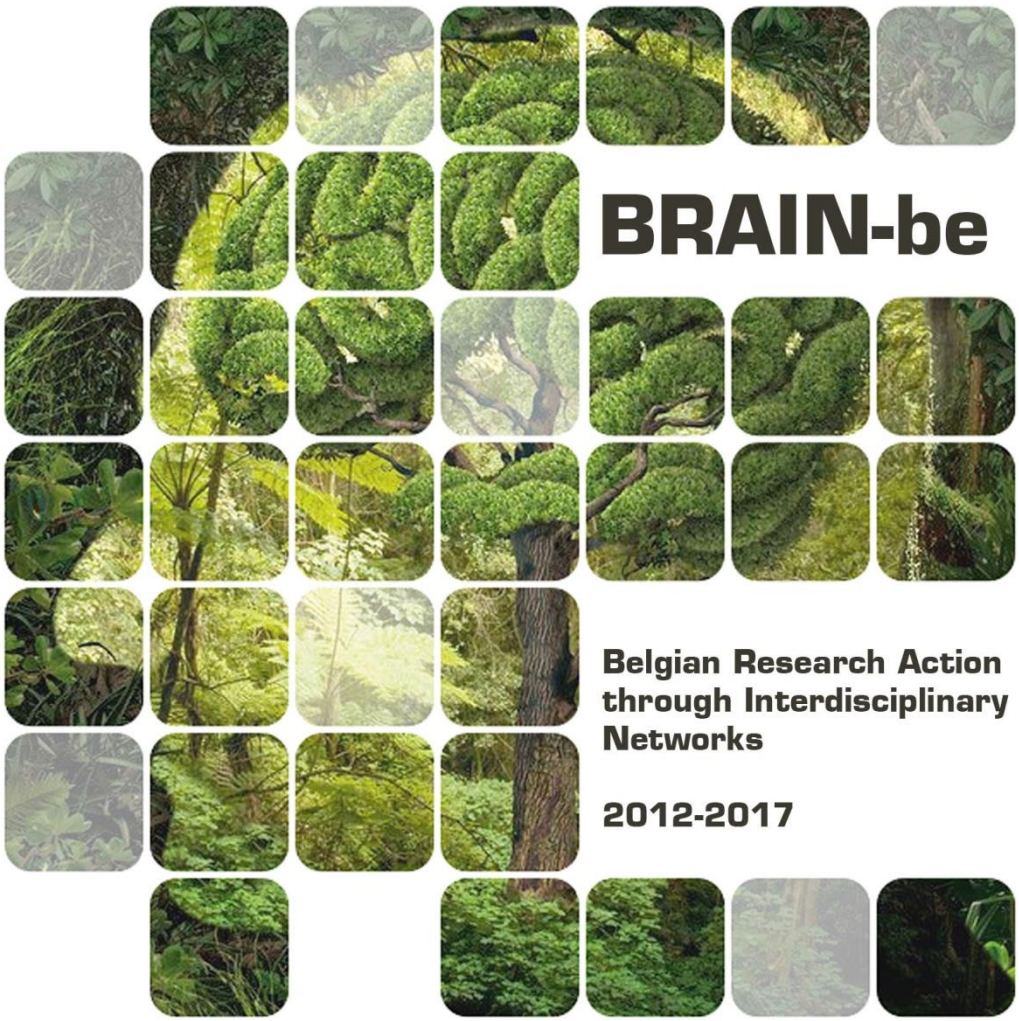

VALORISATION PROJECT

POLCARTIM

Policy support concerning rainforest carbon stocks and timber trade

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FINAL REPORT

PROMOTORS: HANS BEECKMAN (Royal Museum for Central Africa)

AFRICA museum

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1. SUMMARY

During both the HERBAXYLAREDD and the AFRIFORD project, we noticed a large gap between the scientific communities and the stakeholders, which is observed in other scientific fields as well. Both communities developed paradigms that are quite different. Although they share the topic of rainforest ecology, management and conservation, they have their own typical terminology and fora. The scientific community has its international meetings and peer review journals. Policy makers, even if they attend scientific conferences, are active in their own networks and have many other meeting opportunities. We noticed that physically bringing both communities together is not enough to assure a direly needed reciprocal fertilization. On the other hand, policy makers need to be able to optimally use the scientific potential to strengthen their instruments.

