It is not clear whether inventory of other peatlands

would provide further opportunities to improve land management.

Coordinating transnational collaboration to sustainably manage the Cuvette Centrale. The DRC and RoC peatlands share the same patterns because they depend on the same watershed. However, each of the countries has its own sustainable development ambitions. These decisions and actions could impact the sustainability of the Cuvette Centrale peatlands. Coordination of actions is key, but implementation may be challenging. The Brazzaville Declaration, signed by both countries in 2018, is a key milestone in efforts to coordinate their action for peatlands management.

Coordinating various land uses that potentially threaten the peatlands. Despite current stability, there are number of threats that could potentially impact the Cuvette Centrale peatlands (Miles et al. 2017, Dargie et al. 2019). They include climate change, forestry and agriculture activities (mainly on the RoC side) that are progressively degrading peatlands surrounding forest covers, mining and hydrocarbons (mostly on the DRC side), transport and infrastructure to access lands for resources exploitation, and hydroelectricity projects such as Grand Inga that could potentially influence the water system in the regions and consequently the hydrology of the peatlands (Dargie et al. 2019). In 1960s, the idea of developing an Inter Basin Water Transfer between the Congo Basin and Lake Chad was put forward (Ifabiyi 2013). Such initiatives in the past were perceived differently (Savan et al. 2020) and did not consider the importance of peatland. A key challenge is to define the role and function of peatland in development and conservation policies in the DRC and RoC.

Current efforts for improved management of the Cuvette Centrale peatlands

The DRC and RoC are informed about the extent of peats in the Cuvette Centrale wetlands. Both countries have given responsibility for their sustainable management to their environment institutions. In contrast with the RoC, the DRC government created a dedicated Peatland Management Unit (*Unité de Gestion des Tourbières*, UGT) in 2017 with four main sub-units: administration and finance, information and engagement with stakeholders, studies and planning, and anticipated experimentation and implementation of strategy. The UGT's main tasks include the details in Box 1.

To achieve the sustainable management objectives for the peatlands, the two countries are benefitting from the support of several actors, including the International Tropical Peatlands Center, Global Peatland Initiatives, United States Agency for International Development, United States Forest Service, the CIFOR-ICRAF consortium,

Box 1. The Main Tasks of the Peatland Management Unit (UGT, Unité de Gestion des Tourbières) of DRC

- Mapping of peatland
- Development of peatland national strategy
- Daily management of the peatland issues
- National coordination and participatory management of peatland with national and international stakeholders
- Link with other climate change initiatives
- Secretariat of the stakeholder’s country platform (Board structure with several member institutions)

United Nations Environment Programme, and Food and Agriculture Organization. It is not clear however, how coordinated these actors are or how they ensure the national government has access to necessary resources to take early actions to prevent risks to peatlands.

The DRC and RoC signed an agreement and an action plan in July 2017 for a joint action to sustainably manage the Lac Télé/Lac Tumba landscapes. A year later, in June 2018, both countries signed the Brazzaville Declaration during the third meeting of the Global Peatlands Initiative. In this declaration, they made specific commitments to protect the Cuvette Centrale peatland. This declaration was followed by the Resolution UNEP/EA.4/RES.16 on the Conservation and Sustainable Management of Peatlands, adopted on 15 March 2019. This urges member states and other stakeholders to give greater focus to the conservation, sustainable management and restoration of peatlands worldwide.

The Central African Forest Initiative brings together joint commitments taken by the DRC and RoC within the Brazzaville Declaration. The RoC signed an agreement with the Central African Forest Initiative in 2019, and the DRC renewed its agreement in November 2021.

In both agreements, the countries have committed to including peatlands in their climate change policies, reducing deforestation and forest degradation, improving forest conservation, enhancing forest carbon stocks, and improving sustainable forest management. To prevent peatland drainage and carbon stock release, the agreements focus on land use planning, land tenure, sustainable forest management, agriculture, mines and hydrocarbons (see milestones for both countries in tables 2 and 3).

Table 1 shows the DRC’s national peatland roadmap, developed in 2020, followed by a legal review in 2021. Table 2 shows the DRC and RoC’s commitments from the Brazzaville Declaration. Tables 3 and 4 show the countries’ objectives based on their agreements with the Central African Forest Initiative.

Towards an effective framework for the governance of the Cuvette Centrale peatlands

To achieve improved governance of peatlands in the DRC and RoC, several actions need to be implemented at the national and the transnational levels in the short, medium and long terms.

