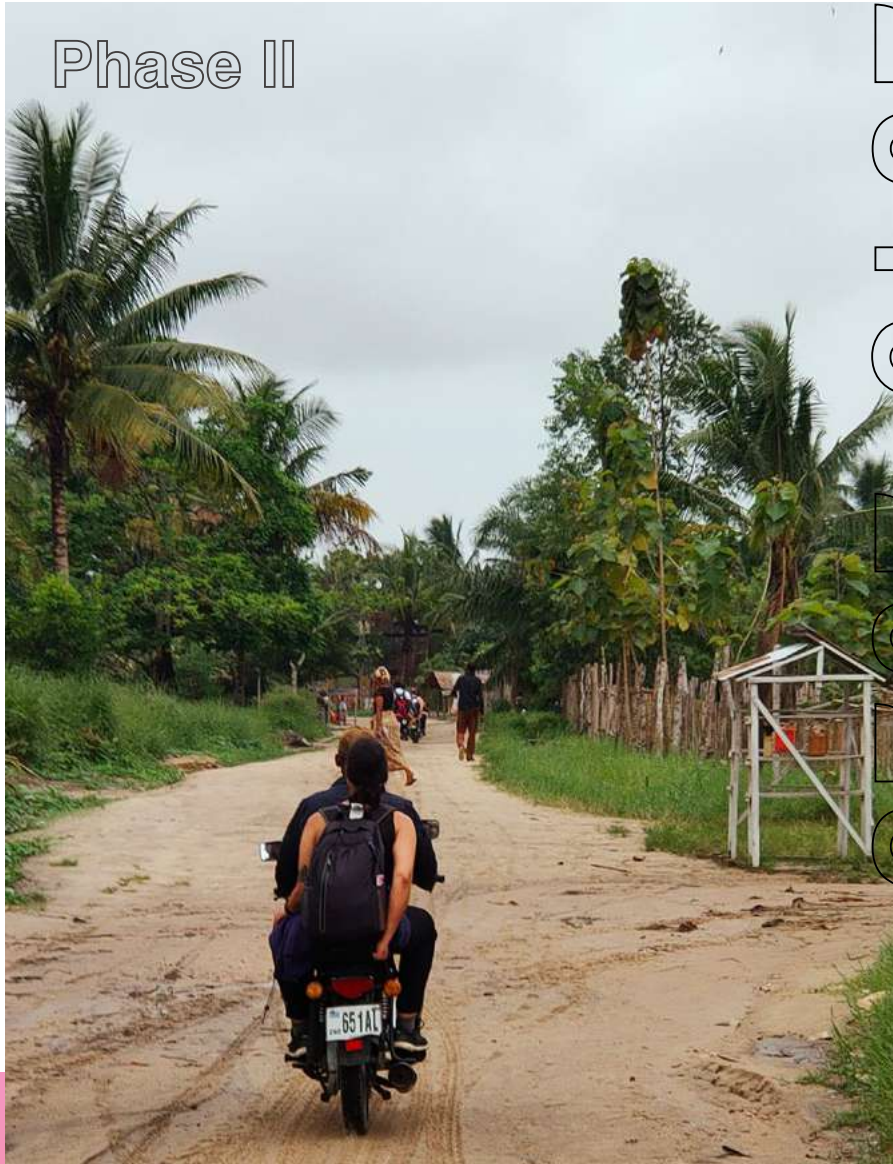


CEBioS^o

5-YEAR REPORT

DEC.
2024

Phase II



2019-2023



Belgique

partenaire du développement



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1. Editorial

What is CEBioS?

CEBioS – ‘Capacities for Biodiversity and Sustainable Development’ – is a programme financed by the Directorate-General for Development Cooperation (DGD) and housed at the Institute of Natural Sciences (RBINS, now called ‘Institute of Natural Sciences’), where it belongs to the Operational Directorate ‘Natural Environment’ and more specifically the BioPoIS group (Belgian Biodiversity Policy Support Group).

CEBioS supports partner countries of the Belgian Development Cooperation to implement the Convention on Biological Diversity (CBD) as well as other international agreements related to the sustainable use and conservation of biodiversity. This report presents success stories, highlights, testimonies and some facts and figures for the period 2019-2023 (= second phase of 10 year strategy 2014-2023).

How do we function?

CEBioS’ interventions aim at capacity building of civil servants (decision-making, policy) and scientists, as well as mainstreaming of biodiversity management, protection and awareness in the sector of development cooperation. The modalities to reach these aims are multiple. We organize (bi)- annual competitive calls, we cooperate with privileged institutions and we provide or facilitate trainings and workshops. The areas of interventions or capacity building range from increasing scientific and technical skills, communication skills, policy support for international environmental conventions, to promoting a better awareness of the biodiversity crisis and the possible solutions, such as e.g., a more integrated or holistic approach and nature-based solutions. Our theory of change can be consulted in the [5-year programme](#), pg. 74.

Structure of the document

CEBioS proposes to lead the reader through our highlights or success stories during these five years (2019-mid-2024) in a zooming-in fashion (global to local scale), starting with Policy Support and the Clearing House Mechanism, followed by Capacity Building to close the Taxonomy Impediment, Awareness raising, Searching for valid indicators (MRV) and Institutional Cooperation focused on Habitat Monitoring and the support of partner institutions in the 3 main priority countries i.e. Benin (UAC, IRHOB), Burundi (OBPE) and the Democratic Republic of the Congo (CSB). Then some thematic pages, the indicator tables and some Facts & Figures are presented.

Design of the programme

After a successful mid-term evaluation and audit of the first phase of 5 years spanning the period 2014-2018, the CEBioS programme was eager to implement the next 5 years, from 2019 until 2023. The present report intends to reflect the accomplishments of this second

phase within the broader context of the 10-year strategy of 2014-2023.

The first phase saw the development of new tools such as MRV (Measuring, Reporting, Verification), policy briefs and projects (e.g.,

EVAMAB financed by BELSPO), as well as the creation of the joint strategic frameworks. As culminating event we organized during the first phase the 2018 international Colloquium on biodiversity and development cooperation.

The second phase was a further consolidation and implementation of these tools and projects, the co-creation of the thematic joint strategic framework on the resilience of socio-ecological systems and its network SECORES, and saw the emergence of a multitude of outputs and outcomes thanks to the preparatory work of the first phase. The second phase was marked by two major events, being the 2022 summer school in Bujumbura (Burundi) and the 2023 2nd International Conference on Biodiversity of the Congo Basin in Kisangani, Democratic Republic of the Congo (DRC). Further, the second phase saw more administrative streamlining with the creation of a 'Vademecum'. Social media and newsletters became standard. And finally, many new synergies and interventions emerged through additional external projects.

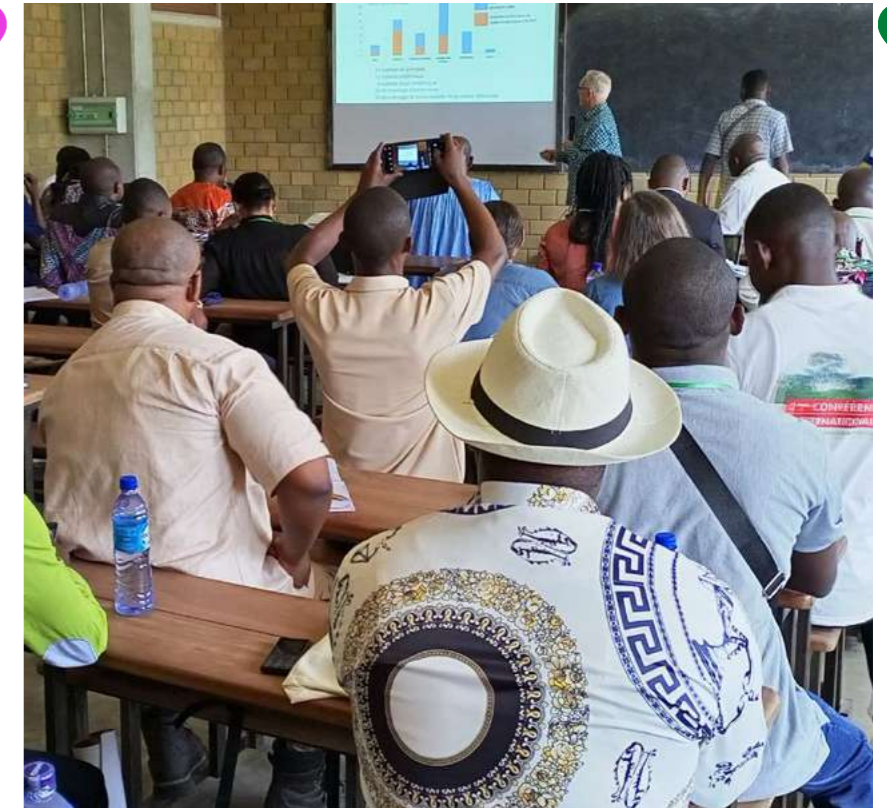
The year 2019 was a transition year from phase 1 to phase 2. The planning of the new phase was done in a participative way with the support of a consultant, aiming to translate the recommendations of the evaluation. One of the biggest challenges was the reduction of 6 to 4 strategic objectives and the formulation of new indicators. This resulted in a first step into the formulation of about 120 indicators spread over the 4 new strategic objectives (SO), the 4 'expected results' (called 'Results') and the corresponding activities. The 4 SOs reflected our target publics, being SO1 for academics and researchers, SO2 for so-called implementing agencies in the framework of

nature conservation, SO3 for the Ministries of Environment and SO4 for other actors of development and external projects with their synergies and complementarities. The Results reflected our working modalities, being R1= Capacity development, R2= Clearing House Mechanism, R3= Measuring, Reporting and Verification and R4= Awareness.

This new logframe served for the implementation of the year 2019, on condition of further revision during the next years. Due to the concurrence of general elections, combined with the appearance of the Covid pandemics in 2019-2021, proved to be a very difficult period. Along with a delay in the start of activities and the first lock-downs which posed a real threat to our way of working with mobility of staff and partners, the years 2019 and 2020 stood apart in their annual logic, compared with the next 3 years which were multi-annual in their design.

Despite this 'perfect storm', the 2019 report reflected a new dynamics towards the future with its 112 pages and its myriad of interesting interventions. After further revision with an external consultant, CEBioS developed a new logframe with the same 4 strategic objectives, but with only 40 indicators. This more slender version of the new multi-annual programme 2021-2023 made us fit to implement our capacity building activities. As a consequence the next 4 annual reports of about 50 pages were more concise and easier to read. The 5 annual reports can be consulted [here](#).

The impact and outcomes of CEBioS' work receive special attention in the present document, since the annual reports mainly reported on the activity and output indicators.



- CHM training, Institute of Natural Sciences, Brussels, 2019
- 2nd International Conference on Biodiversity of the Congo Basin, Kisangani, DRC 2023
- Rusizi river
- Summer School in Bujumbura, excursion to the Rusizi delta. Burundi, 2022

An enthusiastic and professional team



CEBioS science officer on the road, Benin, 2023

In 2017-2020, several collaborators left after many years of excellent service to CEBioS, for a statutory job in the public or private sector. CEBioS would like to express special thanks to Mariam AGARAD and Yassine LOUFA (secretariat), Marie-Lucie SUSINI-ONDAFE, Katrijn BAETENS, Jolien VENNEMAN and Maarten

VANHOVE (science officers) for their unabated involvement in the first phase of 2014-2018 and/or the beginning of the second phase. They all left their lasting impact on the programme and greatly contributed to its growth and development (e.g., respectively GTI, BioBridge, websites, MRV, etc...).



During the second phase (2019-2023), some new turn-over took place as well, with Lucie ONGENA, Esther ROEX (secretariat) and Matthieu TAYMANS (science officer), all in support of CEBioS. Here again, CEBioS acknowledges their dedication (e.g., marine modelling, summer school in Burundi, videos, lay-out of Highlights etc...).

And finally, the team saw at the end of 2023 two retirements of science officers, Hilde KEUNEN and François MUHASHY, who, together with the retirement of senior researcher Erik VERHEYEN (RBINS, external collaborator) left a strong track record in the work of CEBioS (MRV, Connect, support to CSB, policy briefs, Habitat monitoring, lexica to name a few).

The present team, anno 2024, is composed of 9 staff members, being (left to right, top to bottom): Vincent PINTON (accountancy), Tania d'HAIJÈRE (science officer), LUC JANSSENS DE BISTHOVEN (coordinator), Alice VANDOMMELE (secretariat), Han DE KOEIJER (science officer), Kristien VRANCKEN (graphist), Pierre HUYBRECHTS (science officer), Thomas WOUTERS (science officer) and Anne-Julie ROCHETTE (science officer).

Photo: T. HUBIN for the Institute of Natural Sciences

2. Policy Support

[Impact (for society)]

During the first phase (2014-2018), CEBioS participated in 3 different Conferences of the Parties (COP) of the Convention on Biological Diversity (CBD) (South Korea, Mexico, Egypt). In the second phase (2019-2023), only one COP was organised due to the Covid Pandemic. This COP15 was divided in several parts, with a first online High-Level part in Kunming (China, 2021) and a second physical part in Montreal (2022). CEBioS was present in Montreal as negotiator for several items and with a side event together with UNESCO-MAB.

Through training and financial support to participate to the CBD meetings for Burundi and DRC, CEBioS supported and generated more self-confidence in our partner countries in these international negotiations for a better conservation and management of biodiversity. We observed a much more proactive participation of the focal points and their ministers in these meetings.

Further, CEBioS participated with 3 staff members at the preparatory conferences (SBSTTA and SBI, Vilm, OEWG etc) for COP16 during the Belgian Presidency as well. Therefore, CEBioS believes it made a mark on capacity building and development with the Global South through these

interventions at a global UN level and for the new Global Biodiversity Framework of the CBD in the name of Belgium.

Facilitation by CEBioS allowed Niger to access a new BIOFIN project (GEF) which will support its biodiversity implementation projects.

Before the general elections in the Netherlands, the CEBioS programme as a model of cooperation on biodiversity, got a lot of interest from a consortium of NGOs and a political party. They wanted to explore whether this could be done in their country as well.

CEBioS is mentioned in *Pathways to Sustainable Development - First Belgian National Voluntary Review on the Implementation of the 2030 Agenda*.

CEBioS is described in the OECD publication "Mainstreaming Biodiversity for Sustainable Development".

CEBioS is part of EU Biodiversity Strategy, Target 6, 'Action 18', as mentioned here on the [EU Biodiversity Strategy page](#).



[Outcomes (for stakeholders)]

During 2019-2023, CEBioS saw an increase of policy support activities.

- CEBioS reached an international audience at the UNGA-76.
- The national CHMs of several partner countries got a re-boost with the migration to the new CMS 'Bioland', thanks to the continuous technical assistance by CEBioS.
- CEBioS became active member of [EDUCAID platform](#), and contributed to the environmental awareness within the sector of education in Belgium.
- CEBioS was consulted by the Belgian Development Bank 'BIO' to finetune their new strategy.

The Covid pandemics, a threat and an opportunity



The CEBioS programme was taken by surprise by the full-blown pandemics of end 2019-2020-2021. It created worldwide lock downs, seriously impeding one of the biggest assets of the programme: North-South-South mobility. Despite this, we at CEBioS saw an opportunity to pinpoint the link between Covid and the increase of wildlife-zoonose contacts, due to decrease of biodiversity (deforestation). Next to the production of an informal summary of all possible links between CEBioS and the 'One Health' concept, we were honoured to be invited to participate in two scientific papers published in Cities & Health and in Sustainability Science.

Further, the [UNEP report on zoonoses](#): Preventing the next pandemic - Zoonotic diseases and how to break the chain of transmission, was co-reviewed by CEBioS with the facilitation of Belgian UNEP representation in Nairobi.

CEBioS part of Belgian delegation to the COPs and the Belgian Presidency

CEBioS & UNESCO held a side-event during [COP15](#) (2022). First, we presented a sample of best practices and lessons learnt from 10 years of Capacity Development in Africa, with some examples about the [Global Taxonomy Initiative](#), Measuring-Reporting-Verification (MRV), [Awareness raising](#), Habitat Monitoring and the [Clearing House Mechanism](#). All this also fitted into our efforts to mainstream Biodiversity into the realm of Development Cooperation and Sustainable Development Goals.

A second part was devoted to the presentation of a new practical manual on ecosystem services assessment in African Biosphere reserves: the 'EVAMAB' 3-year project was financed by the Belgian Science Policy (BELSPO) and coordinated/implemented by CEBioS and a consortium of Belgian and African Universities.

CEBioS supports NBSAPs of partner countries

Testimony from Burundi

“Allow me to thank you, on behalf of the Burundi NBSAP update team, for your invaluable contributions to the formulation of our national targets, as well as to capacity building on the ORT tool for online submission of our targets. Your mission was of great importance to us, as the capacity building we received contributed

greatly to the smooth submission of our national targets in line with the Kunming-Montreal global biodiversity framework. We are grateful for the multifaceted support provided by the CEBioS programme to Burundi for the conservation and sustainable management of biodiversity.”

OBPE, July 2024 (translated)

Supporting the Convention on Biological Diversity and its information network - the Clearing House Mechanism (CHM)

Related to the CBD secretariat, Han DE KOEIJER was selected as expert in 4 Informal Advisory Committees and participated in the Open-Ended Working Group on the post-2020 Global Biodiversity Framework in Rome (2020). See also [IISD](#) information. He was a member of the Jury of the CHM-Award for COP15 and COP16.




Convention on
Biological Diversity

Table 1. CHM interventions in 2019-2023


| CHM calls for projects SO3 | | |
|---|---|--|
| Year | Countries projects selected | |
| 2019 | Côte d'Ivoire, Morocco, Niger, Uganda | |
| 2020 | Burundi, DRC, Guinea, Morocco/Niger-Chad, Niger, Rwanda, Togo | |
| 2021 | Benin, Burkina Faso, Côte d'Ivoire, DRC, Niger | |
| 2022-2023 | Benin, Burundi-RCA, Ghana, Guinea, Kenya, Morocco, Palestine State, Togo, | |
| Regional Meetings | | |
| Year | Place | Participating countries |
| 2021 | Niger | Benin, Burundi, Burkina Faso, Côte D'Ivoire, DRC, Guinea, Niger, Togo, Belgium |
| 2022 | Burundi | Francophone: Benin, Burundi, Burkina Faso, Côte D'Ivoire, DRC, Guinea, Niger, Togo, Belgium Anglophone: Kenya, Tanzania, Palestine State, |
| 2023 | Belgium | Benin, Burundi, Burkina Faso, Côte D'Ivoire, DRC, Guinea, Morocco, Niger, Togo, Belgium |
| National training workshops | | |
| Year | Place | Participating countries |
| 2022 | Jordan | Palestine State, Jordan, Yemen, Lebanon |
| 2021 | Call instead of training due to COVID | Benin, DRC, Niger |
| Bioland training | | |
| 2020 | Call due to COVID and cancelling regional training Benin | Benin, Burkina Faso, Guinea |
| 2023 | Joint project South-South | Burundi - RCA |
| 2023 | Training | Morocco |
| Participation of partners in CBD meetings | | |
| Year | Place | Participating countries |
| 2022 | OEWG3, SBI3 and SBSTTA-24 | Burundi |
| 2022 | COP15 | Burundi, Morocco |
| 2023 | SBSTTA-25, SBI-4, SBSTTA-26 | Burundi |
| Training with external funding | | |
| Year | Place | Participating countries |
| 2019 | Bioland and GBIF training in Belgium, funded by GBIF | Benin, Burundi, Burkina Faso, Côte D'Ivoire, DRC, Guinea, Guinea Bissau, Morocco, Niger, Togo, Belgium |
| 2023 | Regional training for CBD negotiators in Dominican Republic; Funded by MNHN | Bahamas, Barbados, Cuba, Haiti, Jamaica, Dominican Republic, Saint Kitt, Trinidad |
| 2023 | Regional training for CBD negotiators in Malaysia; Funded by MNHN | Indonesia, Malaysia, Philippines, Singapore |
| 2023 | Regional training for CBD negotiators in Hungary; Funded by CO-OP4CBD | Armenia, Bosnia Herzegovina, Estonia, Georgia, Hungary, Kosovo, Moldova, North Macedonia, Poland, Serbia, Slovakia, Ukraine |



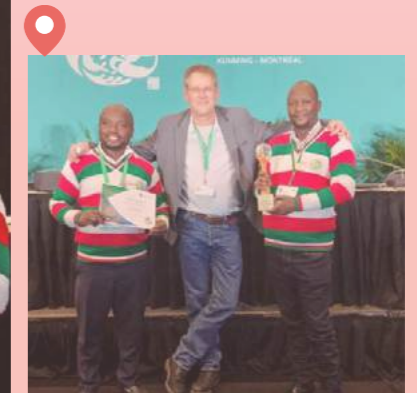
CEBioS and partners also published a critical appraisal about the efficiency of the Clearing House Mechanism (CHM) in Africa, based on a regional workshop in Niger .



CHM award for Bioland

During COP15 the CHM award for Bioland  sites for the second place was awarded to both Burundi and Belgium! Burundi was the only developing coun-

try that won a price. The institutional co-operation that we did with Burundi on the CHM has born fruits.



Cooperation for the Convention on Biological Diversity – CO-OP4CBD

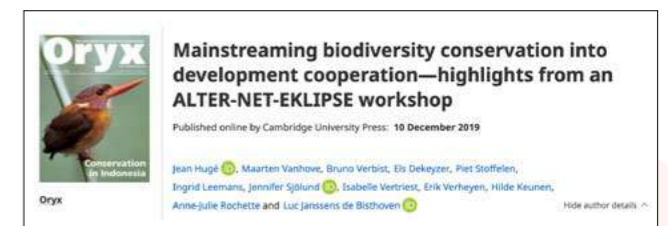
CO-OP4CBD will enhance coordination within the European Union (EU) in advancing the implementation of the Convention of Biological Diversity by harnessing effectively the knowledge of EU experts. CEBioS and the National Focal Point CBD at RBINS are caring for the Clearing House Mechanism capacity building sub-work package.



An anthropology of global climate urgency – C-URGE

CEBioS is associated since 2023 with the KU Leuven EU project [C-Urge](#) of Prof. K. PYPE to act as a secondment site for a Canadian PhD-student in social anthropology: she will conduct a critical anthropological appraisal of the 'aftermath' of a large UN project on coastal mangroves in Tanzania. CEBioS was instrumental in providing the necessary contacts and background on biodiversity issues.

CEBioS organized in 2019 a workshop at the ALTER-NET-EKLIPSE event in Gent and published the findings in 'Conservation News' in the Journal *Oryx*.





The Congo river, DRC, 2023

2nd International Conference on the biodiversity of the Congo Basin

The successful involvement of local and regional stakeholders in the 2014 conference, primarily funded by Belgium, attracted international interest for a second edition. In collaboration with the CSB (UNIKIS), and the financial support of the Belgian Development Cooperation, the 2023 conference addressed urgent challenges like emerging zoonotic epidemics, climate change, deforestation, biodiversity loss, and demographic growth.



Cover of the Conference report

345 scientific abstracts, 12 keynote speakers, more than 70 scientific oral presentations in 20 parallel sessions, and more than 60 scientific posters helped to feed the discussions, with a focus on trying to mobilise and translate into adequate policy measures novel science-based solutions. The conference attracted over 280 participants from 15 countries and featured over 100 different organizations committed to the conservation of the Congo Basin.

The conference aimed to (1) enhance awareness among (inter)national and provincial political authorities to protect the Congo Basin's unique ecosystem amid rising demographic and economic pressures, (2) strengthen the existing local and international networks among scientists, civil society, and policymakers, (3) better link climate-biodiversity and health research, and (4) promote public access to data on renewable resource exploitation for local authorities.



The Congolese media extensively reported on the conference, coordinated by the CIFOR-ICRAF press center, resulting in over 70 publications. Additionally, the event received attention from the Belgian press and was noted by international conservation organizations, including the IUCN in its [CEESP Commission](#).



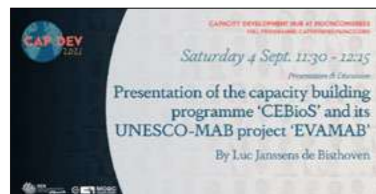
Being member of the academic college of the Congo Basin Forest Partnership (CBFP), CEBioS and the Centre de Surveillance de la Biodiversité (CSB) were involved in the CBFP COP in Kinshasa. In 2022, the Conference was also announced by the [CBFP itself](#).



There was also an echo on Radio Okapi, one of the most prominent congolese media.

IUCN World Congress

CEBioS participated to the [IUCN World congress](#) in Marseille (France, Sept. 2021) through a side event on Capacity Development (CAP DEV).