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 and HERBAXYLAREDD projects that are relevant for the Congo Basin forests policy have been translated to policy briefs in close collaboration with stakeholders from different fields.

We produced six policy briefs: a first one on Man and Biosphere Reserves and their research priorities in the Democratic Republic of the Congo (DRC), a second on the creation of a new Man and Biosphere Reserve in the DRC, the third on timber identification methodologies and the current capacity in Belgium, the fourth on non-detrimental findings for logging, the fifth on carbon stock management and the last on the current status of *Pericopsis elata* (Afromosia).

2. INITIAL OBJECTIVES AND VALORISATION FOCUS

The POLCARTIM activities took place shortly after the end of the actually ongoing AFRIFORD and HERBAXYLAREDD projects. The draft versions of the final reports have been available and most of the manuscripts are published or submitted. Four small-scale thematic workshops have been organized with the project promoters and staff and invited external stakeholders and international visitors. The five policy briefs have been drafted by the project staff at the end of the projects, reviewed during the workshops of the proposed action and eventually co-authored with the external stakeholders.

3. OVERVIEW EXTERNAL COLLABORATION(S)

We established collaboration with external users from different policy making organizations with whom we were already in contact 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), CITES Belgium (Brussels, Belgium) and GTTN (Hamburg, Germany). This engagement does of course not exclude involvement of other users from other countries, including from the Democratic Republic of the Congo (see further in the workshops and policy briefs).

- Unesco MAB: We regularly give updates of our research in the Biosphere Reserves of Luki and Yangambi for the secretariat of the MAB programme. We are in contact as well with stakeholders from UNESCO in Kinshasa. The stakeholders were given the opportunity to review draft versions of the policy brief on research priorities in Luki and Yangambi and Congolese key persons linked to Biosphere Reserves participated in the scheduled workshop (travel costs not on budget of the action).

- CITES: We are involved in discussions about timber trade issues, as member of the Belgian scientific authority, participate on a regular basis in the European scientific review group and occasionally on workshops and side activities of the conference of parties and similar activities. The policy briefs on timber identification and non-detriment findings were reviewed by the Belgian CITES management authority.

- REDD+: The policy brief on carbon stocks and sinks in the Central African rainforests were reviewed by the REDD+ desk of the FAO (Inge Jonckheere), who will also attend the relevant workshop. The Belgian and possibly the Congolese responsible officers (external budget) will be involved too.

- Global Timber Tracking Network: was invited to the workshop and Nele Schmitz (GTTN) co-authored and reviewed the policy brief on timber identification. GTTN will also be given the opportunity to review the other policy briefs, given their general interest.

- EUTR and FLEGT: Belgian enforcement officers were invited to the workshop on timber identification and reviewed, together with GTTN, the policy brief.

4. GENERATED PRODUCTS AND IMPLEMENTED APPROACHES

The policy briefs are currently in the lay-outing stage. When these are ready, they will be uploaded in the Congo Basin Carbon website of the Royal Museum for Central Africa (link). The generated products of this project can be divided in two types: (1) workshops and (2) policy briefs. In the first part the different workshops are explained, and the international visitors that were present are mentioned. In the second part the different policy briefs are discussed. The final lay-outed versions of these policy briefs will be attached to this report or can be found online on the RMCA website and BELPSO website

WORK PACKAGE 1 : Thematic Workshops

Within POLCARTIM, several thematic workshops and seminars were organized. These can be divided into the different tasks of the project.