In the short term, the DRC and RoC must take anticipatory action to ensure that there are no increases of current threats toward peatlands. This may include putting in place a national system for monitoring peatlands and building the capacity of units in charge. Despite the ongoing national efforts, delays in policy processes in Central African countries can threaten peatlands. Proper monitoring can help to ensure decisions are taken at appropriate times. Expediting legal and institutional issues on peatland protection must be a high priority on the political agenda. The RoC has taken the Order 9450/MAEP/MAFDPRP on agro-industrial plantations in savannah areas, in which there is a decision *“not to allocate any agricultural land to agro-industrial companies in peatlands and of more than five hectares in forest areas for the 2019–2025 period”*. The DRC’s

Table 1: Main activities in the DRC peatland roadmap for 2020–2026

No.	Activity	Period
1	Mapping, carbon stock assessment and monitoring of peatland	2020–2023
2	Multidisciplinary research in peatland	2020–2025
3	National capacity building on peatland	2020–2026
4	Writing a peatland strategy	2020–2023
5	Adaptation of tools for projects and programmes implementation in the peatland	2020–2022
6	Implementation of the pilot programmes with less impact on peatland	2020–2026
7	Development of programme valuing peatland ecosystem (i.e., PES)	2021–2026

Table 2: The DRC and RoC's commitments within the 2018 Brazzaville Declaration framework

No.	Commitment
1	Set up multi-sectoral and multi-disciplinary national frameworks to manage peatlands in the Cuvette Centrale of the Congo Basin.
2	Finalize land use plans that promote the conservation and protection of peatlands and prevent their drainage and degradation. Establish a transnational collaboration agreement to preserve the future of these valuable natural peatlands and their ecosystem.
3	Promote best management practices in peatland areas affected by economic activities so that they are managed in a sustainable and climate-sensitive way and neither drained nor degraded.
4	Act without delay to set up an observatory to collat, monitor and disseminate multi-purpose data collected by decision-makers, scientists, journalists and all other stakeholders interested in Congo Basin peatland issues and challenges.
5	Create, without delay, a Center of Excellence for training, research and innovation to steer and promote green growth in Lac Télé/Lac Tumba peatlands.
6	Call upon technical and financial partners to establish a finance facility inspired by Indonesia's private sector Tropical Landscape Finance Facility set up by the United Nations Environment Programme, World Agroforestry Centre, ADM Capital and BNP Paribas.
7	Welcome the government of Indonesia's offer to share knowledge, management tools and lessons learned in peatland management.
8	Reaffirm the commitment to preserve the right of local communities to use natural resources in peatland areas.
9	Call upon the international community to fund research programmes that enable countries to better understand the state and extent of peatlands.

Source: Global Peatlands Initiative Third Meeting of Partners: Meeting Report

Table 3: Objectives from the agreement between the Central African Forest Initiative and the ROC for the period 2020–2025

No.	Issue	Objective	Milestone
1	Land use planning	Special legal status is assigned to peatlands (spread across the departments of Likouala, Sangha, Cuvette and Plateaux) so that they can be protected and managed sustainably.	December 2025
2	Rural land tenure	Land laws adopted by government ensure that the process of issuing private land titles and creating state land reserves involves national consultation and includes protection and sustainable management of peatlands.	December 2025
3	Strengthening the environmental control system	Strengthen and implement the regulatory framework for environmental protection and social impact studies to include provisions on compensation for biodiversity and carbon.	December 2025
4	Sustainable forest management	Develop, adopt and implement a policy of sustainable management of forests and legal and low-emission logging through mapping and improved knowledge of the peatlands.	December 2025
5	Agriculture	The government agrees not to allocate any agricultural land to agro-industrial companies in peatlands for the 2019–2025 period.	December 2025
6	Mines and hydrocarbons	Guidance and standards on low-impact mining and hydrocarbon activities are defined within the consultation framework and adopted and implemented.	December 2025
		Establish an inclusive consultation framework (government, private sector, civil society, and technical and financial partners) that reduces the direct and indirect impact of mining and hydrocarbon activities on forest resources and peatlands.	December 2023 intermediate milestone

Table 4: Objectives from the renewed agreement between the Central African Forest Initiative and the DRC for the period of 2021–2031