The Natural History collections collected in Central Africa by Belgian institutions - CANATHIST

CEBioS, within the Institute of Natural Sciences, is associated with the BELSPO-funded Project [Canathist](#). The collections of the Institute of Natural Sciences (RBINS), the AfricaMuseum (RMCA) and the federal collection of Meise Botanic Garden (MBG) form together the richest collection related to Central Africa due to the colonial history of Belgium. The collections of the Institute of Natural Sciences and the AfricaMuseum are moreover concerned by the law (loi du 3 juillet 2022) concerning the process of restitution of colonial collections and the draft bilateral agreement between Belgium and the DRC. CEBioS acts as facilitator and capacity builder to implement the project with the partners in Africa.



Contribution to the United Nation General Assembly 76



CEBioS made a contribution to the United Nation General Assembly 76, [UNGA76](#) with a presentation of the capacity building programme for an online worldwide audience of >170 experts.

CEBioS and IPBES

CEBioS contributed, based on our EVAMAB expertise, to the revision of the Belgian position on the summary of assessments of valuation of ecosystem services and sustainable use of wildlife for IPBES-9 in Bonn (July 2022).

CEBioS involved in many networks and cooperation schemes.

CEBioS is member of different university networks:

- the UGent network for the promotion of research in Central Africa: [CAFRINAT](#)
- several initiatives of the UHasselt:
 - [WASP Project](#)
 - [ICA-IUCN on parasites](#)
- CEBioS is associated with the new [FEDtWIN](#) of the Institute of Natural Sciences & UHasselt: Afrowetmab

Niger gets BIOFIN- facilitation by CEBioS

The National Environment Council for Sustainable Development (CNEDD) of Niger, supported by the CEBioS programme, submitted early 2021 a first proposal to the Embassy of Belgium in Niamey in order to mobilize funding for the launch of the first activities of the [BIOFIN](#) methodology. Considering the relevance of a national financing plan for Niger. Due to the multiple challenges the country is facing, CNEDD and the Embassy of Belgium suggested to broaden the scope of this initial proposal. This new proposal aims to integrate Niger as a full member of the BIOFIN community, to support the design of a national biodiversity finance plan and the implementation of the first prioritized Finance Solutions.



CEBioS regional CHM workshop, Niger, 2021

Summer school in Burundi (continued)

OBPE produced a dissemination [video](#) on the national CHM of Burundi about the summer school in Kirundi.



All photos taken at the 2022 'CEBioS Summer School' in Bujumbura, Burundi






Support to close the Taxonomy impediment: Global Taxonomy Initiative (GTI)

The taxonomic impediment is the lack of experts and resources necessary to accurately identify, classify, and study biodiversity. This gap limits the ability to understand species and ecosystems, making it harder to protect and conserve them effectively.

Institute of Natural Sciences and implemented by a staff member of CEBioS, aims to develop and enhance taxonomic and curatorial expertise. It also seeks to broaden the scientific knowledge base on biodiversity and ecosystem services and improve access to scientific literature, databases, and collections.

The Belgian National Focal Point (NFP) to the Global Taxonomy Initiative (GTI), hosted at the

Key numbers during 2019-2023

| | |
|--|---|
|  92 scientific publications were published based on research supported by the GTI | |
|  with 556 citations in total |  8 PhD theses |
|  5 poster presentations |  1 book published |

Short term scholarships

The GTI Scholarships fund short-term research stays (up to 5 weeks) of individual master or doctoral degree students or scientists from eligible partner countries at a Belgian center of taxonomic expertise, like the Institute of Natural Sciences.

Key numbers

During 2019-2023, **30** researchers from Benin, Rwanda, DRC, Morocco, Vietnam, Ivory Coast, Tanzania, Burundi, Togo and Niger came to Belgium for a short term internship. (See table 2)

Three examples of GTI trainees

1. Onesphore MASABO (Burundi):

“Tous ces outils et connaissances acquises concourent à la bonne organisation et gestion des collections des espèces et à l'amélioration de nos capacités de l'OBPE en matière de taxonomie. Ces documents reçus en don sont des outils de support importants pour les recherches et l'identification des espèces ainsi que pour les travaux de éducation et de travaux de stagiaires au sein de l'OBPE.”



2. Angèle Soro (Ivory Coast, grant obtained in 2020, 2021 and 2023) :

“A l'aide de la collection d'abeille du RBINS, je vais pouvoir construire un système de protection et de conservation. Je vais me concentrer sur les abeilles Melipolini car leur fabrication de miel est indispensable pour les chimpanzés.”

CONTEXTE
Le chimpanzé est une espèce menacée selon l'UICN. Bien qu'il soit omnivore, les fruits constituent la principale composante alimentaire de ce primate. Cependant, dans le parc de la Comoé, des études antérieures ont montré que la consommation de miel est une activité intense chez le chimpanzé pendant la saison sèche, lorsque les fruits sont rares. Notre étude vise à évaluer la diversité des abeilles sociales arboricoles productrices de miel consommées par les chimpanzés dans le parc national de la Comoé.

METHODES
- Établissement de 36 quadrats d'un hectare dans l'île forestière mature, l'île forestière secondaire et la forêt galerie.
- Recherches visuelles des nids d'abeilles sur tous les arbres des quadrats.
- Capture de quelques individus d'abeilles à l'intérieur des nids pour l'identification.
- Nids trouvés avec présence d'outils considérés comme exploités par les chimpanzés (Figure 1).

RÉSULTATS
RICHESSSE SPÉCIFIQUE DES ABEEILES ARBORICOLES
Cinq espèces d'abeilles, appartenant à la famille des Apidae, productrices de miel consommé par les chimpanzés du Parc National de la Comoé (Figure 2).

| Type d'habitat | Richesse spécifique | Indice de diversité | Équitabilité | Abondance des nids |
|----------------|---------------------|---------------------|--------------|--------------------|
| FM | 5 | 0,76 | 0,81 | 67 |
| FS | 5 | 0,56 | 0,62 | 30 |
| FG | 5 | 0,73 | 0,84 | 17 |

430 individus capturés, 100 individus identifiés, 10 nids exploités.

ABONDANCE DES NIDS D'ABEEILES EXPLOITES PAR LES CHIMPANZES
114 nids ont été enregistrés dans tous les habitats étudiés. 26 nids ont été trouvés avec des outils d'exploitation du miel utilisés par les chimpanzés (Figure 3).


CONCLUSION
Les abeilles sont importantes pour la conservation des chimpanzés. En effet, en plus de contribuer à la pollinisation des plantes qui produisent les fruits essentiels pour ces primates, elles produisent du miel source d'énergie pour eux, en période de grande sécheresse dans le parc national de la Comoé.




- Maryam AZIRAR (Morocco, grant obtained in 2019 and 2021):

“La bourse m’a permis d’avoir une capacité d’identification des espèces souterraines ainsi que de réaliser une comparaison entre la faune aquatique des deux bassins versant de Sud-Est de Maroc.”

Capacity development projects

 **19 projects** in 6 partner countries by Belgian taxonomists

 **250** researchers trained


 **32%** of whom were women (See table 3)

GTI Capacity Development Grants fund taxonomic research projects by Belgian scientists in partner countries, specifically targeting taxonomic groups that are crucial for ecosystem functioning and the provision of ecosystem services, while also developing local taxonomic and curatorial knowledge and/or skills.

Training on scientific publications

CEBioS and the AfricaMuseum joined their forces to organise seminars for the GTI Short-term Scholarship trainees on the writing of a scientific article. Just like writing a thesis, an essay or any other work, writing an article follows rules based on the habits and standards of the scientific discipline concerned.

The seminars were meant to be a quick introduction: they offer general reminders and propose tracks and links which were then deepened by each participant according to his/her thematic.

Two seminars were held in 2022 and 2023 at the Institute of Natural Sciences. 


The seminars were given by Mrs. Isabelle GÉRARD of the AfricaMuseum, at the Institute of Natural Sciences.



Appolinaire GOUSSANOU (Benin):

“La formation sur les pratiques correctes en taxonomie (rédaction d’articles scientifiques) [...] a permis de passer en revue les bases primordiales pour une publication scientifique et le choix des revues selon les domaines et les thématiques.”


Strengthening molecular research capacities: DNA barcoding workshops in Benin and Morocco

In 2022, two workshops on taxonomy, DNA barcoding and molecular phylogeny were organized in Benin and Morocco , gathering 51 young researchers from 12 African countries. Trainers were experts from France, Belgium and Morocco. The workshops, held in Parakou (Benin) and Rabat (Morocco), were designed to equip early-career African scientists, including GTI alumni, with theoretical

and practical knowledge in taxonomy, DNA barcoding, molecular biology, and phylogenetic analyses. These workshops aimed to foster inter-African scientific collaboration and showcase the availability of advanced laboratory infrastructure across Africa. They also aimed to reinforce participants’ research autonomy and prepare them for potential GTI internships.” (See table 3)

Building ant taxonomy expertise in East Africa: a three-year training initiative in Rwanda

From 2021 to 2023, three successive ant taxonomy workshops were organized in Rwanda by CEBioS, RBINS, the Center of Excellence in Biodiversity and Natural Resource Management (CoEB), and African Parks, aimed at addressing the limited knowledge of ant biodiversity in the region. These social insects have an important ecological role in terrestrial ecosystems. The first workshop in 2021 focused on training 11 young scientists from Rwanda, Kenya, and the Democratic Republic of Congo in ant collection, identification, and taxonomy within Nyungwe National Park’s tropical rainforest. It was followed up by a second workshop in 2022, which expanded participants’ skills through

field work in Akagera National Park’s savanna ecosystem. Young scientists from Tanzania and Uganda were added as participants to this training. The third workshop in 2023 consolidated previous trainings and prepared participants to become trainers in ant taxonomy across East Africa. Collectively, these workshops added 240 new country records of ants, bringing the total to 310 ant species for the country. This became the foundation for further species revisions and research, for a better knowledge of biodiversity in the region.  Photo Kiko GOMEZ)

Camponotus acvapimensis, photo by LALANNE L. (RBINS)





Vietnam, a champion for insect biodiversity:
A win-win commitment



Exploring freshwater crustaceans in Benin

Two projects were implemented to conduct a comprehensive inventory of Crustacea Decapoda in Benin (crabs, shrimps, lobsters, hermit crabs), an important group in terms of biomass and diversity indicator, and also important for human consumption. In 2022 the project focused on coastal, lagoon and freshwater environments, training local teams in collection techniques and establishing a taxonomic reference collection at the University of Abomey-Calavi. Despite challenges like flood-

ing, a significant discovery was made: a taxonomic problematic freshwater crab was identified, which needs further research. Building on this foundation, in 2023, the project concentrated more on Benin's freshwater ecosystems, although security issues prevented exploration in the northern regions. The results will be published in a scientific publication.

"Projects like these allow us to meet and carry out joint field expeditions, work in the local herbarium/lab, train people, synchronise methods, detect technical problems and find solutions."
Mario AMALFI (MBG), tutor of the project on polypore fungi in Benin.

"This GTI project was a great success again: the abundant material collected during the expedition will lead to the publication of numerous new insect taxa (new species but also new genera) and the collaboration between the Belgian and Vietnamese staff goes on very well. The presentation of the policy brief at the [...] Congress has motivated colleagues from other countries (Philippines, Australia) to try and produce similar material for communication towards the authorities. The video about this GTI project (Expedition Chu Yang Sin) led to positive feedbacks in Belgium and abroad [...]. The exploration of new locations situated in the Annamite Mountains suggested an insect species diversity even higher than we had estimated."

Jérôme CONSTANT (RBINS), tutor of the project "A step further in the Entomodiversity of Vietnam". (Page 28: Policy brief 'Vietnam, a champion for insect biodiversity: a win-win commitment')



Abc Taxa

Abc Taxa focuses on the publishing of taxonomic guidebooks, each book dealing with the biology of a particular taxon and written by experts in the field. The publications are provided free of charge to researchers and institutions in the South with the intent of further bridging the Taxonomic impediment gap.

In the period 2019-2023, 1360 volumes of earlier publications were sent out to recipients in a total of 34 countries, 22 of which were in the Global South. 6 new volumes were published, 1265 copies of these volumes have been sent out so far. We were also able to support the presentation of Abc Taxa at the International Congress of Zoology in Durban, South Africa, by a local researcher, Jennifer OLBERS.

The series and its publications have received positive feedback:

- Bissau BUCAR INDJAI, INEP, Guinea-Bissau, about the Abc Taxa series in e-mail correspondence:

"I congratulate you for the important work and initiative you are developing on the conservation of biological diversity, in this particular case of flora. Because for conservation to be successful, we must first know what existed in the past and we have it today in our forests and cities. In the particular case of Guinea-Bissau with more than 26% of the national territory decreed as protected areas, we still have a great lack of well-trained professionals to face the challenges of conserving our forests."

- Guillaume GHISBAIN and Denis MICHEZ in: The Bumblebees of the Himalaya – An Identification Guide, by Paul H. WILLIAMS. *Journal of Hymenoptera Research* 93: 215–221.

"Overall, the book *The Bumblebees of the Himalaya – An Identification Guide* is an essential contribution to its field. It properly serves its role to document and help in the identifi-

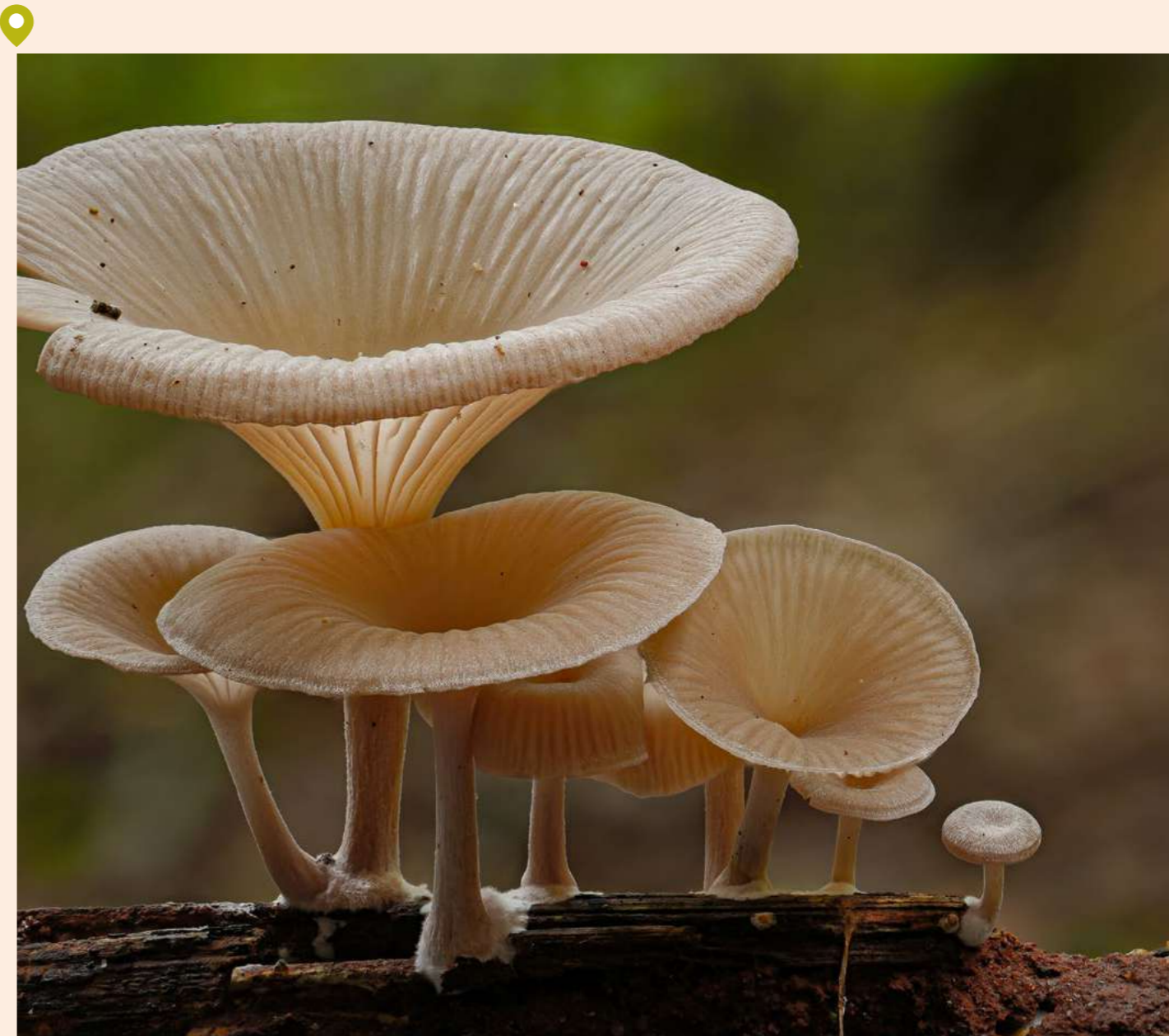
cation of the strikingly diverse fauna of the Himalaya. Although we regret some short-cuts in the introduction (mostly about taxonomy and conservation), we are certain that the research that will be allowed thanks to this book in the near future will help better understand the remarkable ecology of this fauna."

New Abc Taxa, volume 24 on the edible fungi of West-Africa

Dr. André DE KESEL is a mycologist at MBG, with a special interest in the ectomycorrhizal fungi of Africa. He has been a valuable partner to the GTI programme and has been involved in both training visiting taxonomists, and local projects on the ground.

He has published three Abc Taxa guidebooks on fungi already, the most recent of which is *Champignons comestibles d'Afrique de l'Ouest* in 2024. Volume 24 was published in collaboration with GTI alumnus Abdoul-Azize BOUKARY and professor Nourou S. YOROU of the University of Parakou. 446 copies have been distributed. Poster presentations were given at the twelfth International Mycological Congress in Maastricht and the 19th International

FACULTÉ D'AGRONOMIE DE L'UNIVERSITÉ DE PARAKOU : Un groupe de quatre chercheurs béninois et belges sort un ouvrage sur les "champignons"



Trogia infundibuliformis, Bénin 2023. Photo A. DE KESEL

Symposium on Microbial Ecology in Cape Town, South Africa. A release ceremony in Parakou, Benin, received extensive media coverage such as articles by the local press group Daabaaru, in the agricultural journal Agratime and in the Parakou-based newspaper L'oeil du Benin.

"L'Abc Taxa 24 constitue en ce moment, notre meilleur guide d'identification des macromycètes sur le terrain pour nos travaux d'inventaires des espèces comestibles et d'ethnomycologie." – Abdoul-Azize BOUKARY, one of the authors.

Table 2. List of GTI interns selected for a short stay in Belgium during 2019-2024. (In French)

| NAME & Surname | Country | Research Institute / University | Project title | Tutor | Internship year | | |
|-------------------------------|---------------|--|---|---|-----------------|------|------|
| BADOU Akotchayé Sylvestre | Bénin | Université de Parakou | Taxonomie et phylogénie des genres Sutorius, Boletellus, Tylopilus et Gyroporus (Boletale, Basidiomycota, Fungi) du Bénin | André DE KESEL (MBG) | 2019* | | |
| NSENGIMANA Venuste | Rwanda | University of Rwanda | Use of soil and litter arthropods as biological indicators of soil quality in southern Rwanda | Wouter DEKONINCK (RBINS) | 2019* | | |
| KAMBALE Katembo Jean-Leon | RDC | Centre de Surveillance de la Biodiversité, Université de Kisangani | Distribution, diversité et taxonomie des caféiers sauvages (Coffea sp.) en RDC | Piet STOFFELEN (MBG) | 2019 | 2022 | |
| BAELO Pascal Likangalele | RDC | Université de Kisangani/ Centre de Surveillance de la Biodiversité | Taxonomie et dynamique des populations des Sciuridae (Rodentia, mammalia) potentiellement porteur des germes pathogènes à Kisangani (RDC) | Erik VERHEYEN (RBINS) | 2019 | 2022 | |
| BENYAHIA Yousra | Maroc | Université Chouaib Doukkali | Taxonomie des Hyménoptères de la sapinière du Parc National de Talassemtane (Rif, Maroc). | Wouter DEKONINCK (RBINS) | 2019* | | |
| KOUDENOUKPO Zinsou Cosme | Bénin | Université d'Abomey-Calavi | Taxonomie et systématique des Mollusques (Gastéropode) dulcicoles du Bénin. | Thierry BACKELJAU (RBINS) | 2019* | | |
| AZIRAR Maryam | Maroc | Université Moulay Ismail | Formation aux techniques moléculaires d'un modèle biologique (crustacés sténasellides) | Gontran Sonet (RBINS) | 2019 | 2021 | |
| BOUKARY Abdoul-Azize | Bénin | Université de Parakou | Stage de perfectionnement pour la domestication et production de quatre souches de champignons saprotrophes d'importance socio-économique au Bénin | André DE KESEL (MBG) | 2019 | 2021 | |
| HOTEKPO Sourou Joseph | Bénin | University of Abomey-Calavi | Taxonomy, systematics, water quality and use of ostracods (Crustacea, Ostracoda) in fish farming in Benin | Prof. Koen MARTENS & Prof. Isabelle SCHON (RBINS) | 2019* | 2021 | |
| NGUYEN Duc Anh | Vietnam | Institute of Ecology and Biological Resources | DNA barcodings of the Vietnamese soil invertebrates | Thierry BACKELJAU (RBINS) | 2019 | | |
| UMUNTUNUNDI Prosper | Rwanda | University of Rwanda | Semi-slugs and Slugs of Rwanda | Thierry BACKELJAU (RBINS) | 2019* | | |
| SORO Angèle Nicodénin | Côte d'Ivoire | Station d'Ecologie de Lamto | Building a bee reference collection for Côte d'Ivoire : Identification of bees collected in various ecosystems using the RBINS collection | Alain PAULY (RBINS) | 2020 | 2021 | 2023 |
| MPONDO Faith Thomas | Tanzanie | The Nelson Mandela African Institution of Science and Technology | The current status and role of Rangeland Insect Pollinators for Pastoralist Livelihood Diversification in Northern Tanzania | Alain PAULY (RBINS) | 2020 | | |
| SINZINKAYO Eugène | Burundi | OBPE | Etude des interrelations entre les Syrphidae (Insectes: Diptères) et les écosystèmes forestiers et agricoles du Burundi | Kurt JORDAENS (MRAC) | 2020 | 2021 | |
| PELEBE Edéya Orobiyi Rodrigue | Bénin | Université de Parakou | Sarotherodon melanotheron melanotheron ou une espèce cryptique isolée et plus abondante dans la retenue d'eau douce d'Atchakpa au centre du Bénin : apport du barcoding moléculaire | Erik VERHEYEN et Maarten VAN STEENBERGE (RBINS) | 2020 | 2021 | 2022 |
| GOUSSANOU Appolinaire | Bénin | Université d'Abomey-Calavi | Catalogue des crustacés décapodes du Bénin: diversité taxonomique, distribution géographique et services écosystémiques | Cedric D'UDEKEM D'ACOSZ (RBINS) | 2021 | 2022 | 2024 |
| OLOU Armel Boris | Bénin | University of Parakou | Diversity and taxonomic revision of the medicinal fungi of Ganoderma lucidum group from tropical Africa | Mario AMALFI (MBG) | 2021 | 2022 | 2023 |
| NIKIZA Alexis | Burundi | Office Burundais pour la Protection de l'Environnement (OBPE) | Dynamique des rongeurs au parc national de la Kibira et leur impact sur les agroécosystèmes riverains | Nicolas LAURENT (RBINS) | 2022 | | |
| TCHAN Issifou Kassim | Bénin | Université de Parakou | Identification et mise en culture des endomycorrhizes pour une agriculture durable au Bénin | Stéphane DECLERCK (UCL) | 2022 | 2023 | |
| AGLOBONON Thierry Matinkpon | Bénin | Université d'Abomey-Calavi | Taxonomie et catalogue des mollusques des milieux estuariens et lagunaires du Bénin | Thierry BACKELJAU (RBINS) | 2020 | 2023 | |
| SILUE Dolourou | Côte d'Ivoire | Université Nangui Abrogoua, Station d'Ecologie de Lamto | Identification et numérisation des fourmis indigènes et exotiques de la réserve du Haut-Bandama de Côte d'Ivoire | Wouter DEKONINCK (RBINS) | 2021 | 2023 | |
| GBENYEDJI Jean Norbert | Togo | Université de Lomé | Diversité et distribution des termites dans les aires protégées au Togo : cas de la Réserve de Faune de Fazao Malfakassa | Yves ROISIN (ULB) | 2023 | 2024 | |
| IRADUKUNDA Christella Suavis | Rwanda | University of Rwanda | Ground Ant diversity and Abundance in Nyagasenyi Remnant forest, Rwanda | Wouter DEKONINCK (RBINS) | 2021 | 2023 | 2023 |
| MAMANE SALE Noura | Niger | Université Abdou Moumouni | Utilisation des outils et techniques moléculaires (qPCR, RT-PCR et barcoding) pour l'identification taxonomique des rongeurs commensaux et de certains agents pathogènes qu'ils portent dans la ville de Niamey | Maarten VAN STEENBERGE et Sophie GRYSSEEL (RBINS) | 2023 | 2024 | |
| MANIZAN Ama Lethicia | Côte d'Ivoire | Université Nangui Abrogoua | Contrôle biologique des moisissures productrices d'aflatoxines: Exploration des isolats d'Aspergillus provenant de la région de Korhogo (Côte d'Ivoire). | Pierre BECKER (Sciensano) | 2023 | 2024 | |

| NAME & Surname | Country | Research Institute / University | Project title | Tutor | Internship year |
|---|---------|---|--|---------------------------|-----------------|
| KIRONGOZI Botelanyele Francine | RDC | Centre de Surveillance de la Biodiversité & Université de Kisangani | Etude taxonomique, Patrons de Distribution et Vulnérabilité géographique des Aspleniaceae d'Afrique Centrale (RDC – Rwanda – Burundi). | Timothee LE PECHONT (MBG) | 2023 |
| MASABO Onesphore, MBARUSHI-MANA Didier, NTAWUYANKIRA Régine | Burundi | OBPE | Etude de la diversité floristique des Poaceae et Rubiaceae des Parcs Nationaux de la Kibira (PNKi et de la Rusizi (PNRz) | Frederik LELIAERT (MBG) | 2023 |