International visitors were invited during the period that the different workshops were given:

- **Nestor Luambua**, **Bhély Angoboy** and **Elvis Tshibasu Muanza**
  Yangambi/Luki Biosphere Reserve DRC. Nestor Luambua: UNIKIS, Elvis Tshibas and Bhély Angoboy: ERAIFT.
- **Milton José de Paula and Tamires de Oliveira**
  Instituto Federal de Educação, Ciência e Tecnologia do Pará - Altamira (PA) Programa de Pós Graduação em Ecologia - Doutorado. Universidade Federal do Pará (UFPA), Belém (PA). Federal Institute of Education, Science and Technology of Pará - Altamira (PA), Brazil,PhD in progress - Ecology. University of Pará - Belém (PA), Brazil.
- **Several guest speakers (see further down)**
  - **Kathelyn Paredes**
  - **Eleanor Dormontt**
  - **Martin Worbes**
  - **Klaus Butterbach-Bahl**
  - **Ralf Kiese**
  - **Aida Cuni-Sanchez**
  - **Jesus Aguirre Guttierez**

Milton José de Paula and Tamires de Oliveira were invited towards a wildlife conference. Nestor Luambua and Elvis Tshibasu Muanza joined for an introductory class with Prof C. Vermeulen in Gembloux. Everybody was present for the other workshops mentioned below.

Task 1.1: Man and Biosphere Reserves: research priorities in the Luki and Yangambi Biosphere Reserves – Seminar December 6th 2019 @ Het Pand, Ghent University (Sacristie Meeting Room)

PRESENTATIONS

Marijn Bauters (UGent)	UGent Yangambi projects
Hans Beeckman (RMCA)	RMCA Yangambi projects

Piet Stoffelen (Botanic Garden Meise)	Botanic Garden Meise Yangambi projects
Baudouin Michel (Director ERAIFT)	ERAIFT Yangambi projects (Director)
Mélissa Rousseau (RMCA)	The laboratory for Wood Biology and carbon assessments
Pascal Boeckx (UGent)	The flux tower and carbon assessments
Wannes Hubau (RMCA)	The significance of the Yangambi permanent inventory plots in assessing long-term carbon sequestration
Leen Van Hirtum (RMCA)	Presentation of the PilotMAB-website
Kim Jacobsen (RMCA) and Bhely Angoboy (RMCA/ERAIFT)	The periodic reviews of Luki and Yangambi, the COBECORE project and the UNESCO Man & Biosphere Programme
Elizabeth Kearsley (UGent)	Historical data reveal complex tree phenological rhythms in the Congo Basin rainforest
Leen Van Hirtum (RMCA)	Historical colonial forestry research in Yangambi
Francis Mumbanza (UGent)	Liana communities exhibit a different species composition, diversity and community structure across forest types in the Yangambi MAB reserve
Chadrack Kafuti (UGent)	Dendrometers, leaf and wood traits
Emmanual Kasongo (RMCA/UGent	Pith-to-bark vessel features of *Entandrophragma*
Nestor Luambua (UPC-DRC)	Clusters of light demanding species reveal past disturbances in the semi-deciduous forest of the Yangambi Biosphere Reserve
Koen Hufkens (UGent)	Progress report of COBECORE
Elvis Tshibasu Muanza (ERAIFT)	Mapping of carbon stock in the DRC forests based on airborne LiDAR Remote Sensing
Tamires de Oliveira (Federal University of Pará UFPA , Center for Advanced Amazonian Studies)	Central Amazon Biosphere Reserve: a review of carbon and climate change projects

DISCUSSION

How can we optimally coordinate carbon research, the logistics of field work, the collaboration with local partners and improve visibility of the projects?

The main conclusion is that field expeditions should be optimized in terms of combined research goals. When a field mission is planned, there should be an open communication towards other parties of interest, especially to pinpoint common sampling goals. Optimizing one field mission is more efficient compared to organizing two different field missions in the same area.