No.	Issue	Objective
1	Land use planning	<p>Objective 2031 Starting from sectoral and development priorities, to carry out inter-sectoral arbitrations in order to ensure the preservation of peatlands, and to promote sustainable land allocation and use. To systematically integrate peatlands in land use planning processes and plans.</p> <hr/> <p>Objective 2026 To finalize in a participatory and inclusive manner the national land use plan and those at provincial and local levels, ensuring that these tools are ready for implementation by 2025. They must include peatlands.</p>
2	Agriculture	<p>Objective 2031 To support family and medium-sized agriculture to reduce its impact on biodiversity and carbon stocks, including by strictly regulating the drainage of peatlands. No agro-industrial concession that is incompatible with the preservation of peatlands is granted. Promoting sustainable family agriculture compatible with peatland protection as a development driver for the rural world. This will strengthen food security and improve the agricultural value chain, empowering women and households.</p> <hr/> <p>Objective 2026 To translate the national agricultural policy into law by using the principles of regional planning and sustainable management of peatlands. The Agriculture Law is adopted by 2025 and defines transparent allocation procedures for agro-industrial concessions, reducing impacts on forests and protecting peatlands.</p> <hr/> <p>Political milestones by 2023 The Agricultural Policy is adopted in the Ministerial Council by the end of 2022, integrating the principles of land use planning and protecting peatlands. A map of potential sustainable agricultural production that integrates the preservation of peatlands is prepared for key cash crops by the end of 2023. It is based on the study of agricultural potential in the framework for land use planning.</p>
3	Forest	<p>Political milestones by the end of 2025 Using a participatory and multi-sectoral process:</p> <ul style="list-style-type: none"> • define peatlands • provide them with a legal protection status • provide them with associated rules of use and management aiming at the conservation of forest cover and its stock of carbon, differentiated by sectors (agriculture, mines, and hydro-carbons, etc.) and actors (local communities, large scale private sector, etc.) • identify them spatially. <hr/> <p>Political milestones by the end of 2023 The concept of high-value forests and peatlands is defined through a participatory and multisectoral process, taking into account carbon stocks and biodiversity values.</p>
4	Mining and hydrocarbon standards	<p>Objectives 2031 To adopt and implement, in a transparent and participatory manner, REDD+ standards for hydrocarbon investments in forest areas, with a strengthened regime in peatlands. Inform, mitigate, reduce, the direct and indirect impact on the forest and biodiversity, following the DRC framework and best practices, ensuring an independent review of the implementation of REDD+ standards.</p> <hr/> <p>Political milestones by the end of 2023 Determine to what extent mining and hydrocarbon titles overlap with, and have an impact on, peatland. Adopt appropriate prevention or mitigation measures.</p>

government is tendering 16 oil concessions, of which nine (Moero, Upemba, Bloc 4, Bloc 4b, Bloc 6, Bloc 18, Bloc 21, Bloc 22 and Bloc 25) may be situated in the peatlands of the Cuvette Centrale. It is not clear what their impact may be on these fragile ecosystems. For decision-making/taking and management based on scientific information, synergy with knowledge production centers (Universities and others) needs to be intensified by emphasizing puri-disciplinarity, with greater consideration of man (i.e. emphasis on social sciences).

In the medium term, both countries must ensure they have the resources to fully complete their objectives. Supporting organizations must provide the countries with robust institutional and legal frameworks. Specific units have been put in place in the DRC and could be duplicated in the RoC to harness long-term collaboration. The DRC and RoC may also consider harmonizing their definition of peatlands to prevent one definition from negatively impacting the efforts of the other country. The DRC must also anticipate the impact of the Congo River projects on the Cuvette Centrale peatlands. The role of the Congo Basin peatlands in the REDD+ process is reflected in the current Central African Forest Initiative agreements but needs further investigation, as recognized by both countries. Natural and social scientists need to collaborate to produce a shared response to peatland governance challenges. They must avoid oversimplification that may prevent peatlands from being included in climate solutions and embrace the complex reality of this fragile ecosystem.

In the long term, both countries must take inventories of the existing peatlands and agree on the role of provincial and local entities in managing additional peatlands. An important step will be to define standards of sustainable peatland management at the transnational, national and sub-national levels. The countries must design a framework for better measurement, analysis and reporting of actions relating to peatland management. For a better promotion and application of PES (payment for ecosystem services), the economic value of peatlands is called to be constantly studied.

Conclusion

The discovery of the value of peatlands in the central Congo Basin is among the key events of the decade for wetlands conservation. Current efforts to build on existing frameworks show that states are working towards efficient policy-making at the national level. However, potential risks that threaten the Cuvette Centrale, as identified in the literature, must be mitigated.