Table 3. List of GTI Capacity development projects implemented in 2019-2024. (In French)

| Tutor and Institution | Partner institution | Project title | Year(s) of implementation |
|--|---|---|---------------------------|
| Belgium | | | |
| Maarten VAN STEENBERGE (RBINS) and Christine COCQUYT (MBG) | CRH-Uvira (DRC), KENWEB of National Museums of Kenya, CoEB (Rwanda) | Valorising intra-African networks of young researchers to study ecosystem functioning of wetlands in the Lake Victoria drainage | 2023 |
| Benin | | | |
| Patrick MARTIN (RBINS) | Université d'Abomey-Calavi (UAC) et Université de Marrakech (Maroc) | 1-2. Taxonomie des invertébrés des eaux souterraines du Bénin : ouvrir la voie aux outils d'évaluation et de biomonitoring de la qualité de l'eau 3. Taxonomie des ostracodes stygobiontes du Bénin : asseoir les fondations pour leur utilisation dans l'évaluation et le suivi de la qualité des eaux souterraines | 2019, 2021-2023 |
| Maarten VAN STEENBERGE (RBINS) | University of Parakou (UP) | Capacity building on molecular identification and collections management of fishes in Benin: Towards an establishment of a barcodes reference library of the Beninese ichthyofauna and the constitution of a first fish collection at the University of Parakou | 2022 |
| André DE KESEL (MBG) | University of Parakou (UP) | Integrative taxonomy of African fungi | 2022 |
| Mario AMALFI (Meise Botanical Garden) | University of Parakou (UP) | Catalogue illustré des champignons polypores d'Afrique de l'Ouest et renforcement des capacités des jeunes polyporologues ouest africains | 2023 |
| Cédric d'UDEKEM d'ACCOZ (RBINS) | Université d'Abomey-Calavi (UAC) | Vers une meilleure connaissance et gestion de la biodiversité des crustacés décapodes du Bénin | 2022-2023 |
| Arthur CAPET (RBINS) | Université d'Abomey-Calavi (UAC) | PhytoNokoué - Inventaire taxonomique de la flore phytoplanctonique du lac Nokoué et ses tributaires au Bénin | 2023-2024 |
| Burundi | | | |
| Piet STOFFELEN (MBG) | Université de Burundi | Capacity building towards the conservation of endangered plant species in Eastern Congo, a pilot project on the genus Coffea. | 2022 |
| Rwanda | | | |
| Wouter DEKONINCK (RBINS) | Center of Excellence in Biodiversity and Natural Resource Management (CoEB), University of Rwanda | 1. A Taxonomical Course focussing on Ants as a stepping stone towards a study of the Ant Community Composition in Relation with the Forest type in the Arboretum of Ruhanda and Rubona Research Center 2. In depth training on ant taxonomy in Rwanda, Akagere National Park 3. Training of future trainers in ant taxonomy in Eastern Africa, Rwanda | 2021-2023 |
| Tanzania | | | |
| Jean-Luc BOEVÉ & Alain PAULY (RBINS) | College of African Wildlife Management in Mweka (CAWM) | Training course on Hymenoptera and other pollinators in Tanzania | 2019 |
| Jean-Luc BOEVÉ (RBINS) | Tanzanian Wildlife Research Institute (TAWIRI) | Tanzanian Invertebrates: Capacity building for a reference national collection | 2021-2022 |
| Vietnam | | | |
| Jérôme CONSTANT & Frederik HENDRICKX (RBINS) | Vietnam National Museum of Nature, Vietnam Academy of Science and Technology (VNMN) | A step further in the Entomodiversity of Vietnam | 2019, 2022-2023 |

Table 4. Volumes of *Abc Taxa* produced during 2019-2024

| Volume | Year of publication | Copies sent 2019-2024 | No. citations |
|---|---------------------|-----------------------|---------------|
|  | 2019 | 380 | 12 |
|  | 2020 | 164 | 4 |
|  | 2021 | 121 | 5 |
|  | 2022 | 71 | No data |
|  | 2023 | 83 | No data |
|  | 2024 | 446 | 1 |

4. Awareness about biodiversity

Raising awareness among diverse stakeholders – such as civil servants, protected area managers, national focal points, scientists, regional and local authorities, students, children, and their parents – is a cornerstone

of biodiversity conservation. By cultivating this awareness, CEBioS facilitates the integration of biodiversity considerations into societal practices and governance.

[Impact]

↳ CEBioS organised multiple awareness calls and trainings targeting various stakeholders:

- **CHM**
Yearly awareness calls and trainings for administrators involved in the CHM and National Biodiversity Strategies and Action Plans (NBSAP).
- **GTI**
Awareness call in 2019 and 2023 for researchers who benefitted from short-term GTI scholarships, having completed three stays in Belgium. These scholars are committed to integrating societal impact into their research and organizing awareness sessions in their home countries.
- **MRV**
Awareness initiatives in 2019 and 2023 where teams of scientists and policymakers collaborate on projects aimed at bridging the gap between data collection by researchers and its use by decision-makers.

↳ A dedicated Awareness session has been organised during the CEBioS Summer School in 2022 for all of the above audiences, containing training on Policy-briefs, Message-maps, visual communication (graphics, posters, brochures), video, and the writing of a communication strategy.

↳ Shift in local practices: Fishermen, farmers, and local communities are adopting sustainable practices through collaboration with researchers and participation in awareness sessions. This shift is further encouraged by local media coverage featuring scientists previously supported by CEBioS, highlighting the importance of safeguarding biodiversity.



↳ Biodiversity becomes a societal trend: Media, in collaboration with universities, amplifies public awareness about biodiversity, promoting widespread societal change.

Within CEBioS funded awareness calls, many projects included local media coverage through radio/TV or newspapers.

[Outcomes]

For Stakeholders

↳ National Park Managers & Park Rangers

- Collaborate with universities and researchers to train communities and young people on ecosystem management.
- Work alongside researchers to monitor biodiversity and share knowledge through community workshops.

↳ Fishing Communities, Hunters, and Farmers

Receive guidance from researchers on sustainable fishing, hunting, farming, and resource management practices.

↳ Schools

Students engage in biodiversity projects through partnerships with researchers and universities, including hands-on field activities.

↳ Local village chiefs and communities

CEBioS supports participatory awareness initiatives that involve local authorities and village chiefs in decision-making processes and awareness campaigns. These efforts can take place for instance in town halls, market places, schools, or

with local police officers or clerical authorities. The work is carried out by local researchers funded by CEBioS, all of them having previously participated in CEBioS activities.

↳ Universities and Research Institutes & Researchers

- Provide scientific data, expertise, and training on biodiversity, while supporting media campaigns and community education efforts.
- Researchers gain the opportunity to communicate their research to a wider range of stakeholders, integrating science into media outreach, policy briefs for policymakers, posters, and brochures.

↳ Decision-makers

- Become better informed by scientists through policy briefs.
- Receive updates from CEBioS on the status of CBD-related processes, the current state of negotiations, and the implications of the Global Biodiversity Framework (GBF) to their Kunming-Montreal context.

Benin's active civil society is a regular beneficiary of CEBioS awareness projects

Nature Tropicale



The director of Nature Tropicale, Marie Dossou Bodjrenou often refers to CEBioS in local interviews.

"I became the wetlands program manager of the NGO and coordinator of the marine turtle program. Thanks to my functions, I have now acquired considerable knowledge and experience thanks to Nature Tropicale and the various technical and financial partners who have accompanied us such as IUCN Netherlands, CEBioS, UNDP, RAMPAO, PPI, PAPBIO, ABN, etc..."



This initiative is supported by a number of partners, including the GEF/UNDP Small Grants Programme, PAPBio/IUCN-PACO and CEBioS. Find out more here: www.naturetropicale.org

Nature Tropicale Bénin ONG brings together stakeholders for the community conservation of African manatees. <https://journalsantenvironnement.com/>



Website of a project with [Capebio](#)



Public Awareness Workshop on the Kunming-Montreal Global Biodiversity Framework

The workshop took place from February 6 to 8, 2024, at the Centre de Surveillance de la Biodiversité, University of Kisangani.

The workshop first focused on the state of knowledge regarding the Kunming-Montreal Global Biodiversity Framework, the status of negotiations, and the DRC's commitment to biodiversity. The process of developing

the DRC's National Biodiversity Action Plan (NBSAP) was also presented.

The workshop then addressed the public with concrete questions concerning the relationship with nature maintained by both young people and seniors, through an intergenerational dialogue.

Table 5. Summary of all projects funded by CEBioS under the Awareness Call framework.

| Awareness Calls | | |
|--|---------------|---|
| Organisation | Country | Project Title |
| 2023 | | |
| Centre De Promotion Du Développement Local Et De Gestion Durables Des Ressources Naturelles (CPDRN) | Bénin | Diffusion du nouveau cadre Mondial Kunming-Montréal et Consultation des acteurs nationaux pour une meilleure révision de la SPANB du Bénin |
| Congoise Youth Biodiversity Network (CYBN) et le Ministère de l'Environnement et du Développement Durable (MEDD) | DRC | Engagement communautaire dans la mise en œuvre du Cadre Mondial de la Biodiversité de Kunming-Montréal |
| 2022 | | |
| Direction Générale des Eaux, Forêts et Chasse | Bénin | Mobilisation des acteurs et information du public avant et après l'adoption du nouveau cadre mondial post 2020 sur la biodiversité au Bénin |
| ONG Nature Tropicale | Bénin | Sensibilisation et renforcement des capacités des communautés locales pour la gestion durable de l'Aire Marine Protégée de Donaten au Bénin |
| Crescer Verde | Guinée-Bissau | Crescer Verde – Projet d'Éducation et sensibilisation environnementale pour la conservation de la biodiversité en Guinée-Bissau. |
| Organisation pour le Développement Durable et la Biodiversité (ODDB) | Bénin | Mobilisation des dignitaires des religions endogènes (Vodoun), des religions abrahamiques (Christianisme et Islam) et des agents assermentés de l'Etat pour la conservation durable de la biodiversité de la Réserve de Biosphère de la basse vallée de l'Ouémé (RB-BVO) au Sud-Bénin |
| Nature Rwanda | Rwanda | Youth-centered awareness for sustainable conservation of Nyungwe National Park |
| 2021 | | |
| Direction Générale des Eaux, Forêts et Chasse (DGEFC) | Bénin | Sensibilisation et éducation environnementale des agriculteurs issus des villages riverains de la Forêt Classée OSN sur la conservation des plantes médicinales, des parcs à karité (<i>Vitellaria paradoxa</i>) et de néré (<i>Parkia biglobosa</i>) |
| Eco-Bénin | Bénin | Projet de sensibilisation des jeunes sur l'importance de la conservation et l'utilisation durable de la biodiversité pour les objectifs du développement durable |
| ONG Nature Tropicale | Bénin | Sauvegarde communautaire des espèces menacées dans la réserve de biosphère de la basse vallée de l'Oueme et du Mono |

Table 5. Continued

| Awareness Calls | | |
|--|---------|--|
| Office Burundais pour la Protection de l'Environnement (OBPE) | Burundi | Sensibilisation des associations féminines et des jeunes et des administratifs locaux de la commune Isare province de Bujumbura sur l'importance de la conservation de la biodiversité |
| Women Environmental Programme (WEP) Togo | Togo | Campagne de sensibilisation des femmes rurales sur la préservation de la biodiversité |
| 2020 | | |
| Direction des Ressources Forestières du Ministère de l'Environnement et des Ressources Forestières | Togo | Sensibilisation des géomètres, des gardiens des us et coutumes et de neuf grands entrepreneurs en bâtiments et travaux publics sur la valeur des services écosystémiques et l'impact de l'inaction à la conservation des zones humides urbaines et péri-urbaines |
| Eco-Bénin | Benin | Bénin Youth for Biodiversity Conservation |
| Université Officiel de Bukavu | DRC | Projet d'éducation et de sensibilisation de la population exploitant le bassin versant du Lac Tanganyika et de la rivière Rusizi sur les rôles de la végétation et les techniques culturales durables pour la stabilité du sol |
| Université Officiel de Bukavu | DRC | Projet d'éducation et de sensibilisation des communautés riverains de la Réserve naturelle d'Itombwe sur l'importance des champignons sauvages comestibles: un atout pour répondre aux besoins vitaux |
| Nature Rwanda | Rwanda | Baseline study on the perception of biodiversity in Rwanda based on the indicators developed in project type 1 |
| 2019 | | |
| CEIBA | Benin | Evaluation comparative des Connaissances, Attitudes et Pratiques de la population béninoise en matière de conservation et gestion durable de la biodiversité |
| le Laboratoire de Biomathématiques et d'Estimations Forestières (LABEF), au sein de la Faculté des Sciences Agronomiques de l'Université d'Abomey-Calavi (FSA/UAC) | Benin | Connaissance et conservation durable des services écosystémiques dans la Réserve de Biosphère de la Pendjari |
| Nature Tropicale | Benin | Education environnementale et sauvegarde des espèces marines migratrices le long du littoral du Bénin |
| Centre de Recherches Universitaires du Kivu (CERUKI) | DRC | Sensibilisation et partage d'information pour la promotion des champignons utiles et la gestion durable des habitats naturels à l'Est de la République Démocratique du Congo |
| Secrétariat exécutif du Conseil national de l'Environnement pour un Développement Durable (SE/CNEDD) du Cabinet du Premier Ministre | Niger | Projet de réalisation d'une étude base sur la perception de la biodiversité par les communautés locales à travers l'utilisation alimentaire et médicinales des espèces végétales |
| Nature Rwanda | Rwanda | Assessing and establishing suitable indicators to track the progress of the country towards target 1 as in the revised NBSAP |

Some success stories from the project reports



Radio broadcast with the head of the Adjohoun communal session of Water, Forests and Hunting and the priest of the Bonou-Centre Catholic Church. Benin, 2022.



Mobilization of dignitaries of endogenous religions (Vodoun), Abrahamic religions (Christianity and Islam) and sworn state agents for the sustainable conservation of biodiversity in the Lower Ouémé Valley Biosphere Reserve (RB-BVO) in southern Benin, 2022.



Youth-centered awareness for sustainable conservation of Nyungwe National Park, Rwanda, 2022.



Awareness campaign for rural women on biodiversity preservation, feedback session in Davié, Togo, 2021.



Guided tour in the Soligbozou forest

GTI Awareness

Table 6. Awareness Calls for the GTI funded by CEBioS (In French)

| Awareness Calls - GTI | | |
|--|---------------|--|
| 2020 | | |
| Organisation & project holder | Country | Project Title |
| ONG Terre Vie et Humanisme; GOUSSANOU Appolinaire | Bénin | Partage d'information sur la biodiversité et les services écosystémiques des crustacés décapodes et sensibilisation à la conservation et à la gestion durable des espèces et de leurs habitats naturels au Sud-Bénin |
| CSB (Centre de Surveillance de la Biodiversité); Bienfait KAMBALE KATEMBO | DRC | Projet de vulgarisation/sensibilisation pour la conservation et promotion des caféiers sauvages en République Démocratique du Congo (Cas de la province de la Tshopo) |
| Centre of Excellence in Biodiversity, University of Rwanda; Christella IRADUKUNDA Suavis & Venuste NSENGIMANA; | Rwanda | Ground ant diversity and abundance in Nyagасыnyi Remnant Forest, Rwanda |
| Université Abdou MOUMOUNI DE NIAMEY; Mamane Salé Noura | Niger | Sensibilisation du public sur les risques zoonotiques associés aux rongeurs |
| Station de Recherche en Ecologie de Lamto; Silue DOLOUROU | Côte d'Ivoire | Sauvons les communautés de fourmis associées aux anacardiens, en vue d'améliorer durablement les performances d'agronomiques des vergers en Côte d' Ivoire. |
| Université de Parakou; Boris OLOU | Bénin | Faire de la conservation de la biodiversité une question d'intérêt public: le cas du bois mort et des champignons qui y vivent. |
| Laboratoire de Recherche en Aquaculture et Ecotoxicologie Aquatique (LaRAEAQ); Rodrigue PELEBE | Bénin | Sensibilisation pour la protection durable de la retenue d'eau d'Atchakpa, Bénin et accompagnement à la mise en place d'un comité local multi-acteurs de gestion en vue de la conservation de la biodiversité des poissons et l'amélioration des captures des pêcheurs |
| Centre of Excellence in Biodiversity, University of Rwanda; Dr. Venuste NSENGIMANA; | Rwanda | Use of Soil-Litter Arthropods as Biological Indicators of Soil Quality in Rwanda |
| ONG CAPEBIO (Cercle d'Action pour la Protection de l'Environnement et la Biodiversité); Zinsou COSME KOUDENOUKPO | Bénin | Sensibilisation des populations riveraines de la rivière Sô et du fleuve Ouémé sur la biodiversité des mollusques gastéropodes dulcicoles du Bénin, services écosystémiques et approches de conservation pour une exploitation durable. |

| Awareness Calls - GTI | | |
|--|---------|---|
| Université d'Abomey-Calavi; OLODO Banigbé Itounou Isabella Yasmine | Bénin | Information et sensibilisation au Bénin sur les risques liés à la pollution des eaux du lac Ahémé et leur impact sur la santé humaine et l'environnement. |
| Centre de Recherche en Sciences Naturelles; MWANGA MWANGA ITHE Jean-Claude | DRC | Sensibilisation du public sur la valorisation des espèces de Convolvulaceae, un aspect important pour lutter contre la pauvreté et la conservation des forêts de l'Est de la République démocratique du Congo (Cas du Territoire de Kabare) |
| OBPE; Eugène SINZINKAYO | Burundi | Sensibilisation Du Public Sur L'impact Du Declin Des Syrphidae Pollinisatrices Sur La Production Agricole Et Le Changement Climatique: Cas de la région de Mumirwa |
| Université de Parakou); Sylvestre BADOU | Bénin | Sensibilisation et partage d'information sur la conservation et la gestion durable des habitats naturels des champignons comestibles au nord du Bénin |
| Université d'Abomey-Calavi; Hoseph HOTEKPO et Longin LAGNIKA | Bénin | Sensibilisation sur l'importance de la faune aquatique des puits ; le traitement et la conservation de l'eau avant usages au Bénin |

Some success stories from the project reports

Raising awareness: soil ant diversity and abundance in Nyagасыnyi Remnant Forest, Rwanda, Christella IRADUKUNDA SUAVIS, 2023



Radio broadcast at Radio Scolaire Nderagakura, Bujumbura, Burundi



Learning session on sample preservation

Project: public awareness of the impact of the decline of pollinating Syrphidae on agricultural production and climate change: the case of the Mumirwa region, Burundi, 2020

5. Policy-relevant biodiversity indicators to strengthen the Science-Policy interface

The “Measuring-Reporting-Verification” (MRV) approach



MRV closing workshop in Bujumbura, Burundi.

Scientists and policymakers implement common projects to produce policy-relevant biodiversity indicators

Reliable biodiversity data is crucial for effective management and informed decision-making. However, a significant gap still remains between data providers, such as research institutes, and those who need this information for decision-making and report-

ing. To address this issue, CEBioS connects these groups through MRV projects aimed at developing biodiversity indicators relevant to policy. Subsequently, awareness raising activities are implemented to convey key findings to various audiences.

[Impact]

- CEBioS bridged the gap between biodiversity data providers and decision-makers by facilitating 14 projects in six different partner countries. The projects contributed to the development of 23 biodiversity-relevant indicators, providing information to better manage and conserve biodiversity.
- Through the implementation of the projects, key biodiversity data were mobilized to inform decision-making and management, e.g.:
 - In East DRC, the monitoring of fisheries and human-wildlife conflicts has led to concrete policy changes, including the creation of fishing regulations and wildlife protection decisions. In Burundi, conflicts between wildlife and local communities have been better understood, fostering collaboration between park authorities and community members for more peaceful coexistence.
 - In Benin, vegetation management across six protected areas was assessed over 25 years, under three different forestry policies. Mobilized data were used to produce an atlas, evaluate different reforestation strategies and land use changes, and raise awareness about forest cover decrease over time.
- In Uganda, partners have expanded access to crucial biodiversity data, with seven datasets mobilized and published, enhancing decision-making capabilities related to fisheries management and species conservation.
- In Tanzania, The Ministry of Agriculture has closely worked with local communities helping them better understanding their role and responsibilities in the Community Forest Management Agreements. This leads to appropriation of legal regulations, as well as improved community nature protection in Zanzibar.
- In Palestine, nature conservation stakeholders at various levels worked together to update the 6th national report and develop the NBSAP. It also stimulated nature laws and regulations and stakeholders' coordination within the country.



Photo above and left: Pendjari National park, Benin

[Outcomes]

- ✦ Over 90 stakeholders, including scientists, authorities, and biodiversity managers, collaborated on common projects, exchanged knowledge to better understand each others' needs. The participants were trained in fields related to policy-relevant biodiversity monitoring (database management, biodiversity indicators and governance, science-policy interface, communication). Round tables were organized with experts from African countries to improve project proposals directly with the project holders, on these topics, which was very much appreciated by participants.
- ✦ 45 scientists and decision-makers met in DRC to discuss policy-relevant monitoring of biodiversity in the country. It resulted in the creation of a policy brief and priority targeted national recommendations, which were presented in the Congo Basin's international conference in 2023 in Kisangani.
- ✦ The related awareness-raising activities reached over 2,700 local community members, 117 decision-makers, and 281 Protected Area managers, helping to communicate the critical importance of biodiversity governance and sustainable use across sectors and regions. Communication materials like policy briefs, leaflets, and videos enhanced understanding at all levels of society.

Key numbers

| | | |
|--|---|---|
|  <p>5 training workshops in 3 different countries (Benin, Burundi, DRC) gathering 91 participants in total</p> |  <p>14 projects developing biodiversity-relevant indicators implemented in 6 partner countries, involving 6 biodiversity management authorities, 6 universities, 5 research centres, 3 NGOs and 1 private company</p> |  <p>60 awareness meetings conducted, reaching out 117 decisions-makers and 281 managers, and more than 2,700 persons from the local community</p> |
|  <p>5 international experts from Benin, DRC, South Africa, and Uganda, providing training in workshops</p> |  <p>23 indicators fed by the projects, 15 databases developed and/or updated, 25 maps created</p> |  <p>Material produced to raise awareness on biodiversity governance and sustainable use: 6 postcards, 6 leaflets, 6 posters, 4 videos, 34 radio emissions, 2 policy briefs, 1 atlas</p> |

DRC

Scientists met decision-makers for a policy-relevant monitoring of biodiversity in the DRC

In 2020, a workshop in Bukavu brought together scientists, park managers, provincial environment officials, and the Ministry of Environment to address policy-relevant biodiversity monitoring in the DRC. Discussions in round tables led to a policy brief with

targeted recommendations for scientists and decision-makers. These recommendations were presented at the 2nd International Conference on Biodiversity in the Congo Basin in 2023, where participants rated them all. The findings are now being compiled into a scientific paper.