Task 1.2: Timber Identification – December 10th 2019 @ Federal Public Service – Health, Food Chain Safety and Environment. Place Victor Horta 40, Brussels

The goal of this seminar was to bring different actors from the timber trade and timber identification world together and to pinpoint the current progess and pain points of timber identification. The Global Timber Tracking Network could not be present for this meeting but suggested to invite two internationally renowned experts: Dr. Eleanor Dormontt (University of Adelaide, Australia) and Dr. Kathelyn Paredes Villanueva (Gabriel René Moreno University, Bolivia). Following people were present at the seminar:

Eleanor Dormontt (University of Adelaide, Australia), Kathelyn Paredes-Villaneuva (Gabriel René Moreno University, Bolivia), Frans Arijs (Scientific Authority CITES-Belgium), Serge De Wilde (Environmental Inspector EUTR+CITES – DG Environment, Belgium), Hans Beeckman (RMCA,

Belgium), Victor Deklerck (RMCA, Belgium), Kévin Liévens (RMCA, Belgium), Joris Van Acker (UGent-Woodlab, Belgium), Samuel Vanden Abeele (Botanic Garden Meise, Belgium), Steven Janssens (Botanic Garden Meise, Belgium), Dirk Debussche (Vandecasteele Houtimport, Belgium), Bhély Angoboy Illondea (RMCA, Belgium / ERAIFT, Democratic Republic of the Congo), Milton José De Paula (Instituto Federal de Educação, Ciência e Tecnologia do Pará - Altamira (PA), Brasil), Tamires de Oliveira (Instituto Federal de Educação, Ciência e Tecnologia do Pará - Altamira (PA), Brasil), Elvis Tshibasu Muanza (XXX) and Nestor Luambua.

Eleanor Dormontt: Forensic timber identification: development and application of scientific methods to support legal timber trade

Dr. Eleanor Dormontt is Researcher in DNA Identification and Forensics in the School of Biological Sciences at the University of Adelaide. Her research focuses on different analysis methods for wood identification, to promote legal and sustainable use of forest resources. Within this field she specializes in DNA identification technologies. Another interest is the translation of scientific methods from an academic framework to use as a forensic tool. She manages Timber Tracking activities in the Lowe Lab Group, both for commercial and research projects, as for forensic case work.

Dr. Eleanor Dormontt presented a clear overview of the different timber identification and provenance techniques currently available. Next she showed two cases (teak and sandalwood) that were handled at the University of Adelaide. She also discussed recent developments in timber identification techniques and interesting to note is the training of detector dogs which would be able to discover a limited number of CITES listed species.

Kathelyn Paredes Villanueva, Tropical timber forensics: Comparing and combining timber tracing methods

Dr. Kathelyn Paredes Villanueva is a biotechnology and dendrochronology researcher at Wageningen University and Gabriel René Moreno University. Her research focuses on tools for forest management and control systems for illegal logging. She is interested in finding methods to trace timber origin, such as DNA and stable isotopes.

Dr. Kathelyn Paredes Villanueva focused on the situation in Bolivia and on the combination of techniques, which she investigated on several species from the *Cedrela* genus (Paredes-Villanueva et al, 2018). She came to the conclusion that, in some cases, a combination of methods leads to the same or worse result. Also, there are several challenges within timber tracking: availability of the equipment, trained personnel, quality reference data, the distribution of the tree species in question,… It is important to decide whether a combination of methods makes sense for the question that you have to answer. Moreover, analytical methods should be standardized and models should be chosen based on applicability and performance.

During the timber identification meeting, it was stressed that scientific support is a necessity for the legality and sustainability of the timber trade. In addition, the correct taxonomy is of crucial importance and reference collections play a big role here.

Several questions were discussed:

(1) How important are reference collections for you and are they complete?

The participants agreed that reference collections are vital for the development and routine use of timber identification and timber tracking techniques. Although there have been enormous sampling efforts in the last 100 years, there is still a lack in specimens amount in collections for certain species. Moreover, the different techniques have different specimen requirements. This should be taken into account when performing field collections.