One of the greatest risks is that previous imbalances in natural resource management may be repeated in this fragile ecosystem. Delays in decision-making may cause uncoordinated sectoral decisions and affect peatland ecosystems. Such risks are already visible in the DRC, while

the RoC has put a moratorium on granting agro-industrial titles in the peatlands. Actions in the short, medium and long term can provide grounds for discussions for policy-makers within and between the DRC and RoC.

Acknowledgements

This research was funded by the CIFOR project titled USAID-1651 Mainstreaming Wetlands into the Climate Agenda: A multi-level approach SWAMP-II, Grant agreement code: USAID-1651 and by GCS-REDD+ (Global comparative study on REDD+), phase 4 2021-2023, Grant agreement code: NORD-1782 titled NORD-1782: Knowledge for action to protect tropical forests and enhance rights.

Olivia Freeman of USFS is thanked for her constructive suggestions at the early stage of the development of the brief. Pierre Kasongo, Professor Raphael Tsimanga and Elvis Tshibusu are thanked for their comments during the review process. Anonymous is also thanked for their contribution to the development of the brief.

References

- Biddulph GE, Bocko YE, Bola P, Crezee B, Dargie GC, Emba O, Georgiou S, Girkin N, Hawthorne D, Jovani-Sancho AJ, Kanyama TJ, Mampouya WE, Mbemba M, Sciumbata M, Tyrrell G (The CongoPeat Early Careers Researchers Group). 2021. Current knowledge of the Cuvette Centrale peatland complex and future research directions. *Bois et Forêts des Tropiques*, 350: 3–14. <https://doi.org/10.19182/bft2021.350.a36288>
- Dargie GC, Lewis SL, Lawson IT, Mitchard ETA, Page SE, Bocko YE, Ifo SA. 2017. Age, extent, and carbon storage of the central Congo Basin peatland complex. *Nature* 542: 86–90.
- Dargie GC et al. 2018. "Congo Basin Peatlands: Threats and Conservation Priorities." *Mitigation and Adaptation Strategies for Global Change*, vol. 24, no. 4, Springer Netherlands, 2018. 669–86. <https://doi.org/10.1007/s11027-017-9774-8>
- Datok P, Fabre C, Sauvage S, Moukandi N'kaya GD, Paris A, Dos Santos V, Laraque A, Sánchez-Pérez JM. 2022. Analyse de la Cuvette centrale dans l'hydrologie du bassin versant du Congo. In: Tsimanga R.M., Moukandi N'Kaya G.D., et Amsdorf D. 2022. *Hydrologie, climat et biogéochimie du bassin du Congo: une base pour l'avenir*, Monographie géophysique 269, première édition, John Wiley & Sons, Inc. 255–282. <https://doi.org/10.1002/9781119842125.ch14>
- Early Careers Researchers Group, 2021. Current knowledge on the Cuvette centrale peatland complex and future research directions. *Bois et Forêts des Tropiques*, 350: 3–14. <https://doi.org/10.19182/bft2021.350.a36288>
- Global Peat Initiative. 2022. What do we know? https://www.globalpeatlands.org/#What_do_u_need (Consulted 10 February 2022).