- 45** scientists, authorities and biodiversity managers;
- 1** policy brief;
- 10** priority recommendations;



Fisheries: Monitoring projects for sustainable resource management

Three MRV projects aimed at improving the sustainable management of fishery resources. The first one, focusing on Lake Kivu, investigated the effects of harmful fishing practices on fish catches, larval and juvenile fish, as well as regulatory knowledge among fishermen. Awareness was raised among fishermen, naval force, lake police, which lead to the creation of a commission to speed up the adoption of specific fishing regulations to improve fishery management and reduce overfishing and illegal practices. The second project, centred on Lake Tanganyika, sought to preserve the clupeids and their predator by combating illegal fishing and promoting responsible fishing practices while offering economic alternatives to fishermen. Finally, the third project aimed to create a shared database for local fishery resources between local authorities, NGOs and the university in Mbuji-Mayi (DRC). This for a coordinated periodic monitoring of these resources and the pressures exerted on them over time and for their long-term management.

Adoption of specific regulations improving natural resources management in East DRC

Initiatives in East DRC have resulted in the establishment of targeted regulations aimed at enhancing the management of natural resources. This regards for instance (1) a new decision by the territorial administrator banning the hunting and sale of hippopotamus, crocodile and other wild animal meat in Uvira territory, and (2) the upcoming signature of a provincial decree governing fishing activities in Lake Kivu.

90% of fishermen's associations in the Bukavu basin sensitized

1 commission on fishing in Lake Kivu set up to harmonize the decree on fishing in Lake Kivu

New decision on banning hunting and consumption of hippos, crocodiles and other protected animals



Participants of an MRV project on fisheries, DRC




Hippopotamus in the Rusizi delta, flowing to Lake Tanganyika


Burundi


Tackling Human-Wildlife Conflicts: Insights from Ruvubu and Rusizi National Parks (Burundi)

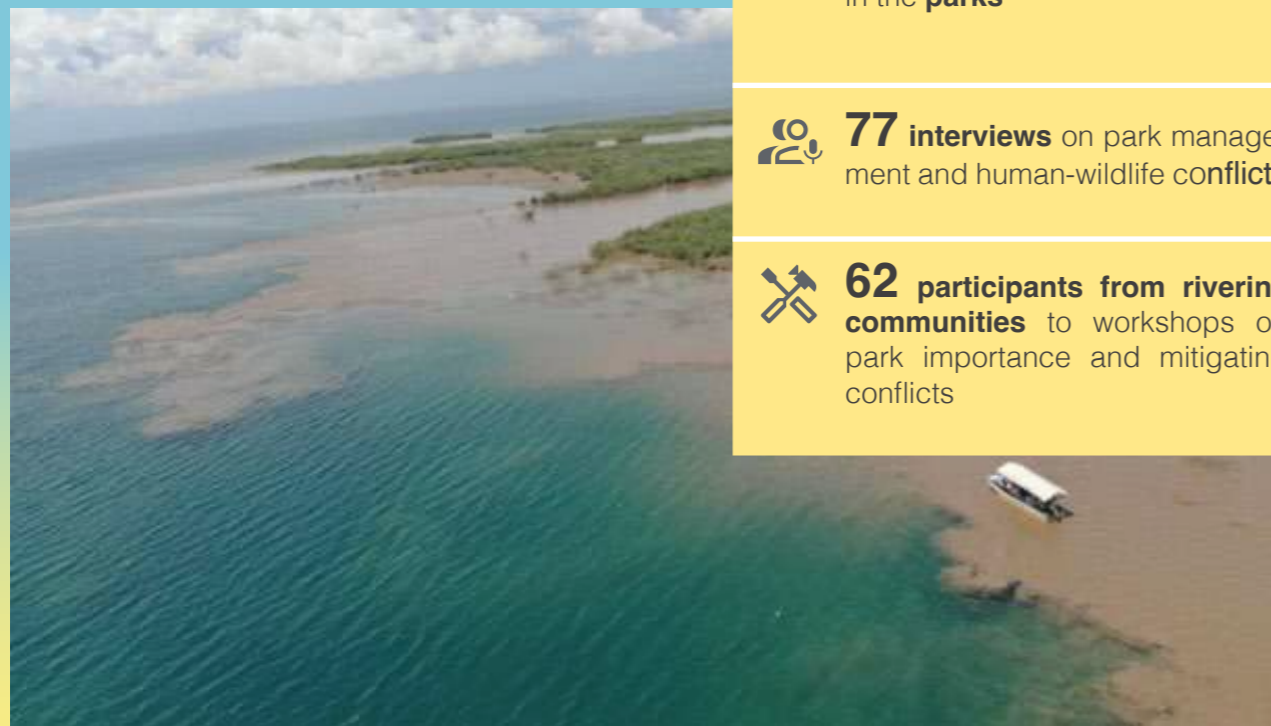
The project investigated conflicts between local communities and protected areas in Burundi, focusing on buffaloes in Ruvubu NP and hippos in Rusizi NP. It assessed hippopotamus populations, conflict zones, and agricultural damage, revealing local perspectives on park importance, wildlife impact, and governance. Root causes of conflict were identified: restricted resource use, wildlife damage and the lack of compensation schemes. Recommendations include dynamic conservation

strategies, active conflict management, and enhanced community dialogue. Workshops were conducted among riverine communities about the importance of conserving the national parks and their biodiversity. The awareness of local administrators, notable figures, and park managers of both Parks was also raised on the need to address community grievances and frustrations. Various stakeholders, including local farmers, Batwa people, fishermen, poachers, and local administrators have expressed a strong willingness to collaborate for peaceful conflict resolution.

 **Map of hippopotamus distribution and areas under pressure in the parks**

 **77 interviews** on park management and human-wildlife conflicts

 **62 participants from riverine communities** to workshops on park importance and mitigating conflicts



Lake Tanganyika

Benin

National awareness on forest cover trends and governance impact in Benin



This project assessed vegetation management across six protected areas in Benin over 25 years, under three different forestry policies. It evaluated reforestation strategies

and land use changes during these periods. Recommendations include increasing sample sizes, raising stakeholder awareness, issuing policy briefs, strengthening institutional frameworks for forest management, and continuing reforms on transhumance, exploitation, and timber exportation. The project also aimed to educate and raise awareness among local communities, students, researchers, and policymakers about forest cover degradation through workshops, local radio, and a successful multi-stakeholder webinar, setting a precedent for future initiatives.

 **Land use evolution** over 25 years

 **Land use dynamics** of 2 fauna reserves and 4 classified forests

 **1,220** pupils, students and local people aware of forest degradation factors

1 webinar with 82 participants on national forest cover


Conservation of medicinal plants in Benin: challenges and strategies

This project aimed to conserve medicinal plants and traditional knowledge in Benin by documenting plant diversity, assessing conservation status, and evaluating climate change impacts. It identified ten priority species and recommended protective measures, including harvest limits and regulations. Key activities included community sensitization on sustainable harvesting, training herbalists, and promoting medicinal plant gardens. Through workshops, media outreach, and local initiatives, the project sought

to shift behavior towards sustainable use, addressing threats like overharvesting and habitat loss to ensure the long-term preservation of medicinal plants.



Herbarium, DRC

 **10 priority medicinal species** identified for conservation and modelled under future climate scenario

 **458 medicinal plant species** identified in markets

 **12 sessions** on sustainable harvesting and conservation for plant collectors and sellers

Tanzania

Integrated land use for biodiversity conservation in Zanzibar

The project revealed that 76.87% of Community Forest Management Agreement (CoFMA) areas in Zanzibar are classified as land banks, with the remaining 23.13% designated for settlement and agriculture. A total of 154 species, including 17 new records and one endangered species (*Ziziphus robertsoniana*), were documented in the project area. These findings emphasize the need for more effective integration of land use management

to protect biodiversity resources while allowing some economic investment. Simplified CoFMA agreements have been recommended to enhance community capacity and engagement. For this reason, the project has come up with a universally simplified and translated CoFMA template that is recommended to be used as a popular version for all CoFMAs in Zanzibar.

160 persons (92W and 68M) sensitised during awareness raising activities

89 household heads from 5 different CoFMA in central District interviewed

1 simplified and translated CoFMA template produced



Baboon, Tanzania

Palestine

Enhancing biodiversity conservation strategies in Palestine

Desktop studies, stakeholder engagement, and data collection lead to the reassessment of protected areas and the writing of the 6th Biodiversity National Report. A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis provided recommendations for new policies enhancing protected area management, establishing a foundation for the new National Biodiversity Strategy and Action Plan (NBSAP), now officially published. Those achievements were also accompanied by other benefits including (1) an improved spatial and local authority planning around protected areas and a rethink of some local laws, (2) the integration of these outcomes with national invasive species management projects, also in protected areas, and (3) an enhanced stakeholder coordination, between citizens, governmental and non-governmental groups, and the private sector.

NBSAP in line with COP15 decisions

1 biodiversity stakeholders database created

Reassessment of existing protected areas and related policies

Uganda

- 7 datasets** with 3,424 occurrences mobilised and published in FBPU and GBIF
- 1 Fish Stock Status Indicators (FSSI)** module developed
- 6 postcards, 1 atlas** and 1 policy brief developed

Expanding freshwater biodiversity data in Lake Edward, Uganda

This project aimed to enhance access to aquatic biodiversity data in Uganda's Lake Edward system, addressing the inaccessibility of existing biodiversity information. Thanks to other biodiversity informatics projects at the National Fisheries Resources Research Institute (NaFIRRI), the initiative mobilized seven datasets with 3,424 species occurrences, including zooplankton, macroinvertebrates, and fish, published in the Freshwater Biodiversity Portal for Uganda (FBPU) and the Global Biodiversity Information Facility (GBIF). A Fish Stock Status Indicator (FSSI) module was also developed to display crucial fisheries data, such as catch metrics. The project improved the availability of biodiversity data, aiding conservation decision-making and supporting assessments of fish species' conservation statuses, amongst others in red lists.

6. Policy Briefs

Mediating between science and decision making

Trainings at AfricaMuseum

CEBioS has conducted a series of training events (English and French) regarding the writing of policy briefs at the AfricaMuseum. The policy brief training course reviews theoretical and practical advice, examples of best practices, in order to allow participants

to start or continue their policy brief in a more efficient way. Recommendations are handed out for disseminating the policy brief and effectively reaching an audience of policymakers.



Training on Scientific Publications with Isabelle GÉRARD.

Policy briefs in period 2019-2023

In the framework of MRV projects a policy brief on the monitoring of natural resources around protected areas was produced, which attained more than 900 reads on Research Gate.

On the marine modelling of Halong Bay in Vietnam, as a cooperation with IMER (Haiphong, Vietnam), a policy brief was co-created in Vietnam and summarizes recommendations for decision makers based on previous CEBioS work by Katrijn BAETENS (Phase I), combined with current work by a CEBioS spin-off, the CLIMDIS project (BELSPO funded) (Phase II), which is a follow-up of the CLIMARCO project (also BELSPO). The brief is in English and Vietnamese. The policy brief recommends e.g., more coordination in the fight against habitat loss and pollution.

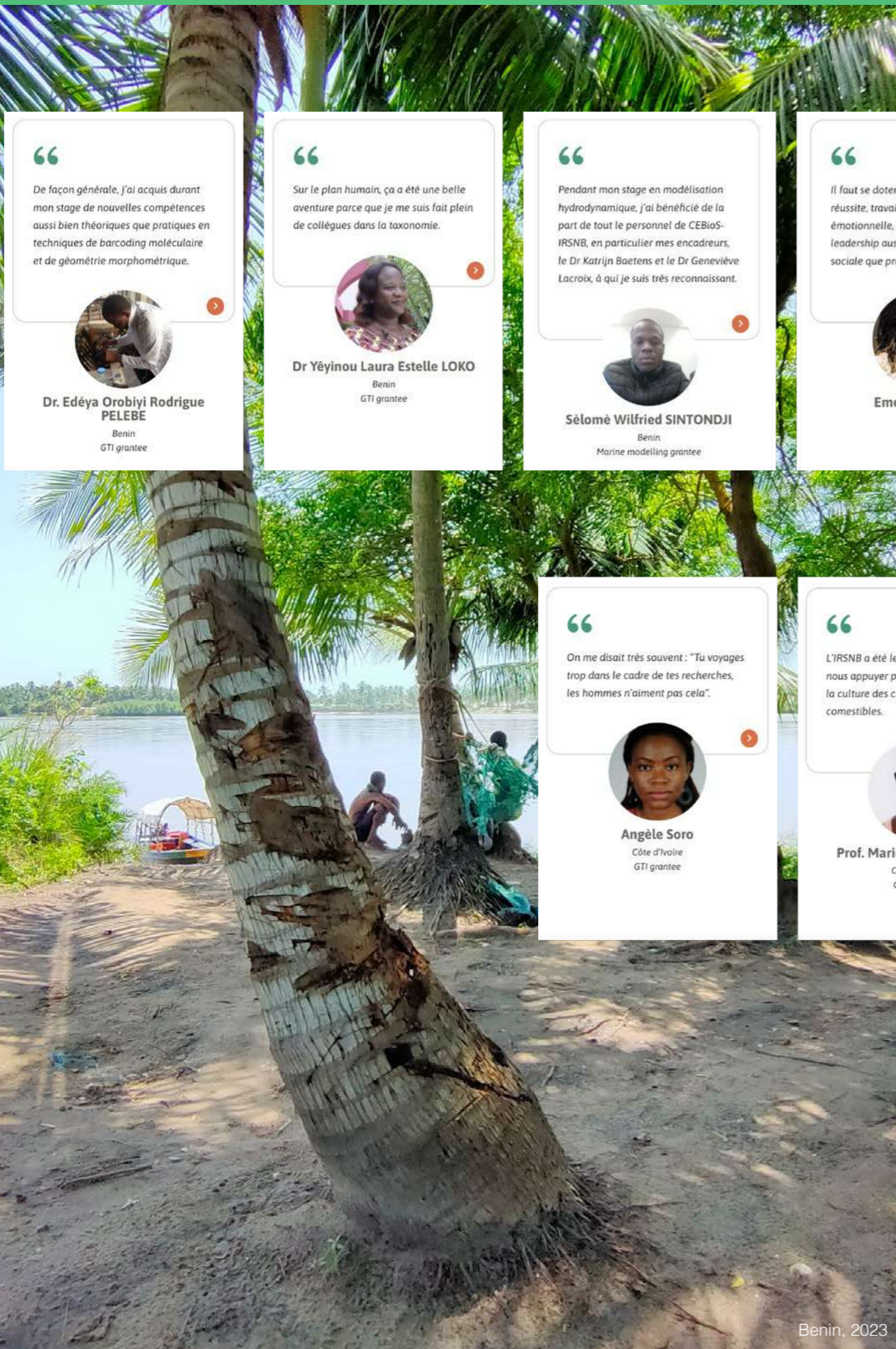
A policy brief was produced on the marine modelling with IRHOB of the Cotonou channel and lagoon in Benin. The policy brief stresses the dynamics of local shrimps related to sa-

linity and currents and expresses recommendations for the local decision makers and fisheries, fishermen communities and scientists, such as adopting fishing rules and schedules, based on the scientific data collected by IRHOB with the support and capacity building of CEBioS. The policy brief is in the phase of being given a final lay-out.

Further, the coordinator of CEBioS was involved in a panel as part of debates organized by the Brussels School of Governance (VUB) which generated a [policy brief](#).

OBPE (Burundi) produced a [policy brief](#) on the status of the invasive liana *Sericostachys scandens*. It was presented and validated during a mini workshop with 14 participants from OBPE. It included information on the status, distribution of the species, and its importance according to riverine communities of Kibira National Park. It ended with recommendations.

7. Testimonies



“

De façon générale, j'ai acquis durant mon stage de nouvelles compétences aussi bien théoriques que pratiques en techniques de barcoding moléculaire et de géométrie morphométrique.



Dr. Edéya Orobiyi Rodrigue PELEBE
Benin
GTI grantee

“

Sur le plan humain, ça a été une belle aventure parce que je me suis fait plein de collègues dans la taxonomie.



Dr. Yéinou Laura Estelle LOKO
Benin
GTI grantee

“

Pendant mon stage en modélisation hydrodynamique, j'ai bénéficié de la part de tout le personnel de CEBioS-IRSNB, en particulier mes encadreurs, le Dr Katrjyn Baetens et le Dr Geneviève Lacroix, à qui je suis très reconnaissant.



Sèlomè Wilfried SINTONDJI
Benin
Marine modelling grantee

“

Il faut se doter d'une volonté forte de réussite, travailler son intelligence émotionnelle, et développer un leadership aussi bien dans la vie sociale que professionnelle.



Emeline Assede
Benin
GTI grantee

“

Ce que la Convention sur la diversité biologique prêche, le programme CEBioS met en oeuvre concrètement.



Dr. Augustin Orou Matilo, PhD
Benin
CHM grantee

“

MRV are Small Seeds for Fruitful Trees



Eng. Mohammad H. Najajrah
Palestine
MRV grantee

“

On me disait très souvent : "Tu voyages trop dans le cadre de tes recherches, les hommes n'aiment pas cela".



Angèle Soro
Côte d'Ivoire
GTI grantee

“

L'IRSNB a été le premier partenaire à nous appuyer pour les campagnes sur la culture des champignons comestibles.



Prof. Marie-Solange Tiébré
Côte d'Ivoire
GTI grantee

“

It is challenging to maintain work-life balance and research accessibility.



Iradukunda Christella Suavis
Rwanda
GTI grantee

“

Chères filles et jeunes femmes, vous avez tout à fait le droit de rêver grand.



Francine Kirongozi
Congo, Democratic Republic of the
GTI grantee

Benin, 2023

8. Institutional Cooperation

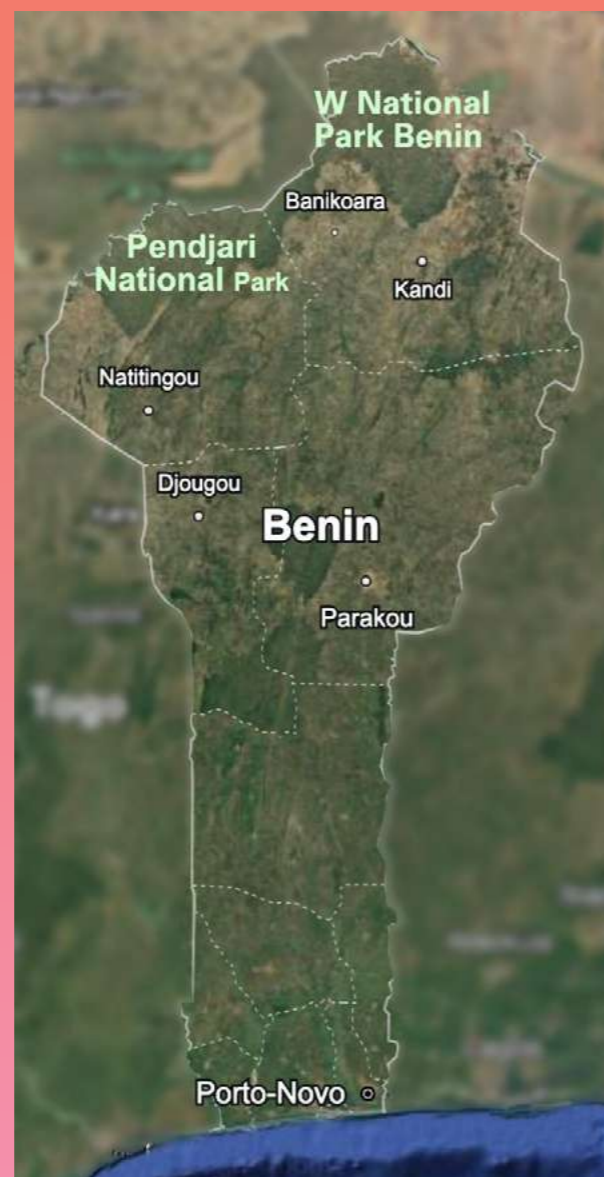
Benin Habitat Monitoring & Marine Modelling

[Impact]

The support to UAC and IRHOB enabled them to fully play their role as research institutes in respectively terrestrial ecology of the Northern Parks and marine modelling of the Gulf of Guinea and the coastal lagoons. Ecosystem services and fire management in Pendjari national park are better understood, and the ecology of shrimps as a source of proteins for the local markets, is better known.

[Outcomes]

- ✦ This project in particular has strengthened a good number of excellent scientists in their field of research, be it on oligochaetes, molluscs or aquatic biomonitoring.
- ✦ The project provided methodologies and tools to better manage the national Clearing House Mechanism of the CBD.



Source: Google Earth

Table 7. Beninese participants selected throughout CEBioS calls

| Calls | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---------------------|------|------|------|------|------|-------|
| GTI- extern | 4 | 2 | 5 | 5 | 4 | 20 |
| MRV | 2 | 2 | ** | 2 | 0 | 6 |
| Awareness | 3 | 3 | 3 | 4 | 1 | 14 |
| GTI-Awareness | - | 5 | - | - | 3 | 8 |
| IRHOB interns in BE | 1 | 2 | ** | 1 | 1 | 5 |

* CHM virtual training for Lebanon and Benin

** No call due to Covid

*** online in training sessions of Benin and Côte d'Ivoire

Towards a better understanding of the dynamics of coastal lagoons and the ocean - Cooperation with IRHOB

Concerning the cooperation with IRHOB (Institut de Recherches Halieutiques et Océanologiques du Bénin) on marine modelling with [COHERENS](#) (open access software developed at RBINS), monitoring work has been performed to better understand the dynamics of the Cotonou channel linking the

ocean with Lake Nokoué in terms of depth, currents, salinity and shrimp dynamics. This work supported two PhDs who also spent two months in Belgium to optimize their modelling skills and to start the implementation of the COHERENS model on the Gulf of Guinea.



Aerial photo of the Beninese coast



Benin, 2023

BioBridge project on Biosensors in Benin

In 2020, Katrijn BAETENS (CEBioS) managed with staff of IRHOB and funding from the Bio-bridge initiative of the CBD to build a cheap salinity meter for the monitoring of coastal lagoons in Benin. This proved that solutions can be found for research and monitoring with cheap and accessible technology in developing countries.

The final project report, *Development of a Methodology to Acquire a Spatiotemporal Series of Physicochemical Parameters of the Coastal Marine Environment of Benin*, is available here: [bbi-benin-final-report-fr.pdf](https://www.bbi-benin-final-report-fr.pdf)



Boost in research on fire management and ecosystem services in Pendjari – W National Parks - Cooperation with LEA of UAC

The 'Laboratoire d'Ecologie Appliquée' (LEA) of the Université Abomey-Calavi (UAC) got five years of institutional support from CEBioS to promote research on fire management and habitat monitoring in the Pendjari National Park to minimize negative anthropogenic impacts on ecosystems. During the first phase, this resulted, amongst others things, in the publication of a [lexicon](#) about the habitats of the park. This includes descriptions in local languages of habitats, flora and fauna and certain potential uses of flora and fauna resources. The Park switched in 2018 from a management by CENAGREF (Beninese state) towards 'African Parks Network' (Public Private Partnership).

With time, African Parks (APN) evolved with a large local work force and many initiatives

in support of local communities and the AVI-GREF (association villageoise). The trust was re-established with the academic world and after granting new research permits under the new governance of APN, UAC continued on fire management, habitat monitoring work on the basis of transects as designed by Dr. François MUHASHY (CEBioS) and LEA. This research during the second phase continued on fire management, but also on the role of termites, grazers (human-wildlife conflicts) and ecosystem services, resulting in many publications. CEBioS' support allowed several masters and 3 PhDs to be realized on these topics.

Unfortunately, two major crises strongly mitigated the implementation of the research: the Covid crisis (2020-2021) and the emergence of Jihad terrorism, spilling over from neighbouring Burkina Faso and Niger. The initial plan to extend the research to adjacent W National Park was implemented, albeit with serious delays due to both crises. The publication of a second updated lexicon including W NP could unfortunately not be finalised before the end of phase 2.

Despite this, LEA managed not only to train several Masters and PhDs, but also played a pivotal role in transferring their skills about research on bush fire to experts in DRC and Burundi through the organisation of regional workshops.