(2) How to create a timber identification center? Which methodologies do you combine?

Every technique has its (dis-)advantages, as indicated in the policy brief on the forensic center in Belgium and timber identification (see further). Every technique is still in development and only wood anatomical analysis has reached the state of full screening capability. A timber identification center should therefore focus on two aspects: (1) service delivery and (2) scientific development. In that context, every existing technique would be interesting to include. Towards the screening practicality, we should focus on wood anatomy and DART TOFMS.

(3) What is the possibility for full timber tracking: forest to consumer?

Everything starts with documentation of the timber transportations, and it is also the responsibility of the logger/exporter/importer to verify the supply chain. Timber identification expertise centers should help these actors in verifying this supply chain. There have been some examples of tracking timber throughout the supply chain (for example Lowe et al., 2010), however, this will remain challenging to put in practice effectively. Other ideas might be barcoding of the logs that get exported out of the forest, though this might prove difficult to maintain throughout the supply chain once the logs arrive at the sawmill. The problem of defining locations for multi-species timber was also addressed here and timber tracking throughout the supply chain plays a vital role here.

(4) How reasonable is timber tracking in export countries?

It would be a big advantage in the battle against the illegal timber trade if routine screenings were able in the main export countries of timber. However, if we focus on tropical timber, a lot of these export countries lack the political motivation and scientific capacity to perform these screenings. Wood anatomical identification should be possible in exporting countries, as it requires a minimal financial investment. Recently the Royal Museum for Central Africa set-up a wood biology lab in the Yangambi Biosphere Reserve, and wood anatomical analysis is now also possible here.

A final take home message is that CITES does not always take ecology into account. Harvesting can have a substantial impact on the surrounding environment. In this aspect it is important to combine forest protection projects with the surrounding trade regulations. In addition, project engaging local populations are also important.

Task 1.3: Workshop on Non-Detriment Findings

Several meetings were held between Victor Deklerck (RMCA), Hans Beeckman (RMCA), Nils Bourland (FAO, RMCA) and Arthur Chartrain (FAO, RMCA) on the current status of the Non-Detriment Findings process. Organizing a workshop was impossible due to the COVID-19 situation and the meetings were held online. It was decided that a policy brief on this issue would be most effective. This policy brief can be found further down in this report.

Task 1.4: Workshop on carbon management

Effective carbon management is dependent on many different factors and aspects of forests: tree diversity, response to climate change, dendrochronology and so on. Below we list several presentations that capture these different aspects. These presentations were organized at both Ghent University and the Royal Museum for Central Africa.

Martin Worbes, Tropical dendrochronology – December 10th 2019 @ Ghent University

Rainforests consist of large trees, often with heavy wood. Thanks to them there are enormous stocks of carbon in a tropical rainforest. A good understanding of forest dynamics depends on reliable information on tree age, tree growth, their regeneration and mortality events. Contrary to temperate and boreal forests, growth-ring studies are relatively rare in the tropics. Counting and measuring rings asks indeed for an adapted methodology to extract the priceless information, archived in the wood, that is relevant for forest ecology and management and climate reconstructions. The methods of tropical dendrochronology have mainly been developed by Prof. Martin Worbes, who successfully studies tree rings in Latin-America, Africa and Asia. He will report on his career lasting activities in tropical rainforests.

Prof. Martin Worbes works at the Georg-August-Universität in Göttingen, in the Tropical Plant Production and Agricultural Systems Modelling division, and is a member of the Centre of Biodiversity and sustainable Land Use (CBL). As a lecturer he teaches the course Forest Growth in the Tropics and contributes to the courses Experimental Techniques in Tropical Agronomy, Introduction to Tropical and International Agriculture and Management of Tropical Plant Production Systems. He is also Associate Editor of the journal Dendrochronologia (Elsevier). His research focuses on tree ring analysis in the tropics and he has founded tree ring laboratories in Manaus (with INPA) and Piracicaba (with the University of Sao Paulo) in Brazil and in Bogor (with CIFOR) in Indonesia. Prof. Worbes works on topics such as stress physiology of trees, forest dynamics, timber growth, sustainable forest management and carbon sequestration in the context of tropical forests.