- Gumbrecht T, Roman-Cuesta RM, Verchot L, Herold M, Wittmann F, Householder E, Herold N, Murdiyarsa D. 2017. An expert system model for mapping tropical wetlands and peatlands reveals South America as the largest contributor. *Glob Chang Biol* 23: 3581–3599. <https://doi.org/10.1111/gcb.13689>
- Ifabiyi IP. 2013. Recharging the Lake Chad: the hydro-politics of national security and regional integration in Africa. *Afr. Res. Rev.* 7, 196–216. <https://doi.org/10.4314/afrev.v7i3.15>
- Roucoux KH, Lawson IT, Baker TR, Del Castillo Torres D, Draper FC, Lähteenoja O, Gilmore MP, Honorio Coronado EN, Kelly TJ, Mitchard ETA and Vriesendorp C. 2017. Threats to intact tropical peatlands and opportunities for their conservation. *Conservation Biology*, vol. 31, no. 6, pp. 1283–1292. <https://doi.org/10.1111/cobi.12925>
- Kamdem-Toham A, D'Amico J, Olson S, Blom A, Trowbridge L, Burgess N, Thieme M, Abell R, Caroll RW, Gartlan S, Langrand O, Mussavu RM, O'Hara D, Strand H. 2006. A vision for Biodiversity Conservation in Central Africa: Biological Priorities for Conservation in the Guinean-Congolian Forest and Freshwater Region. WWF, Washington.
- Kengoum F, Pham Thu Thuy, Ntirumenyerwa Mihigo B-P. 2022. From Participation to Inclusive Forest Governance in REDD+ in the DRC. CIFOR-ICRAF Info Brief N°363, April 2022. <https://doi.org/10.17528/cifor/008498> https://www.cifor.org/publications/pdf_files/infobrief/8498-Infobrief.pdf
- Gilmore MP, Honorio Coronado EN, Kelly TJ, Mitchard ETA, Vriesendorp CF. 2017. Threats to intact tropical peatlands and opportunities for their conservation. *Conservation Biology*, Volume 31, No. 6, 1283–1292.
- Miles L, Ravilious C, García-Rangel S, de Lamo X, Dargie G and Lewis S. 2017. Carbon, biodiversity and land-use in the Central Congo Basin Peatlands. Cambridge: UNEP-WCMC.
- Ministère de l'environnement du développement durable et du Bassin du Congo. 2017. Environnement: la réunion de Brazzaville posera les bases d'une bonne gestion des tourbières. <https://www.developpement-durable.gouv.cg/environnement-reunion-de-brazzaville-posera-bases-d-une-bonne-gestion-tourbieres/> (Consulted 26 March 2022).
- Murdiyarsa Daniel et al. 2019. "Tropical Peatlands Under Siege: The Need for Evidence-Based Policies and Strategies." *Mitigation and Adaptation Strategies for Global Change*, vol. 24, no. 4, Springer Netherlands, 2019, pp. 493–505. <https://doi.org/10.1007/s11027-019-9844-1>
- Ramsar. 2017. République démocratique du Congo: Giriumba-Maindombe. Fiche descriptive Ramsar pour le site N°1784. https://rsis.ramsar.org/RISapp/files/RISrep/CD1784RIS_1707_fr.pdf
- Ramsar. 2020. List of wetlands of international importance included in the Montreux Record. https://www.ramsar.org/sites/default/files/documents/library/montreux_list_efs.pdf
- République Démocratique du Congo. 2021. Contribution déterminée à l'échelle nationale révisée. <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Democratic%20Republic%20of%20the%20Congo%20First/CDN%20Revis%C3%A9e%20de%20la%20RDC.pdf>
- République du Congo. 2021. Contribution déterminée au niveau national (CDN) de la République du Congo. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Congo%20First/CDN_Congo.pdf
- République du Congo. 2020. Annuaire statistique du Congo, 2018. Edition 2020. <https://ins-congo.cg/annuaire-statistique-du-congo-2018/>
- Riddell M. 2013. Assessing the impacts of conservation and commercial forestry on livelihoods in Northern Republic of Congo. *Conserv Soc* 11(3): 199–217. <https://doi.org/10.4103/0972-4923.121002>
- Sturm Mélanie. 2019. Stewardship of Wetlands and Soils has Climate Benefits. <https://www.nrdc.org/experts/melanie-sturm/stewardship-wetlands-and-soils-has-climate-benefits> (Consulted 12 January, 2022)
- Devers D, Vande Weghe JP. 2007. The Forests of the Congo Basin – State of the Forests. Congo Basin Forest Partnership. 257.
- USAID, USFS, CODELT. 2021. Review of the Legal framework for peatland management in the Democratic Republic of Congo. SWAMP.
- Were D, Kansime F, Fetahi T. 2019. Carbon Sequestration by Wetlands: A Critical Review of Enhancement Measures for Climate Change Mitigation. *Earth Syst Environ* 3, 327–340. <https://doi.org/10.1007/s41748-019-00094-0>
- Wösten JHM, Clymans E, Page SE, Rieley JO, Limin SH. 2008. Interrelationships between peat and water in a tropical peatland ecosystem in Southeast Asia. *Catena* 73: 212–24.



cifor-icraf.org

cifor.org | worldagroforestry.org

CIFOR-ICRAF

The Center for International Forestry Research (CIFOR) and World Agroforestry (ICRAF) envision a more equitable world where trees in all landscapes, from drylands to the humid tropics, enhance the environment and well-being for all. CIFOR and ICRAF are CGIAR Research Centers.