Research topics in the framework of PhDs at LEA (UAC)

Topic 1

Impact of the frequency of management fires on the conservation of floristic diversity in the Pendjari Biosphere Reserve (West Africa). HOUINDOTE Elodiade

Topic 2

Study of the spatial heterogeneity of termites in regularly burnt environments and local knowledge of the factors influencing their diversity in the Pendjari Biosphere Reserve and the W Transfrontier Biosphere Reserve in North Benin. ADATIN Adèle Noëlie

Topic 3

Impact of fire regime on herbivores and their habitat in the Pendjari Biosphere Reserve: implications for wildlife conservation in West Africa. ZOFFOUN Ghislain



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État de la connaissance sur les feux de végétation en Afrique : Analyse bibliographique et perspectives de recherche
 State of knowledge on vegetation fires in Africa: Literature review and research perspectives

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African Journal of Ecology

Effects of termite mounds on composition, functional types and traits of plant communities in Pendjari Biosphere Reserve (Benin, West Africa)

Alain K. Gbelle^{1*}, Thierry D. Houehanou^{1,2}, Muhashy Habiaryemye³, Emeline S. P. Assede^{1,2}, Alain S. Yaoitcha¹, Luc Janssens de Bisthoven³, Etotépé A. Sogbohossou¹, Marcel Hounato³ and Brice A. Sinsin¹

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Policy analysis

Conservation conflict following a management shift in Pendjari National Park (Benin)

Iliana Janssens^{a,*}, Luc Janssens de Bisthoven^b, Anne-Julie Rochette^b, Romain Glélé Kakaï^c, Jean Didier Tewoghbaide Akpona^f, Farid Dahdouh-Guebas^{a,d,e}, Jean Hugé^{a,d,e}

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INTERDISCIPLINARY PERSPECTIVE

Local knowledge of the impact of uncontrolled fires on ecosystem services: A case study in the Pendjari Biosphere Reserve in Benin (West Africa)

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Cinquième article : Perceptions locales de l'impact des feux de végétation sur les services écosystémiques d'approvisionnement autour de la Réserve de Biosphère de la Pendjari au nord-ouest du Bénin

Par : V. Edalo, A. S. Yaoitcha, T. D. Houehanou, F. Muhashy Habiaryemye, L. J. de Bisthoven, A. E. Assogbadjo, M. R. B. Hounato et B. A. Sinsin

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La pratique du feu de végétation dans la Réserve de Biosphère de la Pendjari (Benin, Afrique de l'Ouest) : fréquence spatio-temporelle et perception locale de l'effet sur la végétation des terroirs riverains

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Burundi Habitat Monitoring & OBPE support

[Impact]

- CEBioS believes its support empowered OBPE to be a stronger state actor for the conservation of the national parks in Burundi, with a better scientific capacity and base.
- In Burundi CEBioS synergy projects contributed to field ecosystem restoration with support of local communities and women and protection of watersheds with indigenous trees through cooperation with OBPE, PROCOBU and Join4Water.



Source: Google Earth

[Outcomes]

- In particular, the publication of the lexicon on Ruvubu National Park increased the knowledge of the park amongst OBPE staff and ecoguards, in order to be better able to manage the park and explain the parc to tourists and other stakeholders.
- The active support by the Belgian embassy, acknowledging the decade-long experience of CEBioS, enabled CEBioS to provide advice for the bilateral cooperation and the cooperation with UNDP and EU. This resulted at the end of the phase a.o. to the delivery of two important milestone documents for the management of Kibira National Park, the *état de l'art de la connaissance* and the *Plan de recherche* in the framework of the PACECOR project.
- South-South, coaching by Burundi of Chad online
- Burundi won the second place with Belgium in the CHM-award COP15.
- OBPE staff involved in the national CHM shared their expertise through training national CHM teams in Chad, Madagascar and RCA.

Transition to the next first phase

2024-2029:

Due to the insecurity in the North, UAC is now choosing to do research on protected areas in the South. Two workshops to identify the issues surrounding the Mono Biosphere Reserve in the South and all the forests in central Benin were held in 2024.

In 2019-2021, the GTI alumni Dr. Hamed ODOUNTAN (CapeBio and UAC) volunteered to represent CEBioS at the Joint Strategic Framework Benin and other meetings. Hamed benefited during the first phase of several GTI grants. This gave him a further boost to start his own environmental organization, and to win further awards from International Science Foundation (Stockholm), Rufford Foundation and IUCN grants. The cooperation with CEBioS resulted also in 4 peer reviewed publications on biomonitoring with aquatic macroinvertebrates, hence generating a better scientific basis for the management and the monitoring of those lakes.



GTI alumni Dr. Hamed ODOUNTAN (CapeBio and UAC)

Table 8. Burundese participants selected throughout CEBioS calls

| Calls | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---------------|------|------|------|------|------|-------|
| GTI-external | 2 | 1 | 1 | 1 | 3 | 8 |
| MRV | 1 | 1 | 0 | 1 | 1 | 4 |
| Awareness | 0 | 0 | 1 | 0* | 0 | 1 |
| GTI-Awareness | - | 1 | - | - | 1 | 2 |



From left to right, top to bottom: all photos taken in and around Bujumbura, during various CEBioS missions in Burundi

Empowering the OBPE to be state actor for the conservation of biodiversity in Burundi

The cooperation with the *Office Burundais pour la Protection de l'Environnement* (OBPE) was pursued along several axes: research, Global Taxonomy Initiative (GTI), Measurement-Reporting-Verification (MRV), Clearing House Mechanism (CHM) and habitat monitoring.

Actions were carried out around four intermediate results, namely:

1. The dynamics of habitats and biodiversity in protected areas and other ecosystems in Burundi are better understood;
2. Ecosystem services (ES) in protected areas and other ecosystems in Burundi are better understood and valued;

Policy support

OBPE is not only an implementing agency of the Ministry of Environment and Agriculture, but also a focal point for Multilateral Environmental Agreements.

To follow up on international policy and the decisions from the COP 15, a meeting was organised to make an inventory of the capacity building and development needs related to the update of the National Biodiversity Strategy for Burundi. Also the coordinator from the scientific division of the OBPE participated in the SBSTTA 26 and SBI 4 meetings in Nairobi. For the first time Burundi intervened during plenary discussions on 5 different topics and also mentioned the importance of the technical and scientific long term cooperation with RBINS for the monitoring and implementation of the Convention in Burundi.

Value chain research

One OBPE staff visited the AfricaMuseum for a GTI grant on pollinator flies. Special focus was given to fire management, *Raphia*, pollinators

3. Target audiences are aware of the importance of the sustainable use and conservation of biodiversity;

4. The implementation of the Convention on Biological Diversity in Burundi is monitored through the CHM and MRV to guide appropriate decision-making for the conservation and sustainable use of Burundi's biodiversity and reporting.



South-South training of Madagascar by Burundi on CHM Bioland tool.

55 persons during Nagoya Protocol workshop; 10 during CHM meetings; 29 during Bulletin meeting; 39 during awareness meeting Bulletin;

The national CHM was maintained and updated with 10 inter-institutional web pages and more than 1400 entries in the new Bioland CMS. See <https://bi.chm-cbd.net/fr/dernieres-nouvelles-et-mises-jour>.

The Scientific Bulletin was also dynamised in 2021 with a publication of 2 volumes.

(e.g., hover flies) and the threatened bamboo stands in protected areas on ecosystem services. This led to several Masters and 3 articles

submitted, as well as a further development of the herbarium of the OBPE. Studies have been done on pollinators and *Raphia ruenzorica* resulting in 2 reports, 3 master document, 2 masters defenses and 3 scientific publications in preparations. Further, more than 3000 samples of wild pollinators were collected as part of a Master thesis. Inventories, mapping and characterisation were done of *Cordia Africana*, the emblematic and endangered tree of Burundi (wood of national drums). Further, MRV projects were carried out on the status of *Pterocarpus angolensis* et *P. tinctorius*.

Research on propagation and planting has been done on indigenous trees & plants such as rotan, *Kigelia Africana*, *Sericostachys scandens* and *Pterocarpus*.

Two Master students were supported and obtained their Msc. From Université du Burundi: 'Ecology and Diversity of pollinators in high

altitude regions of Burundi' and 'Study on Distribution, stock and socio-economical importance of *Raphia ruenzorica* in Burundi: Bujumbura and Rumonge provinces'.

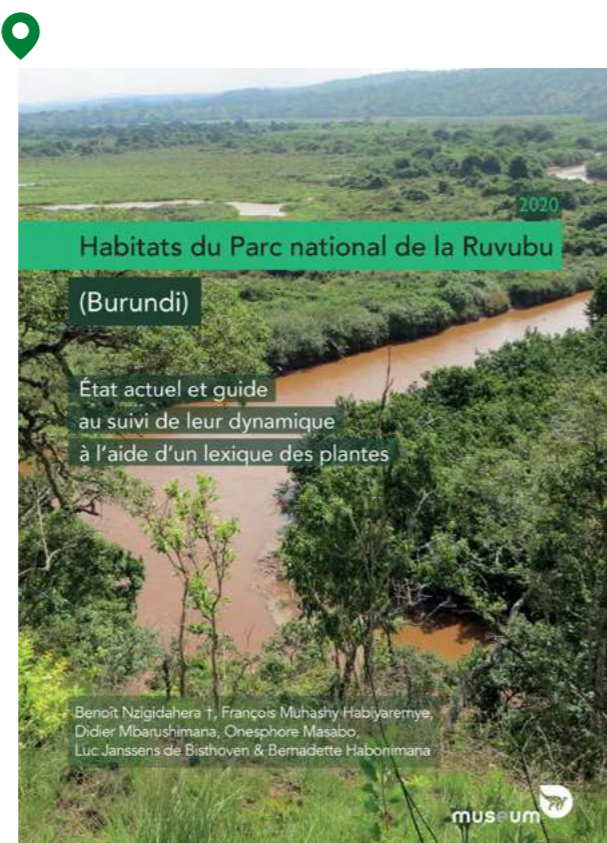
The research on the pollinators of Burundi continued. During a visit to Belgium of the supervisor for a CHM network meeting, 35 new species for Burundi were identified. The research on the species of economic value for local populations focused this year on *Pterocarpus* sp. An inventory of the species was done. The seeds that were collected have been multiplied in a tree nursery and it is foreseen that 6000 plants of *Pterocarpus angolensis* and *Pterocarpus tinctorius* will be planted during the upcoming rainy season¹.

In total 3 master theses have been defended by students and 6 scientific articles are being prepared.

Monitoring the National Parks

RBINS supported OBPE to better monitor the dynamics of the habitats of Ruvubu N.P. Moreover, 15 eco-guards practised to designate habitats on the basis of formulas that synthesize the physiognomic descriptors of the vegetation and with reference to plants dominant in each vegetation on 31 permanent plots. The cooperation resulted in the publication in 2020 of a Lexicon about the habitats of Ruvubu N.P. (📍Cover of the *Lexique des Habitats du Parc national du Ruvubu*).

OBPE, supported by the Institutional cooperation with CEBioS, validated three management plans supported by FAO for the protected areas. Moreover, monitoring was done with LEM files with many specimens of plants collected for the OBPE herbarium. And finally, a policy brief has been produced



¹ Endangered rose wood, see [CITES](#)

about the eastern savannahs of Ruvubu NP and natural monuments. (📍Monitoring in Ruvubu NP)

In Burundi, 32 ecoguards and their 2 LEM supervisors completed 260 data sheets on habitat dynamics on 40 permanent plots in Kibira, Rusizi and Ruvubu National Parks.

The research on the influence of fires on the vegetation and the biodiversity for the management of the Ruvubu national park continued in 2023-2024. Three inventories were done involving 11 persons. The results have already been used in guiding the annual fire management near the borders of the park to avoid the migration of the animals from the park into the fields of the surrounding villages. Also the restoration of bamboo in the Kibira National Park continued in light of the restoration of the natural vegetation with 4 inventories. The results will be used to guide the restoration of the vegetation of the park through the PACECOR project.



An inventory was made about the work done in the herbarium during a mission by Tania D'HAIJERE and Han DE KOEIJER. Advice was given on how to improve the work in the herbarium. As a result, 2000 specimens were added to the herbarium collection.

Awareness about the value of biodiversity

Awareness was raised in 3 sessions with OBPE staff, Institut des Sciences Agronomiques and FOMI (fertiliser company) and scientists of the University of Burundi.

A regional workshop (ICCN, OBPE, UAC) on the management of vegetation fires in protected areas was successfully organised. Three awareness workshops were organized with 175 participants.

In memoriam for a biodiversity champion

CEBioS was honoured to be invited to contribute to the eulogy of biodiversity champion, Mr. Benoît NZIGIDAHERA, scientific director of OBPE, who sadly left us much too early in 2018.



The scientific eulogy was published in *Tropicultura* and showed once again the immense contribution of one man to his country in terms of biodiversity research and awareness.

Synergies in Burundi

In the light of synergies with Belgian development cooperation actors and their

partners, CEBioS mainly focused on Burundi, as many

nice opportunities occurred in 2019-2024.

Watershed protection and indigenous trees

PROCOBU/ASREEBU in Burundi

With a local NGO, ASREEBU, the project on the restoration of the natural vegetation in Bona continued and additional hectares of *Eucalyptus* were rewilded with native species. ASREEBU was granted funds for a project to restore the native vegetation under a UNDP/ENABEL project, with funding from Belgium and the EU, around the lakes in the mountain range in the North of the country.

OBPE and CEBioS supported the arboretum of Bujumbura, managed by the private sector (PROCOBU), with awareness activities with local schools and fishermen.

OBPE with ASREEBU organised information sessions in 2 schools and for local fishermen around the Rusizi National Park on the importance of biodiversity in general and the national park in particular, followed by a field visit to the Park and the arboretum managed by PROCOBU.

In total 200 scholars and 30 fishermen were reached by the project.

A strong synergy was established between CEBioS, OBPE, AVEDEC, ASREEBU and PROCOBU (local associations or NGOs), together with Join for Water to promote awareness of school children and local villagers on indigenous trees (exemplified in the Rusizi arboretum), as well as using them to stabilise the soil around water sources.

Awareness of ecosystem services with local NGOs



Pacale-B, see [page of Join For Water](#).

CEBioS provided a training on Biodiversity, the concept, importance and threats, as well as the link with resilience under the Pascale-B project in cooperation with Join4Water, Louvain Cooperation and

Broederlijk Delen. The trainees are trainers who will go out into local communities to build the capacity of local actors.

The project is called PASCALE-B IBIDUKIKIJE, an abbreviation referring to the complete French project name *Projet*

d'Appui à la Société Civile Active dans Les domaines de l'Environnement et la Biodiversité au Burundi (Aid Project for the Civil Society working on Environment and Biodiversity). *Ibidukikije* is Kirundi for 'environment' or 'natural resources'.

Focus on the Rusizi & Kibira National Parks

Rubicom

CEBioS is associated with the RUBICOM project, run by the University of Antwerp and the University of Burundi and financed by VLIR-UOS (South Initiative). This project is looking at biodiversity around the Rusizi river, and in particular the conflicts between humans, fauna and hippopotamuses, as well as their role in maintaining a healthy ecosystem. An initial launch [workshop](#) was held in March 2024, at the University of Bujumbura, mainly with the university stakeholder and OBPE. CEBioS contributed with a

presentation on Biodiversity, the concept, its importance for humans, the threats and the link with resilience. In July 2024, a [second workshop](#) was held in Gatumba, with stakeholders from civil society, university, OBPE, military and local administration, more specifically on the conflict humans-fauna. CEBioS contributed its expertise in managing discussions between several stakeholders and in analyzing how these stakeholders perceive biodiversity.

One of the major issue brought to light by participa-

tory mapping was the Buffer zone issue: in the 2012 water code, there is a protection zone of 150 meter for the lake, and 50 meter for the rivers, which leads to confusion about the law and the size of the buffer zone. Possible solutions for the various stakeholders were put forward together.

From the workshop with the stakeholders, a policy brief will be produced and distributed.



Both photos are taken at PROCOBU, Burundi.

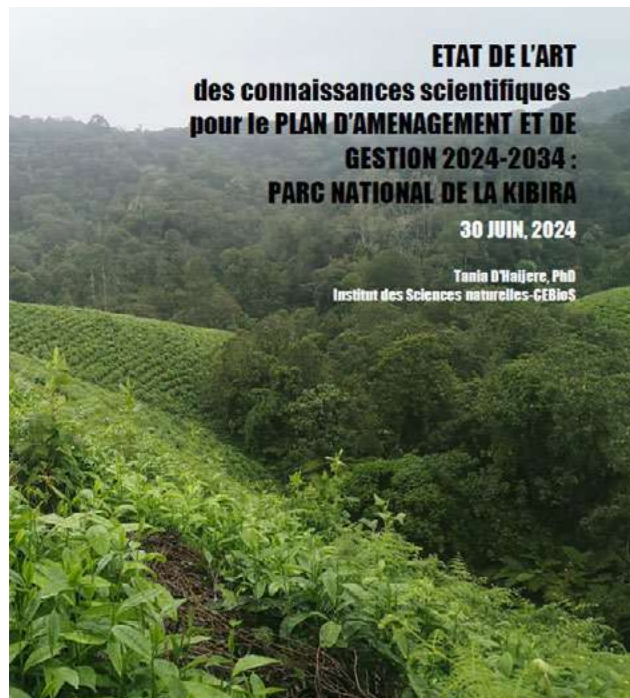


Aerial photo of the Rusizi river

Pacecor

The PACECOR project (UNDP-EU, DGD) aims at supporting the monitoring in the national parks of Kibira and Rusizi in Burundi. As a result, 118 additional specimens were collected for the herbarium for identification as well as 200 fiches were filled in by 37 agents in the parks. At the end of June 2024,

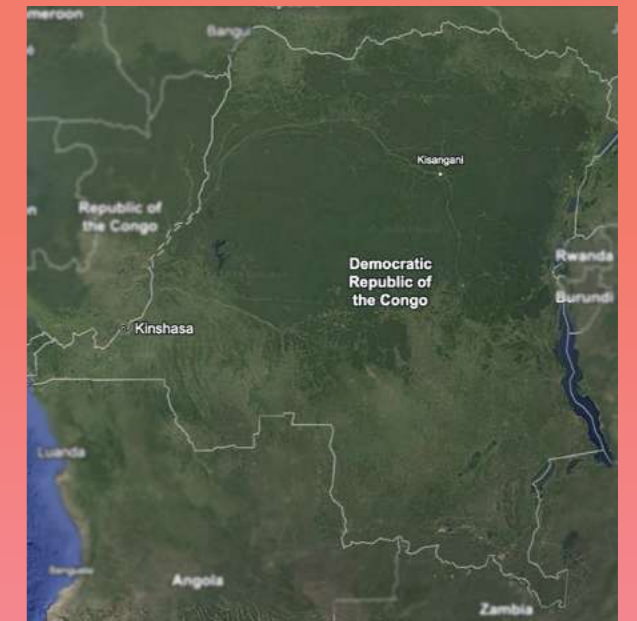
Dr. Tania d'HAIJÈRE (CEBioS) produced two documents as deliverables to the PACECOR project in support of the management by OBPE of Kibira and Rusizi National Parks: (1) *Etat de l'art des connaissances de la Kibira* and (2) *Plan de recherche pour une meilleure gestion de la Kibira*.



DR Congo Habitat Monitoring & CSB support

[Impact]

- By financing the field work of scientists of selected public universities, we have continued to strengthen the links between science and management (ICCN), and science and the Ministry of environment (MEDD). This is articulated by a remarkably enhanced ownership of the national report and NBSAP, as well as a more fluid implementation of the Protocol of Nagoya, for instance in the case of delivering permits for exportation of samples for research by GTI bursaries.
- CEBioS believes that this dynamization, a.o. through the 2nd International Conference on Biodiversity of the Congo Basin and the 'Etat des lieux de la biodiversité', moderated by a Beninese expert in a South-South cooperation, contributed to a.o. more concern from the central government about the challenges of biodiversity conservation in the country. This led to a more active and at times challenging participation of the DRC at the COP15 and to the recent creation of a DRC Platform for biodiversity by the MEDD. We observe a more intensive cooperation of the central government administration with the scientific biodiversity community, with the CSB as a central coordinating actor.
- The Virunga NP (DRC) sent a delegation to Belgium, facilitated by J.P. D'HUART (conservation consultant) and Virunga



Source: Google Earth

Foundation, to explore the archives of the Institute of Natural Sciences and AfricaMuseum, to find information lost in DRC due to armed rebellion. CEBioS coordinated the event with the Institute of Natural Sciences' direction and Library and supported the delegation in finding the right documentation in a decolonisation approach.

- The CSB participated to the CBFP COP in Kinshasa and was represented at a Stockholm conference (<https://congobasinscience.net/iufro/>) to present the CSB and its cooperation with CEBioS.

[Outcomes]

- ✦ Thanks to a.o. the 2nd International Conference on Biodiversity of the Congo Basin, CEBioS is now becoming a valuable and appreciated counselling partner for many stakeholders within the Congo basin, e.g., the Belgian Embassy and the EU in DRC.
- ✦ This conference initiated many international contacts e.g. the set up of a consortium of the Senckenberg Institute, Institute of Natural Sciences, the Botanic Gardens in Meise (MBG) and the AfricaMuseum to set up a monitoring framework for the recently created Lomami National Park.
- ✦ Database management [training](#) was provided.
- ✦ More than 400 CHM web pages/items were created on CHMs, GBIF and the archives of the national parks of former Belgian Congo (www.apncb.be) through the direct support of CEBioS.
- ✦ The MRV projects supported by CEBioS contributed to the 6th National Report on Biodiversity of the DRC, (see <https://www.cbd.int/>), and information available on the national CHM in the national reports by Belgium, Benin, Morocco, Niger and Togo.

Table 9. DRC participants Selected throughout CEBioS calls

| Calls | 2019 | 2020 | 2021 | 2022 | 2023 | Total |
|---------------|------|------|------|------|------|-------|
| GTI- extern | 2 | 0 | 0 | 2 | 1 | 5 |
| MRV | 5 | | 1* | 5 | | 11 |
| Awareness | 1 | 0 | 1 | 0 | 1 | 3 |
| GTI Awareness | - | 1 | - | - | 1 | 2 |

* a policy brief was developed in 2020, entitled 'Suivi de la biodiversité en DRC: comment le rendre efficace et pertinent pour la gestion et décision'. It was published in 2021.

Policy support through MRV

The Ministry of Environment of DRC (MEDD) was closely associated to the MRV processes for input into the National Biodiversity and Action Plan (NBSAP).

Support to MEDD and Etat des lieux de la Biodiversité

MEDD has co-edited a project proposal for its implication in the upscaling phase of the UNEP CONNECT project (<https://www.connectbiodiversity.com/about-connect>), which aims at streamlining and reinforcing the uptake of bio-

diversity indicators in national development plans. Further, MEDD received funding for a project on the transfer of information of the PTK site to the new Bioland tool.

Strengthening the CSB for enhanced biodiversity knowledge and management in the DRC



The CSB/UNIKIS building in Kisanagni, DRC

Over the past five years, CEBioS has provided substantial support to the *Centre de Surveillance de la Biodiversité* (CSB) at the *Université de Kisangani* (UNIKIS). This assistance has encompassed various areas, such as (1) training on technical, scientific and biodiversity governance topics, (2) mentoring on institutional governance, planning, reporting and financial management, (3) adoption of a methodology for multidisciplinary biodiversity and socio-ecological monitoring in the Tshopo, Ituri and Bas-Uele provinces, (4) fostering connections between the CSB, the national and provincial governments, and the national and international scientific community, organisations and platforms, engaged in the biodiversity sector.

Capacity Building

The CSB, created in 2014 in a post-war context, had to be built from scratch. Capacity building activities were numerous and covered diverse aspects.

The CSB worked with the national *Organe de CITES* and with the National Focal Point for Nagoya, to streamline the procedures to obtain permits for exporting biological samples, a great accomplishment for the international collaboration.

In March 2022, the CSB organised a comprehensive training workshop in Kisangani focusing on relational databases using Access and Geographic Information Systems (GIS) with participants from the Democratic Republic of the Congo (DRC), Burundi, Benin, and Rwanda.

In addition, multiple other training sessions were held at the CSB, covering essential topics such as survey data collection, statistical analysis, the use of Kobo tools, and habitat monitoring. These sessions catered for both CSB researchers and campus staff, reflecting the CSB's commitment to building local expertise.

In August 2022 a national workshop was hosted and organised by the CSB to explain and develop, together with the national Ministry of the Environment and Sustainable Development (MEDD), the strategic axes for the NBSAP as well as an action plan to update the 'State of the Art of the Biodiversity in the DRC', both in the framework of the Post-2020 agenda of the Convention on Biological Diversity (CBD).

A very successful '2nd International Conference on Biodiversity in the Congo Basin' was organised in March 2023 by the CSB and CEBioS together (see separate chapter).

Continuing its dedication to capacity building, the CSB has made substantial progress in digitizing grey literature stored on campus, working as a secondary Clearing-House Mechanism (CHM) for the country. These efforts, carried out in close collaboration with the National Focal Point (NFP) from the Ministry of the MEDD in Kinshasa, underscore the importance of coordination and knowledge sharing in these initiatives.

Over the years, a few promising young scientists have been continuously followed by RBINS senior scientists and CEBioS staff, not only by providing them with scientific expertise found in the North, but also by securing the necessary external funding to help them finish their master's or PhD degrees.