Klaus Butterbach-Bahl, Measuring and upscaling of GHG fluxes from tropical forest systems – December 11th 2019 @ Africamuseum CAPA-building

Dr. Butterbach-Bahl is head of the department 'Atmosphere/ Biosphere Interactions and Global Change' and of the 'Regionalization of Biogenic Tracing Gas Fluxes' research group at the Institute of Meteorology and Climate Research – Atmospheric Environmental Research of the Karlsruhe Institute of Technology. His research also focuses on the feedback of environmental changes on terrestrial ecosystems and the exchange of trace substances N2O, NOx, CH4 and CO2 between biosphere and atmosphere. Other research interests are the identification and characterization of microbial processes involved in N- and C-trace gas production and consumption, process oriented modelling of

carbon/ nitrogen turnover in terrestrial ecosystems, and calculation of emission inventories of biogenic trace substances on regional and global scales. He is also on the editorial board of the journals Ecosystems, Plant and Soil and Global Change Biology.

Dr. Butterback-Bahln stressed that Central Africa is a hotspot concerning 'unknowns" for Greenhouse Gasses (GHGs). N_2O is a very strong GHG, and is 3000 stronger than CO_2. It is also a key substance driving the stratospheric O_3 destruction. N_2O has an estimated increase of 1% per year and plays an important role in global climate change. Natural soils are an important source of N_2O and tropical rainforest play a big part. Warm and wet climate conditions favour the increase in this GHG and there is an increase in denitrification via the increase of the nitrogen budget through fertilizers, fossil fuels and agriculture. The main issue is that there are very few long term studies in Africa and there is a lack of research infrastructure in the tropics. Even with the lack of infrastructure, there is still some way to determine the N_2O from tropical mountain forests: (1) spatial variability, (2) laboratory analysis of soil cores and (3) in situ measurements. N_2O has a very heterogeneous spatial distribution and there are differences between valley, mid-slope and ridge locations. This difference is correlated with the water content. Ideally, daily measurements are preferred, as this provides a reliable estimate of the annual flux. To develop a model to simulate GHG fluxes from site to a global scale there is the need for the following data: (1) climate data, (2) soil info and (3) forest area info. It became clear from simulations that there are hotspots in Rwanda and the Democratic Republic of the Congo, however, these are uncertain and an uncertainty assessment is needed. A final discussion point was to determine the quickest way to remedy the undersampling in Africa. For this, pan-African soil cores can be seen as just a 'bandaid'. There is a need for trained people who can run small laboratories backup up by random field testing.

Ralf Kiese, Mt. Kilimanjaro: A case study on the biogeochemistry of different natural and agricultural uses of tropical mountain ecosystems – December 11th 2019 @ Africamuseum CAPA-building

Dr. Kiese is head of the 'Ecosystem Matter Fluxes' research group at the Institute of Meteorology and Climate Research – Atmospheric Environmental Research of the Karlsruhe Institute of Technology. His research focuses on the feedback of environmental changes on terrestrial ecosystems and the exchange of trace substances N2O, NOx, CH4 and CO2 between biosphere, hydrosphere and atmosphere. Other research interests are the measuring and modelling of C and N turnover and associated matter fluxes in natural and managed ecosystems at site and landscape scale, and the development and calibration of complex biogeochemical models.

