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Policy support concerning rainforest carbon stocks and timber trade

DURATION 15/06/2019 – 15/06/2021	BUDGET 20 000 €
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Valorisation of the BRAIN-be project
[AFRIFORD - HERBAXYLAREDD](#)

PROJECT DESCRIPTION

The objective of the action is to support policy in the fields of the Congo Basin forest conservation and management. Results and insights accumulated during the Afriford project (*Genetic and paleo-ecological signatures of African rainforest dynamics: pre-adapted to change?*) (<http://www.ulb.ac.be/facs/sciences/afriford/>) and Herbaxylaredd project (*Interdisciplinary exploitation of the federal Herbarium and Xylarium in support of tropical forest management*) (<http://herbaxylaredd.africamuseum.be/>) that are relevant for the Congo Basin forests policy will be translated to policy briefs in close collaboration with stakeholders from different fields.

We plan four briefs: a first one on research priorities in the Biosphere Reserves of Luki and Yangambi, the second on timber identification methodologies, the third on non-detrimental findings for logging and the last on carbon stock management.

(1) The Biosphere Reserves situated within the rainforest biome of the Democratic Republic of the Congo have a particular long history of research. They can be considered as the cradle of Central African biological and applied biological sciences, including botany, agronomy and forestry. There are extensive scientific reference collections collected in these reserves and actually curated at the Botanical Garden Meise and the Royal Museum for Central Africa. These collections are recently valorised through digitalisation and state-of-the-art analyses in the context of the Herbaxylaredd project. Moreover there are excellent opportunities of field research contributing to the role of both reserves as laboratories for climate change and sustainable development research. These are priority topics for the Man and Biosphere Programme of the UNESCO. As such this programme contributes to the sustainable development goals of the United Nations. A policy brief aims at highlighting the extraordinary research opportunities of Luki and Yangambi that are highly relevant for the sustainable development goals.

(2) The concerns of the fate of tropical rainforests give rise to a number of legal instruments that should prevent that illegally harvested timber is being commercialised. These instruments include CITES (*Convention on International Trade in Endangered Species of Wild Fauna and Flora*), FLEGT (*European Union Forest Law Enforcement, Governance and Trade Action Plan*), the EU-TR (*European Union timber regulation*), the American Lacey Act and the Australian Illegal Logging Prohibition Act. The enforcement of these instruments imply often the identification of the timber species that is being traded. Wood can be identified through different approaches: microscopic analysis of wood anatomical features (based on coding of formal characteristics or on visual keys; possibly being automatized through techniques of pattern recognition), metabolite analysis and DNA techniques (for more information see www.globaltimbertrackingnetwork.org). The Herbaxylaredd project has developed research in all these fields for Central African timber species. These methods have all typical advantages and disadvantages. We noticed a certain confusion among stakeholders like custom officers and other enforcement instances in the choice of the most suitable method. With this policy brief we aim at clarifying which method would be appropriate in which circumstances. This action will be executed in collaboration with the Global Timber Tracking Network.

(3) Next to the legal aspect of forest logging, there are also concerns about the sustainability of timber production. While it is true that actual forest laws take into account the need for reducing the impact of exploitation on populations of tree species and forest communities, the sustainability dimension of logging is still different than legal logging. This issue of the distinction between legality and sustainability was recently stressed at the five-year celebration of the implementation of the European Union Timber Regulation (EUTR) and the Thünen Centre of Competence on the origin of timber



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For the species listed in the CITES Appendix II internationally traded timber not only should conform the laws and regulations, but should come from an exploitation that aims at a sustainable production of timber of these species. A so called non-detriment finding should be made, assuring that trade of such a species should not endanger the logged populations. The focus of the Afriford and Herbaxylaredd projects on the flagship species *Pericopsis elata* enabled our implication into several debates on non-detrimental findings. A policy brief will make clear which essential scientific information is needed to make a non-detrimental finding for a commercial timber species from a tropical rainforest biome. The policy advice will not exclusively be useful for CITES authorities but for authorities involved with the implementation of forest and timber laws in general. Recently the lack of basic scientific information was identified to hamper the success of FLEGT in Ghana (Hansen et al, 2018)².

(4) Both the Herbaxylaredd and the Afriford project studied carbon stocks and carbon sequestration in the rainforests of the Congo Basin. Investing in carbon storage and sequestration represent important climate change mitigation strategies. However, decision makers and managers need to understand the long-term behaviour of carbon within forests. Critical questions are: (i) how much carbon do forests sequester, (ii) how long does the carbon stay in the system, and (iii) where does the carbon stay longest in the system?

We estimated decadal-scale trends in carbon sequestration and carbon persistence using a combination of growth-ring and diameter increment measurements from inventory plots in structurally intact closed-canopy forest, across 11 countries (244 plots).

We find that intact African tropical forests are a carbon sink, at 0.70 Mg C ha⁻¹ yr⁻¹ [95% CI, 0.55-0.84], which remained stable for three decades. Carbon is fixed in African tropical trees for about 65 years [95% CI, 61-70]. We also find that sequestration and persistence of carbon are greatest in both the understory and the canopy, while the carbon balance in the sub-canopy is neutral.

Our results suggest that the structurally intact African forest carbon sink in live biomass has been robust over the last three decades, despite steep temperature increases and other environmental changes. Furthermore, we stress that both the understory and the canopy contribute to long-term carbon storage, sequestration, and climate resilience. A policy brief will translate these important scientific findings to suggestions for concrete management actions.

We will establish collaboration with external users from different policy making organisations with who we are in contact already in the context of the Afriford and Herbaxylaredd projects. These policy makers are active on national and international levels. We identified three key targeted users who formally stated their interest to be engaged: FAO for REDD+ (Rome, Italy) [Annex LOI 1], CITES Belgium (Brussels, Belgium) [Annex LOI 2] and GTTN (Hamburg, Germany) [Annex LOI 3]. This engagement will of course not exclude involvement of other users from other countries, including from the Democratic Republic of the Congo.

CONTACT INFORMATION

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