Monitoring of habitats and their biodiversity

The continuous assessment of habitats and biodiversity was a key priority for the CSB and the two faculties on campus: the Faculty of Science and the Faculty of Sustainable Management of Renewable Natural Resources.

From 2019 to 2022, CSB researchers conducted four distinct biomonitoring missions in the Bafwakondole, Baboro, Dikwa, and Bopale forests, focussing on small mammals and arthropods as bioindicators of habitat changes.

These comprehensive studies also included an analysis of local communities' knowledge and perceptions about zoonoses and habitat conditions. A workshop was organized to present the results to representatives of the communities in the studied areas as well as to representatives of the Yangambi area, where the CSB is conducting similar work in the MAB UNESCO-Yangambi project (see p. 85).



The '2nd International Conference on Biodiversity in the Congo Basin'. Photos Jean FUNDI (CSB)

Moreover, field work carried out with large multidisciplinary teams, a trademark of the CSB, allowed for the refinement of data collection and analysis methods, particularly for large mammal inventories and forest habitat

Networking and (inter-)national events

Networking and participation in (inter-)national events have proven vital for CSB-researchers specializing in small mammals, the support of CEBioS playing a key role. Notably, some researchers had the opportunity to attend international colloquia in Ethiopia and Namibia, which led to the successful bid for the CSB/ UNIKIS to host the next African Small Mammal Symposium in 2027.

In late 2023, the CSB stepped up efforts to strengthen collaborations with its provincial antennae at the national level. Collaboration protocols are currently being drafted, and discussions are ongoing with the Ministry of Environment and Sustainable Development (MEDD) and its Biodiversity Task Force. Furthermore, the CSB has joined the National Biodiversity Platform BioSE-RDC and took part in a validation workshop in Kinshasa.

Other external projects

In the period from 2019 to 2023, the CSB successfully secured extra external funding from the DGD and other donors, including for the '2nd International Conference on Biodiversity in the Congo Basin' (DGD) and for the 'UNESCO-MAB Yangambi' project (see separate chapter).

It is worth noting that, also with the support of CEBioS, the CSB has secured backing from

characterization. It was also an opportunity to offer hands-on field work training for students of the faculties on campus.

In 2024, a CSB delegation presented the institute's research at the national One Health symposium in Kinshasa. The CSB also represented the CSB-CEBioS institutional collaboration during the 20th Meeting of the Parties of the Congo Basin Forest Partnership (CBFP). Additionally, the Scientific and Academic College (SAC) of the CBFP offered the opportunity to its members, including to the CSB and CEBioS, to contribute to a presentation featured at the IUFRO 2024 conference in Stockholm.

In June 2024, a CSB delegation visited the Institute of Natural Sciences (RBINS), the Botanical Garden in Meise (MBG), the University of Ghent and the University of Antwerp, to further reinforce its commitment to international collaboration in biodiversity research.

the University of Antwerp and the Institute of Tropical Medicine (Antwerp). This has enabled the CSB to participate in key EU-funded projects such as BEPREP, RESTOREID, and PANAFPOX. BEPREP explores the link between habitat degradation and zoonotic epidemics, RESTOREID assesses how habitat restoration affects zoonotic pathogen circulation, and PANAFPOX investigates the origins of recent monkeypox outbreaks in the DRC.



Village at the border of the Congo river, DRC

Additionally, the CSB plays a vital role in biodiversity monitoring along the Yangambi Mega transect through DGD-funded AfricaMuseum projects.

Over the years, strengthened by the coaching provided by CEBioS, the CSB and its individu-

al researchers have been able to successfully apply for projects or become appreciated partners in other initiatives (Prostaddar, ISF, Kadima Foundation, Rufford Foundation, PN Maiko, Green Heart of Africa, etc.)

Field research by public universities to answer management questions of ICCN for Protected Areas

In the DR Congo our cooperation supported the habitat monitoring at four protected areas managed by ICCN (PN Kahuzi Biega, PN Virunga, Bombo Lumene, Lwama-Kivu Hunting Reserve).

With the support of CEBioS, the Université Officielle de Bukavu (UOB) team reassessed the impact of the invasive *Sericostachys scandens* creeper in the Parc National de Kahuzi Biega (PNKB).

CEBioS' support to University of Lumumbashi (UNILU) has contributed significantly to the identification and assessment of the biomass, diversity and abundance of soil macrofauna based on a gradient of ecosystem degradation. Two doctoral students have been working on this topic:

- The evaluation of ecosystem services of (peri-) urban green spaces in Lubumbashi (DRC) by biological and physico-chemical soil indicators.
- The Influence of anthropogenic activities on the soil macrofauna in Haut-Katanga province (DR Congo).

Based on CEBioS' experience in Burundi and with ICCN in the National Parks, training on habitat monitoring was organised in September 2019 with the participation of a park manager of Kahuzi-Biega NP as representative of ICCN and a representative of OBPE Burundi. This training was extended with several days of training and follow-up on the adaptation of the available data-sets to ensure their suitability for uptake in GBIF or other facilities, provided by Congolese data-experts trained by the UCL and CIFOR.

Furthermore, studies of students were supported for the universities of Kisangani (UNIKIS), Goma (UNIGOM), Lubumbashi (UNILU)

and Bukavu. UOB carried out an assessment of floristic potential and over-exploitation of red wood in Lwama Kivu Hunting Reserve. UNILU continued its work on clear (miombo) and dry (mihulu) forests, typical for the Copperbelt of Katanga Province. The use of drones helped to better identify health bio-indicators for these ecosystems. UNIKIS focused on understanding the diversity and culture of wild coffee. Finally, UNIKIS did research on carbon flux and stock in Yoko Forest reserve.

UNIGOM was involved in a better understanding of the dynamics of vegetation in the southern sector of the PN de Virunga ; a sampling of insects in vegetable crops was carried out, their functional groups were identified in order to propose a method of biological control against the pests of these crops in the vicinity of the PNVi. UOB carried out a mission in the forests of Itombwe to increase the collection of edible mushrooms from this reserve and thus facilitate the DNA based identification of those of them which are presumed new species and clarify their ecology. A new lexicon on the habitats of Itombwe was published in 2022.



Concerning habitat monitoring and ecosystem services, studies of students were supported from the universities of UOB, UNIGOM, UNILU and UNIKIS. It concerned respectively the work:

- on mushrooms diversity inventories in Itombwe Natural Reserve.
- on floristic dynamic in sacred sites of Kahuzi-Biega and Jean-Claude RIZINDE on the habitats of Virunga NP and mushrooms diversity in the Great Lake Region.
- on termites of Miombo forests
- on *Ecosystem Services from Musoshi and their integration in the Development Plan of Haut-Katanga*.
- on the resilience of coffee plants in Yangambi biosphere reserve.

UNILU

Analysis of the Ecosystem Services inherent in the Musoshi ecosystems and integration of the results into the Haut-Katanga development plan.

Two DEA theses have been financed by CEBioS, one on *Evaluation des qualités biologique et physico-chimique des sols dans les espaces verts urbains de Lubumbashi (Haut-Katanga, RDC)*, by MASHAGIRO GRACE Queen. The second presentation was on *Influence des activités minières et agricoles sur la macrofaune du sol dans la province du Haut-Katanga (RDC)*, by MUGANGUZI NTALE Trésor.

Following the completion of these two projects, CEBioS funded another study on 'la perception des services écosystémiques inhérents aux écosystèmes de Musoshi par la population locale' by the same two authors. As part of this study, fieldwork was done, a narrative report written and an article is being prepared for publication.

UOB

Updating of data on forest dynamics compared with the inventory drawn up on the basis of permanent plots installed in Kahuzi-Biega National Park in 2018.

Training in parataxonomy and progressive plant inventory in anticipation of publishing the flora of the Lwama-Kivu nature reserve and hunting estate.

Training of ecoguards in the use of the Itombwe dominant plant lexicon and popularization of research results to riverside communities in the Itombwe Nature Reserve.

UNIGOM

Dynamique floristico-dendrométrique des forêts des sites sacrés du Parc National de Kahuzi-Biega, RDC for a masters' thesis.



Source: Google Earth

Synergies in DRC

Support children's awareness about biodiversity: work with Kadima's Pride of Africa Safari Park

In 'Kadima's Pride of Africa Safari Park' near Kinshasa, CEBioS recognized a unique opportunity to promote biodiversity among school children of the city. The project permitted the children to spend a day at the Park and zoo, while being taught awareness about the biodiversity present in their surroundings. Unfortunately, the initiator of the Park, Mr. KADIMA, passed away in 2023. We remember him as a man with a vision and entrepreneurship.



Education about mushrooms: cooperation with VVOB

With VVOB a joint project was set up, to link the schools VVOB was working with in Kongo-Central, with the expertise on growing mushrooms and developing value chains. Up to this day, the results of the project are still tangible, with production sites in schools and their multiplication in the surrounding communities. The manuals produced during earlier activities of CEBioS and VLIR-UOS in the DRC were used to help structure the training activities.

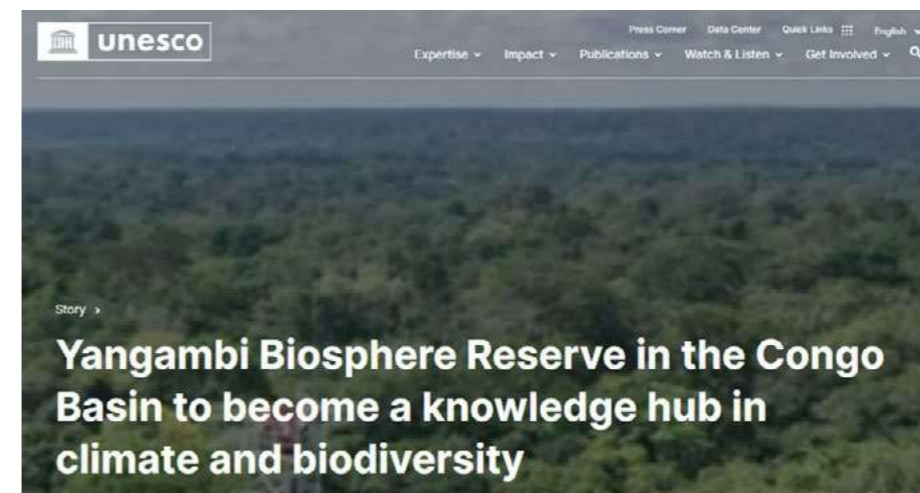
A knowledge hub in climate and biodiversity: the UNESCO Yangambi Project

Being one of the partners in the DGD funded UNESCO project 'Lifting the Yangambi Biosphere reserve into a climate-biodiversity centre of excellence', the CSB was responsible for the biological and socio-ecological part of the monitoring activities and the reporting to local and international scientific communities and decision makers. The centre was also responsible for the awareness activities among the population of the YBR.

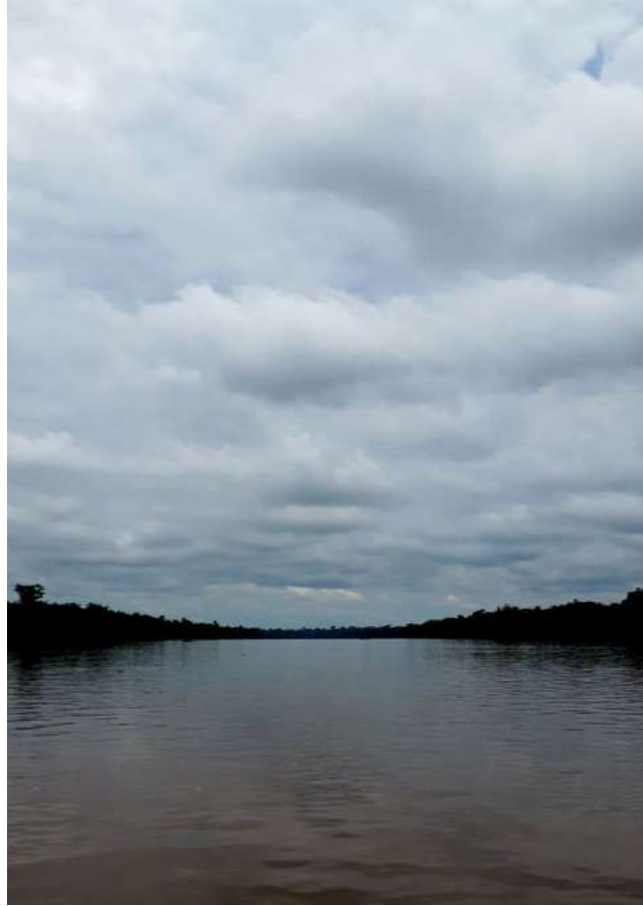
Cover of a manual for mushroom culture, produced by [VVOB](#), CEBioS and [AfricaMuseum](#)



Preparations for the '2nd International Conference on Biodiversity in the Congo Basin' in Kisangani, DRC



Article on the [UNESCO](#) website, explaining the importance of the Yangambi Biosphere Reserve project, for climate and biodiversity.



Above and right: The Congo river, DRC



In May 2024 the second phase of the project was launched. The activities carried out by the CSB will start in the first quarter of 2025.

[Website Unesco](#)



News >

Belgium invests €4 million in UNESCO project turning Yangambi Biosphere Reserve into climate and biodiversity hub

On 22 May, UNESCO and the Government of Belgium embarked upon the second phase of a project that is turning the Yangambi Biosphere Reserve in the Democratic Republic of Congo into a centre of excellence for climate and biodiversity. Under this agreement, the Government of Belgium will contribute €4 million to the project over a period of three years.

SCORES and Joint Strategic Frameworks

Since 2017, CEBioS has followed the formulation and implementation of Joint Strategic Frameworks (JSFs) by non-governmental actors of the Belgian Development Cooperation that are operating in Benin, Burundi, DRC and Vietnam. In 2022-2026, synergies with the Belgian development actors were further enhanced in the JSFs of Benin, Burundi, Kenya, Niger, DRC, Rwanda, Tanzania and Vietnam.

Furthermore, in the wake of the opportunity to develop a framework around thematic

issues for the period 2022-2026, 6 organisations with a history of collaboration – among them CEBioS – came together and identified a common cause: to preserve, as much as possible, and increase the resilience of freshwater, forest, and other ecosystems in developing countries. The thematic JSF 'SCORES' was born. The coordinator of SCORES was provided by Join4Water; the chairmanship by CEBioS. Its concept note was approved by the Minister of Development Cooperation in June 2020.

The 4 strategic goals of SCORES

1. Improved rights, policies, and governance of ecosystems and natural resources
2. Improved awareness, knowledge, skills about sustainable ecosystems
3. Strengthened sustainable access to, management and use of ecosystem services
4. Ecosystems are conserved or restored for optimal functioning

towards the preservation of the remaining wetlands, fastly disappearing under the pressure of intensive agriculture.

A desk study was conducted to analyse existing tools for assessing social-ecological resilience, among others four that seem promising: Wayfinder, RAPTA (Resilience Adaptation Pathways and Transformation Approach), STRESS (Strategic Resilience Assessment) and SEPLS (toolkit for the indicators of resilience in Social-Ecological Production Landscapes and Seascapes). This last method was also applied in some field studies in Burundi in collaboration with the University of Burundi.

SCORES is centred around the four basic or 'bio-physical' [Sustainable Development Goals](#) (6=water, 13=climate, 14= life on earth, 15= life under water) and each of the 6 founding members represents a certain area of intervention within the Belgian Development Cooperation, related to 'environment'.

CEBioS co-produced within the [SCORES](#) framework a so-called '4-pager' explaining the concept of resilience of socio-ecological systems to a wider audience on the base of definitions and examples.

CEBioS co-participated under SCORES in several workshops on resilience in Burundi, Rwanda, Benin and DRC. In Burundi it became clear that a special focus was warranted to-



Some publications



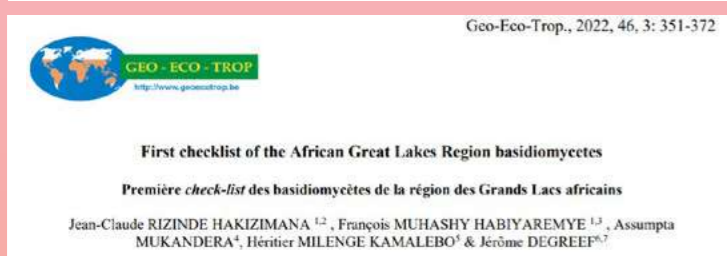
<http://dx.doi.org/10.5281/zenodo.8001787>



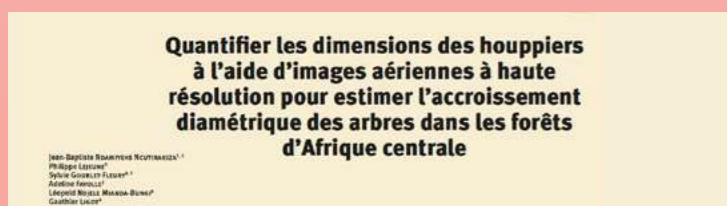
<https://doi.org/10.1016/j.foreco.2023.121553>



<https://doi.org/10.61186/jibs.10.3.453>



https://www.geoecotrop.be/uploads/publications/pub_463_01.pdf



<https://doi.org/10.19182/bft2020.343.a31848>



<https://doi.org/10.25518/2295-8010.2087>



<https://www.ulb-cooperation.org/wp-content/uploads/2022/02/biodiversite-des-ecosytemes-intertropicaux.pdf>

9. CEBioS and Water

Amongst the fastest disappearing biodiversity-rich ecosystems are aquatic ecosystems, such as wetlands, e.g., lakes, rivers, mangroves or coral reefs. These rich ecosystems are also important for millions of people for providing essential goods and services such as drinking water, energy, irrigation and food (e.g., fish, oysters, crabs). CEBioS contributed to a better knowledge of these systems through

several GTI or MRV projects and through external funding by VLIR-UOS, BELSPO and others.

In 2019, CEBioS proposed a poster about its activities on aquatic ecosystems at the Enabel stand in Dakar at the International Water Conference.

Lake Tanganyika in Burundi & DRC

In cooperation with the KU Leuven (South Initiative, VLIR-UOS), a workshop was organized in Uvira, at the shore of Lake Tanganyika to better understand the perception of local stakeholders about sardine fisheries in the lake. This resulted in a widely acclaimed policy brief published in French, English and Kiswahili and distributed through local and international partners. It contains scientific findings by Dr. Els DEKEYZER (KU Leuven) about the genetic structure of the sardine stocks (see article in Journal of Great lakes Research), as well as recommendations for future research.

Further, through a South Initiative (VLIR-UOS) with the VUB and the Université du Burundi, together with OBPE we trained local scientists on the biomonitoring of the coastal waters of Lake Tanganyika. It resulted in a field survey published in the Bulletin Scientifique pour l'Environnement et la Biodiversité, which served as further alarm to the decision-makers and the scientific community about the multiple uses and pollution of this fragile and unique ecosystem (high endemism), on which millions of people depend.

A critical look at fishing in Lake Tanganyika: will future generations still have access to fish?

Key messages

Fisheries of Lake Tanganyika, a source of income for millions of people, are in danger. Human activities around the lake and poor fishing practices threaten the stocks. Fish have become more difficult to buy for the population.

The resource, which is shared between four riparian countries, requires harmonized and consistent management at all levels. Based on our investigations we propose concrete actions to improve the situation.

Context

Lake Tanganyika is the longest freshwater lake in the world and the deepest in Africa, shared by four riparian countries: Burundi, the Democratic Republic of the Congo, Tanzania and Zambia. Fisheries and related activities in the region around the lake support the life of more than 10 million people, and serve as a main source of protein and income. However, their future is threatened: the misuse of the coast and the basin, the use of inappropriate fishing techniques and gear on prohibited sites, post-harvest losses, outdated regulations and their weak application, mean that the fish, yesterday common and accessible to all, are becoming a rare commodity. Therefore, the question if fish will still be available for future generations becomes more than pressing. Based on our observations and surveys in the field, we suggest solutions and recommendations to improve the situation at different levels of intervention.

Fig. 1. Fishermen on Lake Tanganyika pulling an illegal purse seine from a beach at Kilomoni, Uvira.

This policy brief is also available in French and Kiswahili. CEBioS 19-2125 in collaboration with the CRH and KU Leuven

Lake Manyara in Tanzania



A community mapping exercise highlighted the perspectives of different stakeholders (scientists, decision-makers, pastoralists and farmers (last two illustrated here)). The result was quite amazing: while the farmers emphasized plantations and the road to Arusha as important elements, the pastoralists emphasized the grasslands and minimized plantations.

In Tanzania, CEBioS co-managed with Prof. LUC BRENDONCK (KU Leuven) and the NM-AIST (Arusha) a North-South-South project (VLIR-UOS) on the stakeholders perceptions around the multiple environmental conflicts around Lake Manyara. It resulted in two scientific papers and was later complemented through an

MRV-project by a policy brief by NM-AIST as well. This research highlighted the complexity of such environmental problems and that the solutions must be sought after in a fair decision support system finding the balance between different interest groups.

Contents lists available at ScienceDirect

Ecological Indicators

journal homepage: www.elsevier.com/locate/ecolind

Using self-organizing maps and machine learning models to assess mollusc community structure in relation to physicochemical variables in a West Africa river-estuary system

Zinsou Cosme Koudenoukpo^{a,b,1}, Olaniran Hamed Odountan^{b,c,1}, Prudence Ablawa Agboho^a, Tatenda Dalu^{b,1}, Bert Van Bocxlaer^d, Luc Janssens de Bistoven^b, Antoine Chikou^a, Thierry Backeljauf^{b,1}

CEBioS participated in an [overview paper by Dawud ANSAR et al.](#) in 2023 to present the Manyara data in a decolonizing perspective and compare it with other case studies.

Environmental Management
<https://doi.org/10.1007/s00267-021-01466-x>

Stakeholder Analysis on Ecosystem Services of Lake Manyara Sub-basin (Tanzania): How to Overcome Confounding Factors

Luc Janssens de Bistoven¹ · Maarten Vanhove² · Anne-Julie Rochette¹ · Jean Hoge^{2,3,4} · Luc Brendonck

Received: 18 December 2020 / Accepted: 21 March 2021
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Research article

Communicating climate change and biodiversity loss with local populations: exploring communicative utopias in eight transdisciplinary case studies



Benin, 2019

Received: 24 January 2020 | Revised: 10 February 2022 | Accepted: 9 March 2022
 DOI: 10.1111/aje.13006

RESEARCH ARTICLE

Comparison of aquatic macroinvertebrate communities of Lake Ahémé (Benin, West Africa) across the short and long wet seasons

COLLABORATION SCIENTIFIQUE ENTRE L'IRHOB, LE LRZH ET L'IRSNB : RENFORCER LES COMPÉTENCES EN TRAITEMENT ET ANALYSE POUR UNE DYNAMISATION DE LA FILIÈRE CREVETTES



Afric@3i Blog: Selling BLOG and MAGAZINE
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ACCUEIL FINANCES INNOVATION RDV & OPPORTUNITÉS SECTEURS ALERTES/INFO AFRICASI TV CONTACTS

Ressources halieutiques : L'IRHOB et l'IRSNB pour une gestion durable des crevettes

Actualités - Vieilles Développement - Ressources halieutiques - L'IRHOB et l'IRSNB pour une gestion durable des crevettes

Partager



Towards sustainable management of fisheries resources and their ecological habitat in Lake Manyara

Actualités Economie Sport Politique Autres

Gestion durable des ressources halieutiques: Des résultats de recherches d'instituts dévoilés

Coastal lagoons in Benin

Through our GTI sub-programme, CEBioS supported local research on the biomonitoring of the coastal lagoons Ahémé and Nokoué in Benin. This resulted in several papers, see sample:

Wilfried SINTONDI had an interview about shrimp aquaculture on local television:
<https://www.youtube.com/>

Wilfried SINTONDI and Sylvain GOZINGAN submitted an abstract to the VLIZ marine science day that was accepted. Due to the COVID-19 crisis this conference was cancelled. As an alternative, they presented their results in a short video:

Through our institutional cooperation with IRHOB, the dynamics of several species of edible shrimps were mapped and recommendations were formulated for more sustainable fisheries. These results contributed to a renewed interest in this aquatic resource with high proteins for the local food security. Even the Colruyt Group showed some interest. However, CEBioS and partners were unable to cover the whole value chain which demanded other expertise.