Dr. Kiese's project focusses on assessing the influence of climate and anthropogenic disturbance on geochemical fluxes. His research is based on 60 sites of 0.5 to 1 ha, in 12 different ecosystems. Local labs with accommodation and logistic infrastructure are linked to these study sites. The following data is gathered: daily temperature, daily rainfall, soil descriptions, vegetation descriptions, plant trait descriptions, fauna inventories…Furthermore, there is a focus on linking nutrient cycles, land use and biodiversity along an altitudinal gradient at Mount Kilimanjaro. A possible correlation between microbial biomass and ammonification was investigated. Another topic in the presentation by Dr. Kiese are the soil GHGs emissions. These were determined via in situ manual chamber measurements. It appears that forests at higher elevations have larger N_2O fluxes compared to lowland forests or agricultural lands. CH_4 is present almost as much in highland forests as in temperate forests. Finally, soil water has high amounts of NO_3. In conclusion of the presentation, the

investigated soils can be considered as net sources of N_2O and net sinks of CH_4. Soil cores incubation and in situ measurements show similar results.

Aida Cuní Sanchez, Tree diversity, structure and biomass of 35 tropical mountain forests in Africa – December 16th 2019 @ Africamuseum CAPA-building

Dr. Cuní Sanchez is a research associate at the University of York at the Department of Environment & Geography and at Colorado State University at the Department of Ecosystem Science & Sustainability. She has done a lot of fieldwork in various Biosphere Reserves in Africa, focusing on research in tropical forest ecology, carbon stocks, ethnobotany, forest conservation and forest use by local communities. Her research combines natural and social sciences: currently she works on a project that assesses ecosystem services, threats and potential management strategies for African mountain forests.

Dr. Cuní Sanchez stressed the importance of CO_2 for global temperatures. Tropical forests only take up 10% of land area but contain 40 to 50% of Biomass carbon. These forests are cycling large amounts of carbon and droughts in the Amazon have led to a loss of carbon. As such, it is important to reduce deforestation. Tropical mountain forests are characterized by having shorter trees and fewer large trees. There is also less diversity but they have more individuals, which is often related to multi-stemmed trees. The Aboveground Biomass (AGB) can be determined using different methods:

(1) Sky / not on the ground
    a. LiDAR
    b. Satellite remote sensing
(2) On the ground
    a. Destructive measurements
    b. Allometric equations
    c. Terrestrial LiDAR

For on the ground measurements, the correct plot set-up is crucial. There are different ways to set-up a plot: random, in transects, stratified…each with potential sizes and shapes. For the tree measurements themselves is important to determine the diameter at 1.3 m with tape and the height via a laser in clinometer. Of course the species has to be identified correctly.

In Kenya, there is a pronounced impact of the altitude and the distance to the ocean. The isolated mountains/volcanoes are warmer so vegetation can appear at higher altitudes; this is called the telescopic effect. In Congo, in the Kahuzi National Park, 1 mountain was chosen as the study site and there were 30 plots of 1 ha. They found that the biomass varied across forest types and that there were no patterns with increasing altitude. Dr. Cuní Sanchez also noted the AfroMont plot database, which contains 191 plots in 42 sites in 12 African countries. Using measurements from this plot database, it became clear that biomass is very varied and there is no relationship with taxonomical variables. The biomass did increase with temperature, seasonality and mean annual precipitation.

Future climate changes, and especially a rise in temperature will lead to clouds/fog at higher altitudes. This is potentially good for Mountain forests. The response of these forests to the changing climate should be monitored through permanent sample plots.

A final point in Dr. Cuní Sanchez's presentation are Ecosystem Services. There are the benefits provided by ecosystems to humans that make life possible and worth living. There are three approaches towards their valuation: (1) ecological, (2) economical and (3) socio-cultural. Stakeholders' values depend on the social context, personal characteristics and interrelations with the Ecosystem Services. One aspect that might be overlooked as an Ecosystem Service is the option of shelter. Local communities need hiding during conflicts, and this is important not only in the DRC but also in Uganda and Cameroon. This is also why having open questions in an enquiry are important as 'shelter' is not a standard forest Ecosystem Service-value.

Jesús Aguirre Gutiérrez, Shifts in functional, taxonomic and phylogenetic diversity in West African tropical forests across time and climate gradients– December 17th 2019 @ Africamuseum onthaalpaviljoen

Dr. Gutiérrez is a postdoc researcher at the Environmental Change Institute of the University of Oxford, where he is involved with the Ecosystems research group. His research focuses on understanding the impact of environmental condition on the distribution of species at a local and a global level over time. At the Ecosystems Lab he investigates the relationship between plant functional trait diversity, climate, LiDAR derived vegetation structure, and the plants' spectral reflectance obtained from remote sensing data.

WORK PACKAGE 2 : Policy Briefs

We refer to the BELSPO and RMCA website for the lay-outed version of the policy briefs. You can also find these attached to this report.

Task 2.1. Policy brief: The rainforest biome of the Democratic Republic of the Congo: Legacy and opportunities in the Luki and Yangambi Biosphere reserves

The focus of this policy brief is primarily on the function of Man and Biosphere Reserves as living laboratories for climate change. This task is divided in two policy briefs: (1) Man and Biosphere Reserves and their research priorities in the DRC and (2) Creation of a new Man and Biosphere Reserve in the DRC.

Task 2.2. Policy brief: Timber identification: a portfolio of readily available methods

The focus of this policy brief is partly shifted towards the current forensic capacity in Belgium. Within this policy brief, an overview of the current most applied techniques is given as well.

Task 2.3. Policy brief: NDF of *Pericopsis elata* and *Dalbergia lemurica*: fostering sustainable forest management in the rainforest biome of the Democratic Republic of the Congo

The focus of this policy brief is on the status and pain points of Non-Detriment Findings. Two species cases are compared: (1) *Pericopsis elata* and (2) *Dalbergia lemurica* to show that the NDF process does not work the same in each case and it should be adjusted accordingly.

Task 2.4. Policy brief: Improve carbon management in the Democratic Republic, evidence from long-term research activities.

As in Task 2.1, this policy brief was merged into the policy brief concerning the Man and Biosphere Reserve. Furthermore, a new policy brief was prepared indicating the opportunities in the Democratic Republic of the Congo to create a new Man and Biosphere Reserve.

5. IMPACT AND ADDED VALUE OF THE VALORISATION ACTION

Projects as HERBAXYLAREDD and AFRIFORD have a substantial scientific output which can have a direct impact on rainforest ecology, management and conservation. However, the scientific field is prone to having a large gap between scientific communities and stakeholders. POLCARTIM's objective was to reconnect scientist and stakeholders and to allow policy makers to able to optimally use the scientific potential to strengthen their instruments.

The organized workshops can be considered as a success due to the large participation from both local actors as international scientists. The discussions on more effectively organizing field work were insightful and stressed that combining efforts is the only way forward. The seminar on timber identification allowed for a close discussion as well. It became clear that forensic timber identification needs to be more readily available and more accessible in Belgium. Both importers and governmental organizations are an asking party for this.

6. MEASURES TO MAINTAIN THE COLLABORATION(S)

The timber identification policy brief efforts allowed organizing the expertise on timber identification within Belgium. Meetings were set up between the different actors (see acknowledgements policy brief) and it was decided that close contact will be vital towards the fight against illegal timber imports in Belgium. The timber policy briefs on carbon storage, Man and Biosphere Reserves and the new Biosphere Reserve in the Democratic Republic of the Congo allowed renewing the contacts with WWF DRC and the Royal Museum for Central Africa. We also reached out towards several people from the FAO in Rome (REDD+ desk, Inge Jonckheere) and UNESCO in Kinshasa, as their expertise proved vital in transcribing the messages of the policy briefs. A final policy brief on the Non Detriment Findings will have a substantial impact on how this process is perceived and will become a point of discussion within CITES. However, translating field work observations and personal experience towards policy is key to optimize these processes.

Polcartim allowed for a substantially better visibility of the RMCA activities on carbon and timber in the Congo Basin. The project also strengthened the relevance of ongoing research in a context of international policy and forest conservation. Close contact is also kept with the several international visitors that were present for the different workshops.

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