This was widely reflected in the local press (>600 views).
<https://matinlibre.com/>
<https://fraternitebj.info/>
<https://lanation.bj/>
<https://africa3i.bj/>



Aerial photo of the Beninese coast

Lake Tana in Ethiopia

The magnificent Lake Tana in Ethiopia is the source of the Blue Nile and a sacred place for the Ethiopian orthodox church. It was not only the venue of our last EVAMAB closing workshop, but it was above all one of the 4 MAB sites under study in the EVAMAB project (the 4 sites: Mount Elgon in Uganda, Pendjari in Benin, Lake Manyara in Tanzania and Lake Tana). Lake Tana suffers from pollution and the invasive water hyacinth. The University of Antwerp (Prof. VAN PASSEL & colleagues) did some socio-economic research in the region, resulting in a paper and a policy brief.



CEBioS in Panel of Enabel: Is climate change adaptation all about water?

On 25 and 26 April, Enabel invited CEBioS to join the debate on Climate Change adaptation and water.

By questioning the role of water in Climate Change adaptation, the international conference initiated interesting dialogue to create further transversal activities and breaking si-



los in our replies to Climate Change consequences.

The afterlife of the EVAMAB Project

CEBioS also contributed to a better understanding of Lake Tana (Ethiopia) and Lake Manyara (Tanzania), both UNESCO Biosphere Reserves through its BELSPO-funded EVAMAB project which was implemented in the first phase.

In 2019 the last regional workshop for EVAMAB (coordinated by CEBioS, financed by BELSPO) took place at Lake Tana, Ethiopia. Several staff members organized this important event (summarizing the work done in Benin, Uganda, Tanzania and Ethiopia) and worked on several outputs such as policy briefs, scientific publications and a manual on the evaluation of ecosystem services for the Unesco Man and the Biosphere Programme.

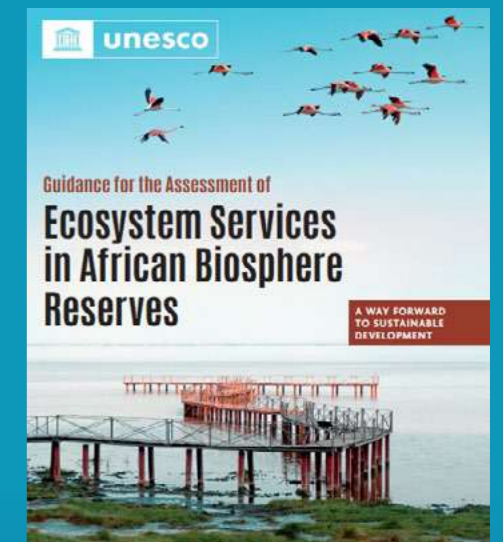
One of the major outputs of EVAMAB was the publication of the UNESCO Manual on the rapid assessment of ecosystem services in Biosphere Reserves of Africa, in English and in French. The publication happened during

the second phase and was disseminated with USB keys, brochures, QR code and the like at APAC conference in Kigali, the IUCN World Congress in Marseille and COP15 in Montreal.

The manual laid a.o. the basis for winning a PhD scholarship at the Vrije Universiteit Nederland.

The EVAMAB work has been disseminated in:

- Oryx, 'Conservation News'
- The Conversation
- The manual has been also mentioned by e.g., the [Ecosystem Services Partnership](#)



ZACORES: CEBioS and Artelia support Linda Bahari: Coral Reef restoration in Zanzibar

ZACORES is an example of a relatively small (citizen science) project in terms of budget, with a concrete conservation outcome. With funds from the Artelia Foundation (France), Dr. Anne LAUDISOIT, as a volunteer of RBINS-CEBioS, supported with scientific advice and fund raising in the name of CEBioS the local initiative 'Linda Bahari' in Zanzibar, Tanzania. The project aims at coral reef restoration through insemination of artificial substrates and awareness raising.

ZACORES/Linda Bahari so far, in a nutshell

Social impact

- 4 Linda Bahari trainees certified SCUBA PADI advanced and one at Master Diver level
- 2 Zanzibari and 2 Mafia residents trained in coral nursing and reef repair techniques
- 12 local dive guide/master/instructors taking part in coral nursing and reef repair techniques
- 22 people involved in rescuing "fragments of opportunity"
- 187 people involved in beach cleanup (7 sessions) - awareness raised about ocean plastic
- 84 foreign visitors on coral nursery for fish identification and cleaning since July 2022
- Social media visibility Instagram (<https://www.instagram.com/lindabaharizanzibar/>) and facebook (<https://www.facebook.com/Baharilindapamoja/>).

Ecological impact

- 888 rescued "fragments of opportunity"
- 55 corals nursed and transplanted with coral clips on the bare rocks of the home reef
- 512 (over 1cm) coral colonies from natural recruitment on the various structures of the nursery
- 102 bigger (over 1cm diameter) COO directly outplanted on artificial structure
- 727 kilograms of waste collected in 7 beach clean ups, collected and recycled through Zanrec

Scientific impact

- At least **11 coral families** and 24 coral species placed in nursery (gene bank ; many only identifiable to genus level only without microscopic section examination and genetic methods)
- Number of coral and marine **species recorded on GBIF** through iNaturalist (over 350)
- **COT outbreak** events reported to CORDIO
- **Bleaching alert awareness** and report to CORDIO



Painting by Lulu Vierkötter

10. Tables of Indicators

Two tables are presented: Table 10 with the indicators of the first transition logframe for the year 2019, and Table 11 with the indicators of the final logframe for the years 2020-2023.

For details about Baseline values, numbers per country, kind of datasets, etc per year, see the tables of indicators in the annual reports. (na = not assessed or not indicated)

Indicators at the level of 'activity' are described in the annual reports.

Legend of tables (see next pages):

- **Eval.** = self-evaluation of indicator;
- **green** = indicator is valuable, SMART and achieved;
- **blue** = indicator is valuable, SMART, but only partly achieved;
- **pink** = indicator is not achieved (possible reasons explained under 'comments/details');
- **no colour** = evaluation not possible because of lack of input in too early stage of the programme.



Lake Manyara, Tanzania

Table 10. Indicators for 2019

| Transition year 2019 | | Target | Achieved | Comments/ details | Eval |
|--------------------------|--|--------|--------------|---|---|
| Nr. Ind. | Indicator | | | | |
| General objective | | | | | |
| 1 | Positive trends of benefits that humans derive from ecosystem services in a sustainable way in the partner countries are better known, understood, disseminated and are increasing | | See comments | See comments in Table 2020-2023, indicator 1 | Too early |
| 2 | Partner countries show positive trends in the implementation of their biodiversity and development policies (e.g. NBSAP) with tangible results and good indicators | | See comments | See comments in Table 2020-2023, indicator 2 | Too early |
| SO-1 | | | | | |
| 3 | Participation by scientists from partner countries in international, regional, national or local MRV or policy processes for biodiversity and development has increased, putting more emphasis on a more efficient science based policy and management of biodiversity related to development | >50% | See comments | For phase II we seek an increase of participation of scientists in national MRV process and CHM. At least 50% of supported scientists are involved one way or another in national MRV processes, the science-policy interface and CHM. The baseline in phase I was <50%. A number of MRV scientific project partners (= number of projects - hard to count the exact number involved in each project) (13) | |
| 4 | Scientists are more able to integrate new knowledge, find appropriate funding, apply it for society and disseminate the results towards policy makers, peers, and the general public, with specific attention to indigenous people and local rural communities, women and youth. (see also other SOs) | >50% | See comments | The baseline in phase I was based on the output of 80 scientific articles, 12 policy briefs and more than 10 projects on public awareness by scientists. However, concerning the articles, few dealt in a direct way with livelihoods. For phase II we seek to attain >80% of scientists supported by CEBioS to deal in their research in a more direct way with livelihoods. This indicator better expresses the result than just mentioning the outputs, as it shows a real change amongst the targeted academic world. One for GTI, one participates in MRV workshop Bukavu. Blog about alumni GTI workshop in Benin: https://scienceofgiro.blogspot.com/ . GTI article on termites, see https://popups.uliege.be/ . Coaching to Cosme to apply for a Rufford scholarship on macro-invertebrates of Pendjari River, Benin, he succeeded. Publications by GTI beneficiaries, 2019 >10 publications, see http://www.taxonomy.be/gti_calls/grants_awarded/publis-gti/2019 | Too early, but already some indications |
| Result-1-1 | | | | | |
| 5 | More researchers in the South are empowered to conduct more applied research on biodiversity and development (1) to consolidate the knowledge on habitats and biodiversity, (2) to understand and valorise ecosystem services and their value chains of the protected areas and surrounding rural landscapes in DRC, Burundi and in Benin and (3) to understand water currents having an influence on coastal erosion and dispersal of organisms such as shrimp or fish in Benin and Vietnam (if external funding). see indicator 14 | 6 | 46 | Laban Musinguzi, MRV project promotor will work on a PhD with j Prof Jos Snoeks, K.U.Leuven- RMCA, partly as a result of his work with CEBioS. A study of value chains at PK172 axe Kisangani-Ituri (see also indicator 17). 15 GTI trainees under external call (See Table 1 in main part). Prof Sylvestre Gambalemoke attended with CEBioS support the 13th African Small Mammal Symposium (ASMS), 16-21 September 2019, Mekelle University, Mekelle, Tigray, Ethiopia. | |
| 5bis | Annual number of interventions integrating different calls in the institutional cooperation, hence allowing cross-fertilization between science, awareness, MRV and CHM in the science-policy-development interface. | 1 | 4 | Coaching of Sylvain Gozignan (Benin) to apply for a ICMIPA scholarship, about shrimp exploitation at Lake Nokoué. | |
| 6 | Annual number of mentions in different scientific, policy or popular media with direct or indirect reference to ecosystem service benefits or value chains derived from biodiversity, showing that the scientific community is not in its ivory tower but participates to societal debate and policies by producing and communicating science based evidence (also see for dissemination: SO1.2, 1.3. and 1.4 and SO2) | 4 | 12 | -video sur l'approche MRV et communication vers décideurs sur média Béninois -3 Glo.be articles related to our MRV policy briefs (bushmeat, fisheries, medicinal plants, charcoal) -Oryx news on ES in BRs (+associated videos) -ES tool review paper EVAMAB. Marie-Lucie put our highlights report on Besnet-Un enregistrement sonore préparé et diffusé 8 fois sur les antennes de la radio Flambeau de l'Orient de l'Université de Kisangani, à Kisangani. -Hermann Taedoumg used the opportunity to be author of the next <i>AbcTaxa</i> volume on the Rubiaceae, to ask for a prix De Candolle 2020. -H. Taedoumg was promoted lecturer at University Yaoundé I (Cameroun) -2 articles de vulgarisation dans la presse écrite béninoise sur le travail de Moïssou Lagnika et Patrick Martin; -1 vidéo sur l'expédition au Vietnam de J. Constant ; -1 article de presse sur l'atelier des GTI alumni de novembre 2019 (cf annexe) -Et https://scienceofgiro.blogspot.com/2019/11/le-programme-cebios-pour-la.html . -Best poster award van RAOS, to Iliana Janssens. -DGD sent a Telops about the MRV projects to: Kinshasa, Bujumbura, Cotonou, Rabat | |
| Result-1-2 | | | | | |
| 7 | Annual nr. of items of scientific information added on the national CHM of partner countries, showing the effective participation by scientists to enrich the CHM with own data (related to indicator 30) | 10 | 20 | L'information concernant 1 livre et 16 articles scientifiques produits par les scientifiques du CSB ont été ajoutés au site du CHM | |

| Transition year 2019 | | Target | | Comments/ details | Eval |
|--------------------------|--|---------------|----------|---|------|
| Nr. Ind. | Indicator | | Achieved | | |
| General objective | | | | | |
| 8 | Number of interventions of grey literature digitalisation, including amount of contents scanned, showing a higher accessibility and usage of this information to the wider expert community and public (stats on nr. of readers) | 1 | 0 | Programme de digitalisation avec le CSB attend son exécution | |
| 9 | Digitised grey literature is available on national CHM, being a direct consequence of indicator 8, enlarging the use and utility of CHM | 20 | 0 | Programme de digitalisation avec le CSB attend son exécution | |
| Result-1-3 | | | | | |
| 10 | Number of MRV project with relevant information feeding into National Biodiversity Reports and other assessments | 0 | 1 | Burundi CBD national report 2019; RDC no national report available for 2019. See video MRV in Benin: https://www.youtube.com/watch?v=DxE1mF2j1r8 | |
| 11 | Number of indicators developed by the partners used to feed into NBSAP | 0 | 0 | Too early | |
| 12 | Number of scientists able to use MRV-related methodologies or transfer their data towards indicator based systems of reporting | 40 | 78 | Number of participants to 3 MRV workshops - in 22 Benin, 13 in Uganda, 40 in Bukavu | |
| Result-1-4 | | | | | |
| 13 | Number of scientists able to communicate and raise awareness for different audiences in order to valorise science in outreach | 12 | 34 | National CHM of the 12 partner countries are up and running. We can't say how much information was used by scientist and their partners as this information is difficult to obtain. Posters and articles produced by GTI alumni trained during the GTI alumni workshop in November 2019. Intranet (e-bib) CSB is operational, discussions with WB programme to open up for both faculties on campus | |
| 14-39 | 26 activity indicators | | | Reported in the annual Report 2019 | |
| SO-2 | | | | | |
| 40 | Management plans of national authorities, agencies, their local civil society partners and research institutes of partner countries of the Belgian Development Cooperation take into account activities towards ecosystem services, development of value chains and alternative income sources for the local populations. (see also SO4 for mainstreamings into national plans) | Not specified | na | Han de Koeijer appointed member of Informal Advisory Committee to the Access and Benefit Sharing Clearing House for Belgium as one of 3 members for Western Europe. Han de Koeijer appointed member of Informal Advisory Committee on Capacity-building for the Implementation of the Nagoya Protocol. Too early to fulfill indicator 40. | |
| Result-2-1 | | | | | |
| 41 | Number and skills of staff of implementing agencies, incorporating issues of management, habitat monitoring, stakeholder engagement and valorisation of ecosystem services for local communities. They apply this through participative conservation | 10 | na | In 2019 some foundations were laid to attain indicator 41, but since it is more for long-term, too early for input. | |
| 42 | Improved monitoring through campaigns to collect data on the dynamics of habitats - Establish data bases of the LEM habitats | 3 | 2 | Constitution d'une base des données botaniques pour la forêt de Bafwakondima en vue d'un suivi ultérieur de la dynamique des habitats avec l'utilisation des fiches LEM. Data collection by Centre national Florestique, Côte d'Ivoire to populate information on the national CHM about species richness | |
| 43 | Number of databanks or publications with these data to point out the dynamics trend and to feed national reporting | 1 | 10 | Les équipes du CSB qui se sont déployées dans le secteur Beke-ni-Kondolole ont produit chacune une base des données: enquêtes socio-économiques, botanique, petits Mammifères, grands Mammifères, Insectes ravageurs et maladies des plantes, Reptiles, Myriapodes, Coléoptères, ichtyologie. | |
| 44 | Increasing use of tools (lexica) that facilitate the application of scientific knowledge to ensure the monitoring of habitats and of ecosystem health. (related to indicator 50) | 1 | 9 | -1 about bushmeat trade (DRC) -1 about medicinal plants commercialization (Benin) -4 about fisheries, their management and their impact (3 in DRC, 1 in TZ, 1 in UG) -1 about shea nut trade (Uganda) | |
| 44bis | Number of concrete projects by environmental agencies or associated partners to promote value chains of ecosystem services for rural livelihoods | | | | |
| Result-2-2 | | | | | |
| 45 | Number of contributors to the national CHMs in partner countries and Belgium, showing the correct functioning of the national focal point and the contributors network | 30 | >30 | A quick check on the latest additions in 2019 showed at least 30 contributors to the national CHMs that posted one item or more. | |
| 46 | Number of postings on the CHM about activities under SO2 financed by CEBioS, providing access to valuable information about biodiversity and development | 230k | 365k | The number of page visits on national CHM websites under the PTK for the period January – December 2019 posting by Burundi on new Bioland tool hasn't been taken into account in the numbers. CHM/GBIF workshop in Brussels September 2019 | |
| 46bis | Number of visits by authorities and large public of dedicated web sites such as CHM, showing the increasing demand and use by interested stakeholders of the information posted on the CHM | | | | |

| Transition year 2019 | | Target | | Comments/ details | Eval |
|--------------------------|--|--------|----------|---|------|
| Nr. Ind. | Indicator | | Achieved | | |
| General objective | | | | | |
| Result-2-3 | | | | | |
| 47 | Number of tools developed by CEBioS-MRV alumni used for awareness raising, and influencing policies | 0 | 1 | PB on crocodiles and hippo's in the Rusizi plains, DRC | |
| 48 | Number of scientists involved in the production of lexica, policy briefs and scientific papers, showing their involvement in the science-policy interface | 3 | 5 | The Bukavu PB about the MRV approach in DRC, involving at least 4 scientists + PB on crocodiles and hippo's in the Rusizi plains, DRC (Bashonga) -ongoing | |
| Result-2-4 | | | | | |
| 49 | Number of authorities, decision makers, local organisations and NGO's on having benefited from awareness raising activities and converting it in their professional lives at level of policies or management | 5 | 36 | PB on crocodiles and hippo's in the Rusizi plains, DRC has been widely distributed in Burundi and DRC. Participation in OBPE meetings by members of different Ministries and cabinets. Awareness raising by the CSB in the Bekeni-Kondolole sector comprised: 1 chef de secteur, 4 chefs de groupements, 12 sages, 1 responsable de la Police territoriale, 4 pasteurs, 3 directeurs d'écoles, 1 agent du Ministère de l'Environnement et Développement Durable. A series of GLO.Be articles dedicated to the CEBioS policy briefs: https://www.glo-be.be/fr/quick-articles/biodiversite-et-medecine-traditionnelle-meme-combat - https://www.glo-be.be/nl/quick-articles/biodiversiteit-en-traditionele-geneeskunde-eezelfde-strijd - https://www.glo-be.be/nl/quick-articles/te-veel-woudvlees-op-het-menu - https://www.glo-be.be/nl/quick-articles/minder-houtskool-om-bossen-te-beschermen - https://www.glo-be.be/nl/articles/sierplant-verpest-het-tanameer - https://www.glo-be.be/nl/quick-articles/minder-en-beter-vissen-duurt-het-langst | |
| 50-69 | 20 activity indicators | | | Reported in the annual Report 2019 | |
| SO-3 | | | | | |
| 70 | The participation of developing countries in the institutions of global governance is broadened and strengthened | na | na | This indicator was formulated for long-term outcome. 2019 as the first year of the phase and it was too early to evaluate on that. See Report and Table 2020-2023 for further indications. | |
| 71 | Number of times ecosystem and biodiversity values are mentioned into national and local planning, development processes, poverty reduction strategies and accounts, showing concrete mainstreaming of biodiversity concepts into planning | 3 | na | This indicator was formulated for long-term outcome. 2019 as the first year of the phase and it was too early to evaluate on that. See Report and Table 2020-2023 for further indications. | |
| Result-3-1 | | | | | |
| 72 | Number of CEBioS staff leading agenda items for Belgium as (co-)pilots in international policy meetings like OECD, IBPES by CEBioS staff members | 2 | na | This indicator was formulated for long-term outcome. 2019 as the first year of the phase and it was too early to evaluate on that. See Report and Table 2020-2023 for further indications. | |
| 73 | Number of partner country staff that were supported or are involved in CEBioS activities, attending international policy conferences and participating to their side events, showing the increased connection and influence of the partner countries with international policy | 0 | na | This indicator was formulated for long-term outcome. 2019 as the first year of the phase and it was too early to evaluate on that. See Report and Table 2020-2023 for further indications. | |
| 74 | Number of CEBioS staff leading agenda items for Belgium as (co-)pilots in SBSTTA and COP and expert meetings of CBD, EU and other organisations by CEBioS staff members | 2 | 2 | HdK: SBSTTA 23and WG8J November 2019; Thematic consultations on Implementation and Capacity building as well as OEWG2 02-03/2020 | |
| 75 | Number of North scientists requesting Nagoya PIC and MAT (related to indicator 89) to the competent authorities as a result of CEBioS training, showing the level of implementation of the Nagoya Protocol | 5 | 8 | According to the ABS-CH, 4 internationally recognised certificates of Compliance have been issued to Belgian institutes in 2019. In the beginning of 2020 2 additional ones have been published. development of PEC and MAT procedure with MEDD. Piet Stoffelen from Meise Botanical Garden questions on PIC and MAT replied to and given advice on how to obtain them. RBINS researchers for GTI calls informed about PIC an MAT requirements before taking material with them to Belgium. | |
| 76 | Number of South scientists requesting Nagoya PIC and MAT (related to indicator 89) to the competent authorities as a result of CEBioS training, showing the level of implementation of the Nagoya Protocol | 15 | 20 | Eugène SINZINKAYO/ Badjejea/ Mande/ Akuboy/ Ngoy, all 14 GTI trainees (1 visit cancelled due to Covid-19) | |
| Result-3-2 | | | | | |
| 77 | Number of CHM technical and IAC meetings participation, showing the level of CEBioS involvement and influence in the global CHM policy | 3 | 3 | HdK participation in CHM-IAC, Capacity building IAC and ABS-CH IAC meetings | |
| 78 | Number of people enabled to train contributors to the CHM in partner countries, showing the sustainability of train the trainer approach by CEBioS | 4 | 4 | Training of Morocco, Burundi, Niger and Benin | |

| Transition year 2019 | | Target | | Comments/ details | Eval |
|--------------------------|---|--------|----------|---|------|
| Nr. Ind. | Indicator | | Achieved | | |
| General objective | | | | | |
| 79 | Number of contributors to CHM of partner countries, showing CHM community network is functioning | 60 | >30 | Checked additions by different contributors on 10 sites. Due to migration to Bioland not reached the number expected. | |
| 80 | Participation in CHM-related activities such as juries, contests, prizes by partner countries, showing value the CBD or D4D prize is attributing to CEBioS and partners | 1 | 2 | Training given in Morocco and Saudi Arabia on CHM, requests from different countries to also give training but due to Bioland late start not possible | |
| 81 | Visits to the CHM websites of partner countries and others that receive support through South-South cooperation, showing functioning South South cooperation and exchange of best practices | 28k | 670k | Numbers based on google data of the PTK sites. | |
| Result-3-3 | | | | | |
| 82 | 82. Number of official documents using MRV for reporting, showing a functioning science-policy interface | 0 | na | This indicator was formulated for long-term outcome. 2019 as the first year of the phase was too early to evaluate on that. See Report and Table 2020-2023 for further indications. | |
| 83 | Number of official documents referring to new relevant policies or decisions and local plans, referring to documents, reports, actions of CEBioS projects and alumni | 0 | 1 | New protected area created in Palestine following MRV project 2018 | |
| Result-4-4 | | | | | |
| 84 | Number of projects on awareness raising carried out, showing qualitative projects to raise awareness amongst deciders and policy makers, as well as civil society (see R4.3), so that these stakeholders will adapt their behaviour when taking decisions or management actions | 5 | 15 | 5 projects were carried out under the CHM awareness (?) call, with Morocco not yet contract established. Awareness raising activities on Nagoya Protocol and biodiversity OBPE/PROCUBU. 8 émissions radiodiffusées pour sensibiliser le grand public, y compris la Société Civile, les organisations non gouvernementales et les autorités politico-administratives qui écoutent la radio de l'Université de Kisangani. No awareness project call planned for GTI in 2019 | |
| 85 | Number of national and sub-national deciders attending meetings for awareness raising, showing pro-activity and willingness to do outreach and understand the policies at stake | 10 | 14 | The project reports aren't available yet. OBPE participation in NP and eco-tourism meetings | |
| 86 | deleted | | | | |
| 87 | deleted | | | | |
| 88-100 | 12 activity indicators | | | Reported in the annual Report 2019 | |
| SO-4 | | | | | |
| 101 | Number of activities on North-South, South-South, triangular regional and international cooperation to enhance access to science, technology and innovation and enhance knowledge sharing | 1 | 4 | 3 MRV workshops promoting N-S-S cooperation (South experts + exchange of lessons learnt, round-table discussions). 1 MRV workshop at Lake Kivu was associated to the ACARE project | |
| 102 | Number of activities that promote effective public, public-private and civil society partnerships for a sustainable use of ecosystem services in rural landscapes | 1 | 7 | Project OBPE – PROCUBU on awareness raising for scholars and population around Rusizi NP; Project between Join for Water/OBPE and PROCUBU on native species with interest for the local population in watersheds; MRV projects involving private or NGO partners (Nugsoft, ASPADA, CEIBA, Amis du lac Tanganyika ASBL, ONG SCRID AGRI) | |
| Result-4-1 | | | | | |
| 103 | Number of projects in the South involving synergies or complementarities with Belgian actors | 1 | 10 | Rikolto participated to the MRV workshop in Bukavu IOB: formation enquêtes socio-économiques (VLIR-TEAM) Le CSB a aussi bénéficié du concours de Bob Utshudi, chargé de ICT du projet FORET soutenu par l'Union Européenne, pour la réparation et l'entretien du réseau internet. Projects between OBPE and PROCUBU on awareness raising of population around the Rusizi NP; with PROCUBU and Join for water on integrating local species in water catchment areas. A project still in the development phase ; with VVOB RDC still in development phase | |
| Result-4-2 | | | | | |
| 104 | Number of projects reports of partners of the Belgian Development cooperation available on the national CHMs | 1 | 5 | See national CHMs | |
| 105 | Number of additions on the national CHMs on activities by civil society and the private sector. | 5 | 2 | 3 projects under the CHM call 2019 and 2 projects under the 2019 awareness call have added their reports, events announcements as well as news items on the national CHMs | |

| Transition year 2019 | | Target | | Comments/ details | Eval |
|---------------------------|--|--------|----------|--|------|
| Nr. Ind. | Indicator | | Achieved | | |
| General objective | | | | | |
| Result-4-3 | | | | | |
| 106 | Number of initiatives raising awareness on biodiversity and development in private sector and NGOs (with call explained under R3.4), with these stakeholders being more aware of positive and negative effects on biodiversity of their actions and projects and accepting the concept of environmental impact assessments or other tools as powerful mitigation and precautionary measures. | 5 | 5 | Excursion nr Kadima DS 19 RDC; Development of thematic JSF 'water and forest resilience' Development of thematic JSF 'research' GSK - Burundi 2019; Project "Join for Water"/OBPE/PROCUBU Development project on mushrooms and their value chain with VVOB, DRC Participation in NGO meetings in Benin by J-D Akpona | |
| 107 | Number of training sessions to increase capacity on awareness in North (CEBioS) and South for the partners of the Belgian development cooperation, civil society | 1 | 2 | Presentation DS 19 RDC. Training session foreseen in March 2020 in Burundi but due to Corona virus cancelled Advice to the Royal Palace about relevant literature on biodiversity loss in preparation of the UN General Assembly. | |
| 108 | Number of projects to measure change in perception on biodiversity of target groups of activities financed by CEBioS. | 1 | 1 | OBPE-PROCUBU project | |
| 109-114 | 15 activity indicators | | | Reported in the annual Report 2019 | |
| Coordination & Management | | | | | |
| 115 | Positive monitoring and evaluation through OD Nature, CEBioS staff, local partners, mid and end term evaluations and through steering and strategic committees. The positive M& E is due to a smooth planning and implementation. | na | na | This was achieved, given the positive evaluation of phase 1. | |
| 116 | Internal and external visibility and recognition of CEBioS | na | na | This was achieved, given the positive evaluation of phase 1. | |
| 116bis | Percentage of women amongst the beneficiaries of the CEBioS programme (gender indicator, transversal to all SO, therefore under coordination) | na | na | Too early to judge, see Table 2020-2023 | |
| 117-119 | 3 activity indicators | | | Reported in the annual Report 2019 | |

Table 11. Indicators for the period 2020-2023

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. | |
|-------------------|---|---------|------|------|------|-------|----------|------|------|------|-------|------------------|---|--|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | | |
| General objective | | | | | | | | | | | | | | |
| 1 | Positive trends of benefits that humans derive from ecosystem services in a sustainable way in the partner countries are better known, understood, disseminated and are increasing. | na | na | na | na | na | | | | | | | <p>It would be unrealistic to flag this indicator as green. We published in 2019 the EVAMAB (BELSPO funding) manual on rapid assessment of ecosystem services in African Biosphere Reserves with UNESCO-MAB with some delays. The FR version only came out in 2020. No funding could be found to organize special trainings on the manual, but it was disseminated through several international channels (AfriMab in Abidjan, IUCN World Congress, APAC in Rwanda, Side event at COP 15). The manual also served as solid base for the winning of a PhD grant at Vrije Universiteit Nederland.</p> <p>Further, through our institutional cooperation with OBPE and the Pascal-B project in Burundi we trained local agricultural NGOs on the benefits of ecosystem services. Through SECORES we had some impact in a better appraisal of the importance of wetlands in Burundi, hotspots of biodiversity and rapidly disappearing under pressure of agriculture. But it remains a fight to make clear that food security cannot go without protection of wetlands. Our support to local research on measuring resilience of socio-ecological systems goes in that sense as well.</p> <p>Further, through a small project financed by the French Artelia foundation, CEBioS supported coral reef restoration in Zanzibar (Tanzania). It remains a difficult endeavor, as the local staff had to deal with tornados, water temperature increase and sedimentation causing bleaching and invasive predatory sea stars.</p> <p>In Bénin, our impact is probably best understood as seed money for scientific research and resulting publications on the coastal lagoons (with emphasis on shrimps and oysters as important food source, with some interest by the Colruyt Group), on the terrestrial ecology of the Northern parks (termites, fire management) ad on a better knowledge of edible mushrooms, inclusive the learning of DNA techniques. By supporting UAC and recently Parakou Universities, we contributed to local centres of expertise which can radiate through their extension work to the local communities in what they are good at, such as mycology, forestry and fisheries. CEBioS coaching enabled several young researchers to develop their career (nominations as professors, accreditation by CAMES) or find international funding through the Rutherford Foundation (UK), IUCN and the International Science Foundation (Sweden).</p> <p>For RDCongo, the publication of several volumes of AbcTaxa and lexica contributed to a better knowledge of certain aspects of biodiversity. Training on how to monitor habitats and fire management (together with Burundi and Benin) contributed to increase the overall local capacity to deal with environmental issues in and outside protected areas.</p> | |
| 2 | Partner countries show positive trends in the implementation of their biodiversity and development policies (e.g. NBSAP) with tangible results and good indicators | na | na | na | na | na | | | | | | | <p>Benin : Turn-over of biodiversity champions in Bénin due to career moves was not easy to compensate within the programme interventions. The institutional cooperation proved hardy at times due to factors such as poor communication, Covid and insecurity in the North. Attempts to create synergies with other Belgian actors did not achieve satisfying outcomes. The cooperation with IRHOB went relatively well, thanks to the dedication of its Director, Prof. Sohou and Geneviève Lacroix and colleagues (ECOMOD).</p> | |

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. |
|-------------------|--|---------|------|------|------|-------|----------|------|------|------|-------|---|-------|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | |
| General objective | | | | | | | | | | | | | |
| | | | | | | | | | | | | Burundi : Turn-over of OBPE staff in Burundi due to the passing away of the biodiversity champion Benoit Nzigidahera was not easy to cope with (e.g., delays for lexica). Despite the long Covid period, the last years (2022-24) saw a tremendous surge of new activities, especially through synergy projects linked with OBPE, Join4Water and Louvain Coopération (Pascal-B, Procebu, Pacecor, Rubicom). Also, CEBioS was consulted for the drafting of the new NBSAP and the formulation of large international programmes (L. Tanganyika, national parks) by the embassy. | |
| | | | | | | | | | | | | RDCongo : The support to CBS proved to be at times too intensive for sometimes mitigated results and impeding other parts of the programme. The local governance was blocked at times. Despite this, the implementation of the monitoring activities continued well, but data analysis did not follow well. The 2 nd conference in Kisangani proved to be a success, a 'véritable tour de force', thanks to the dedication of exceptional individuals. One impact (among many we guess), is the launch of the 'Green Heart of Africa' Initiative with RBINS and Senckenberg (Germany) for the newly created Lomami National Park. The same with the Habitat monitoring which went well, except in the Virunga region due to rebellion. ICCN visited RBINS to get better insights in the archives of Virunga NP, which can be seen as part of the decolonization process. Also, the last year, we saw a smoother implementation of the Nagoya Protocol, and more genuine collaboration between CSB and MEDD, both on the secondary CHM, as on the drafting of national report and NBSAP and the creation of a new Congolese Biodiversity Platform. The exercices on the 'etat des lieux de la biodiversité' proved very instrumental in this, although it missed some external visibility to create new dynamics. CEBioS invested a lot of MRV energy in RDC, but the translation into national indicators remains unsatisfying. | |
| SO-1 | | | | | | | | | | | | | |
| 3 | Publications and databases produced by beneficiaries in e.g. scientific papers, Ms and PhD theses etc..., policy or popular media with direct or indirect reference to biodiversity, ecosystem services benefits or value chains derived from biodiversity | na | 20 | 20 | 20 | 60 | 34 | 65 | 48 | 109 | 256 | Over the 5 years we reached >60 publications and databases. | |
| 4 | Share of alumni that remains research-active after the support of the programme (at least one participation in an international congress, publication, external fund acquired, PhD defended or academic promotion) | na | 70% | 70% | 70% | 70% | na | 72% | 91% | 80% | 81% | 70% or more of our alumni are still in the research world. | |
| 5 | Number of indicators developed by the MRV projects to be used to feed into NBSAP or other strategies and plans | na | 10 | na | na | 10 | na | 23 | Na | Na | 23 | Although some indicators were developed through the MRV projects, the variety of scales (from local to national) provoked some impediments into the translation towards NBSAP. | |

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. |
|--------------------------|--|---------|------|------|------|-------|----------|---------|---|---------|-----------|---|-------|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | |
| General objective | | | | | | | | | | | | | |
| 6 | Number of e-visitors to newly digitised grey literature (scanned pages) available on CHM, GBIF and the archives of the national parks of former Belgian Congo (www.apncb.be) | 250k | 250k | 260k | 270k | >1M | 471.046 | 371.713 | Not available because of migration to Bioland | 604.565 | 1.447.324 | 2022: No numbers can be given as google analytics changed its settings and the sites don't give any results before 12/2022 2023: For some sites the counter only starts in April or June due to move from PTK to Bioland for the CHM sites. For CEBioS it only starts in April due to move to Wordpress and new google analytics tag. General: The CHM for Belgium and the partner countries moved to the Bioland tool, first as test sites and now many to active sites. This change has made that the search engines can't find the information in the beginning, and it takes time to update the search engine. From 2024 onwards the information should be continuously captured. | |
| SO-2 | | | | | | | | | | | | | |
| 7 | Number of Management plans of regional and local authorities, agencies, their local civil society partners taking into account results of CEBioS activities | 0 | 1 | 2 | 2 | 5 | 3 | 1 | 1 | 2 | 7 | Although our efforts certainly did contribute in one way or another to management plans, it does not appear well in the online literature. The PACECOR deliverables and the use of a CEBioS project in Benin for their NBSAP at the end of the phase contributed to the indicator. | |
| 8 | Number of tools developed by CEBioS-MRV alumni used for awareness raising, and influencing policies | 0 | 0 | 2 | 15 | 17 | na | 40 | na | 59 | 99 | 40= 15 databases + 25 maps (outputs of MRV projects) 59= communication tools (postcards, leaflets, policy briefs, etc, in MRV AW projects) | |
| 9 | Number of persons reached through CHM networking events | 8 | 6 | 8 | 8 | 30 | 16 | 20 | 0 | 9 | 45 | This indicator was easily reached through our regional workshops in Niger, Burundi and Brussels. Due to Corona the workshop for 2021 and 2022 were joint in the regional training workshop in Burundi. | |
| 10 | Number of staff of implementing authorities reached through awareness raising projects (number of persons) | 15 | 15 | 15 | 20 | 65 | 42 | >30 | 31 | 49 | >152 | | |
| SO-3 | | | | | | | | | | | | | |
| 11 | Number of CEBioS alumni participating in international bodies under the CBD (COP, SBSTTA, SBI, IACs and more) and related MEAs | 2 | 3 | 3 | 4 | 12 | 4 | 0 | 8 | 6 | 18 | Several of our alumni participated in the bodies under the CBD. We only counted them one time when they participated in several bodies in one year. During COP15 more participated. | |

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. |
|-------------------|---|---------|------|------|------|-------|----------|------|-------|------|--------|--|-------|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | |
| General objective | | | | | | | | | | | | | |
| 12 | Number of scientists requesting Nagoya PIC and MAT to the competent authorities as a result of CEBioS training | 22 | 27 | 27 | 27 | 108 | 8 | na | 13 | 50 | ? | We only counted Nagoya permits from GTI students that came to Belgium as well as GTI tutors that went to countries. We aren't aware on other numbers but we received several requests on how students from Universities could get NP permits or also from foreigners that wanted to collect in the Walloon region. As it is a regional competence we don't have more information. According to the ABS-CH there were 27 IRCCS given to institutes in Belgium we counted these in 2023. | |
| 13 | Number of CEBioS mandates in international advisory bodies and technical committees | 2 | 2 | 2 | 2 | 8 | 3 | 4 | 3 | 3 | 13 | Han has been member of the following: IAC on ABS-CH, Nagoya Protocol capacity building and development and IAG on technical and scientific cooperation. | |
| 14 | Number of contributors to CHM of partner countries | 52 | 57 | 62 | 72 | 243 | 42 | 53 | 59 | 89 | 243 | The number of contributors is hard to measure as some are active, others participated only in a training course. In 2023 there was a great increase in contributors as several trainings were given but we distracted contributors from earlier trainings given in earlier years that aren't active. | |
| 15 | Number of staff members of authorities, decision makers and policymakers reached through awareness raising activities (number of persons) | 11 | 22 | 22 | 32 | 87 | 201 | >95 | >100 | >150 | > 546 | It isn't always easy to find in the participants list of meetings who is member of an authority, so we had to estimate their numbers based on the mention Ministry, Director, and others. We had some hesitation about how to also count people that participated in several meetings. Therefor after 2021 we give an estimated number. | |
| 16 | Number of official documents of authorities, decision makers and policy makers effectively using MRV results for reporting | na | na | na | 3 | 3 | na | na | na | 5 | 5 | 1 in Benin (forest cover), 2 in East DRC (fisheries in Kivu and hunting in Uvira), 1 in Zanzibar (new COFMAs using adapted template), 1 in Palestine (updated NBSAP) | |
| SO-4 | | | | | | | | | | | | | |
| 17 | Number of effective synergies and complementarities (collaborations, joint activities) on North-South, South-South, triangular regional and international cooperation to enhance access to science, technology and innovation and enhance knowledge sharing | 5 | 10 | 10 | 10 | 35 | 8 | 6 | 6 | 6 | 14 | | |
| 18 | Number of people (ultimate beneficiaries) reached through the supported awareness projects | 100 | 150 | 200 | 250 | 700 | >400 | >10k | >1000 | >10k | >21400 | In the reports of the different awareness raising projects there are several times journal articles, television and radio emissions as well as physical meetings. It is impossible to get the exact number. | |
| 19 | Number of cases with a verified positive change in awareness | na | na | 0 | 10 | 10 | na | na | 3 | 14 | 19 | Increased level of knowledge of CBD state of the art and GBF; increased visibility of CHM websites; fishermen communities being invited to change habits; increased knowledge of the harmful effects of deforestation on biodiversity; awareness on impact of pesticides, pollution, polination, water quality, invasive species. | |

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. |
|--------------------------|--|---------------------------|---------------------------|----------------------------|---------------------------|------------------|-------------------------|--------------------------|-------------------------|--------------------------|------------------|--|-------|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | |
| General objective | | | | | | | | | | | | | |
| Result-1 | | | | | | | | | | | | | |
| 20 | Number of persons of which the capacities have been strengthened (per CB type) (for all results) | 40 F10-20% Inst: 43 | 60 F10-20% Inst: 43 | 150 F10-20% Inst: 40 | 80 F10-20% Inst: 40 | 330 Inst: 166 | 59 F13% Inst: 181 | 213 F21% Inst: 185 | 101 F43% Inst: 49 | 450 F18% Inst: 338 | 823 Inst: 753 | Fluctuating proportion of women, average = 24% | |
| 21 | Number of trainings (per CB type) (for all results) | 10 | 10 | 12 | 10 | 42 | 6 | 3 | 9 | 17 | 35 | | |
| 22 | Level of satisfaction with the quality of capacity building (per CB type) (for all results) | 7 | 7 | 7 | 7 | 28 | 8,5 | na | >7 | 7 | 7-10 | Ex post surveys of workshops and trainings gave valuable hints about what can be improved (e.g., timing, catering, didactics etc), but generally we got >7/10 score. Sample can be provided on demand. | |
| 23 | Level of self-reported motivation and ability to apply new knowledge and skills (per CB type) (for all results) | 7 | 7 | 7 | 7 | 28 | 8,5 | na | >7 | 7 | 7-10 | Ex post surveys of workshops and trainings gave valuable hints about what can be improved (e.g., timing, catering, didactics etc), but generally we got >7/10 score. Sample can be provided on demand. | |
| 24 | Number of AbcTaxa publications produced with support of the programme | 1 | 1 | 1 | 1 | 4 | 1 | na | 1 | 3 | 5 | | |
| 25 | Number of presentations or posters presented by South researchers (participation supported by CEBioS) at scientific congresses related to biodiversity and development | 3 | 3 | 3 | 3 | 12 | 4 | na | >3 | 3 | 10 | | |
| 26 | Number of datasets on biodiversity established by National Parks and other important biodiversity hotspots as a results of capacity development CEBioS | 1 | na | 2 | 2 | 5 | 8 | 3 | 1 | 2 | 14 | | |
| 27 | Number of agenda items led by CEBioS staff for Belgium in OECD, IPBES, SBSTTA, COP, expert meetings of CBD, EU and other organisations | 3 | 2 | 2 | 3 | 10 | 2 | na | 3 | 5 | 10 | | |
| 28 | Number of partner country staff supported by CEBioS activities, attending international policy conferences | 3 | 0 | 2 | 3 | 8 | 1 | na | 3 | 1 | 5 | Reduced mobility due to Covid | |
| Result-2 | | | | | | | | | | | | | |
| 29 | Number of scanned pages/items (digitised scientific literature, photos and more) available on CHM, GBIF and the archives of the national parks of former Belgian Congo (www.apncb.be) through the direct support of CEBioS | 50 | 50 | 100 | 100 | 300 | 1410 | 40 | >500 slides | 100 | 2000 | | |
| 30 | Number of CHM technical and IAC meetings participation attended by CEBioS staff | 2 | 2 | 2 | 2 | 8 | 2 | na | 2 | 2 | 6 | | |
| 31 | Number of people enabled to train contributors to the CHM in partner countries | 10 F2/M8 | 10 F2/M8 | 10 F2/M8 | 9 F1/M8 | 39 | 8 F1 | 8 F0 | na | 9 F1 | 25 | 2022 reported in 2021 (Burundi) | |
| 32 | Number of national trainings organised by CHM trainees | 4 | 4 | 4 | 4 | 16 | 4 | 4 | 3 | 3 | 14 | | |
| 33 | Number of persons reached in national trainings organised by trainees | 50 | 50 | 50 | 50 | 200 | 65 | 50 | 27 | 50 | 167 | Local dynamics does not allow to control numbers. | |

| Period 2020-2023 | | Targets | | | | | Achieved | | | | | Comments/Details | Eval. |
|--------------------------|---|---------|------|------|------|-------|----------|------|------|---------------|-------|---|-------|
| Nr. Ind. | Indicator | 2020 | 2021 | 2022 | 2023 | Total | 2020 | 2021 | 2022 | 2023 | Total | | |
| General objective | | | | | | | | | | | | | |
| 34 | Number of visitors to CHM web sites | 270k | 250k | 200k | 300k | 1M | 281k | 290k | na | 250k (estim.) | 821k | Pages visited on the countries CHM that are part of the official 14 partner countries; 471.000 pages if also CEBioS, Be and countries like Madagascar are taken into account From 2022 onwards, with Bioland, no data available anymore | |
| Result-3 | | | | | | | | | | | | | |
| 35 | Number of tools (Policy Briefs, lexica, etc) published that facilitate the application of scientific knowledge to ensure the monitoring of habitats and of ecosystem health | 3 | 4 | 9 | 9 | 25 | 2 | 1 | 8 | 10 | 21 | We observed some delays in the finalization of two lexica, one in Bénin, due to the insecurity in the Pendjari-W national park, and one in Burundi, due to the passing away of the late Benoit Nzigidahe. The level of generation of policy briefs was seriously impeded by the Covid period as well, combined with some focus on other interventions needing more attention. | |
| 36 | Number of CEBioS trainees that become involved in the production of lexica and policy briefs with the support of CEBioS | 30 | 30 | 50 | 30 | 140 | 100 | na | 40 | 15 | 155 | | |
| 37 | Number of projects on MRV awareness raising completed | 0 | 0 | 10 | 12 | 22 | na | na | 12 | na | 12 | 2023 reported in 22 budget | |
| Result-4 | | | | | | | | | | | | | |
| 38 | Number of awareness raising meetings with different target groups, organised by CEBioS partners | 14 | 5 | 5 | 5 | 29 | 14 | 3 | 87 | 7 | 111 | | |
| 39 | Number of vulgarizing documents effectively published (videos ; posters ; flyers ; or articles in popular media) by partners, with support of CEBioS | 14 | 7 | 7 | 7 | 35 | 15 | 1 | 56 | >7 | 79 | Éléments sonores, voir https://audioblog.arteradio.com/blog/147770/podcast/178995/les-forets-de-dikwardc | |
| 40 | Number of projects on awareness raising carried out (except MRV, see ind. 37) | 11 | 4 | 4 | 2 | 21 | 16 | na | 6 | 10 | 32 | | |

Lessons learned about the indicators for the period 2019-2023

As lesson learned for that period, we confirm the difficulty to describe qualitative indicators of impact (at the level of General objective) and outcome (at the level of Strategic Objective or SO) (indicators 1-4, 40, 70-71, 101-102 for 2019 and 1-19 for 2020-2023). Especially as we postponed that description to the end of the period, making it more difficult to recall exactly the possible impacts and outcome in the past 5 years. The description in this report is a proxy of different realities in the field. Much impact is about the level of facilitation, networking, mentality change, awareness risen and decisions made, often quite intangible to really measure or even describe. Proxies of success stories are reflected by testimonies, internet links, reports, scientific publications and citations, posts in Clearing House Mechanism, surveys or press releases.

Second, concerning the quantitative indicators (at the level of Results) (2019: 5-39, 41-69, 72-100, 103-120 and 2020-2023: 20-40), the lack of some values in some years is mainly due to the covid period of end 2019-2021, the fact that some indicators remain difficult to quantify or were reported in other years because of budget shifts.

Nevertheless, we see most values remaining quite stable along the years for many indicators, meaning that most of them proved to be SMART. Sometimes a light increasing trend could be seen in e.g., gender proportion or number of outputs. In other cases, the values fluctuated from year to year, reflecting that some years compensated for others, which has also to do with the great agility and adaptability of the programme and its multi-year design (from 2020 onwards), the CEBioS team and the partners.

For some indicators, values were not obtained, again often due to local conditions, the global pandemics or the fact that we were at that time unable to measure them for a variety of reasons.

In conclusion, we believe that the indicators generally reflect quite well the work done and the outcome and impact realized during these five years. Their definition, as well as their baselines and target values were all in all quite satisfying estimates.

But, as already stressed by the end evaluation, a better MEAL (Monitoring Evaluation Assessment Learning) system needs to be installed to be able to better keep track of all indicators in real time. This will also facilitate the appreciation of more qualitative indicators of impact and outcome. The evaluation also came to the conclusion that the intervention logics used in 2019 (per SO, all Results) was easier to grasp than the one used in the period 20-23 (all Results are transversal for all SOs), although we were advised otherwise at that time. But it was also clear that we did not need to put an indicator for each activity, as was the case in 2019. So, as a lesson learned, the next logframe for the new phase 2024-2029 will limit indicators to impact (General Objective), outcome (SOs) and outputs (Results), but with each SO having its own Result indicators as was the case in 2019.

11. Management, facts & figures

Gender

CEBioS undertook a short project to track the gender balance in projects we organized or funded during the last two phases. The results are in annex 1. It should be noted that many individuals took part in multiple projects and calls. As it is important to see to what degree our regular partners skew male, the choice has been made to focus on individual applications and moments of participation and count them as separate data points, even when the same people are involved. As such, the percentages presented in annex 1 should be taken to indicate the degree of female participation in CEBioS projects, rather than exact numbers of women and men.

Women continue to be a minority in CEBioS projects. In all categories of projects across the two phases, the overall degree of female participation never clears 30%, and in most cases remains under 20%. Overall, the degree of female participation in the phase 14-18, 14%, is almost identical to the degree of female participation in 19-23, 14.6%. This does obscure differences between both phases: the rate of female participation in the external GTI calls has augmented, whereas it has gone down to 0% in our MRV calls. But overall, the degree of female participation remains relatively stable across time.

An analysis of the amount of female applicants that get selected in our calls shows that women are as likely to be accepted as men if they submit their application, suggesting that the problem lies not with bias in our selection procedures. A further look at which categories

perform well and which don't, can indicate the cause of the disparity. The two categories that perform the best in terms of degree of female participation are the GTI external calls and the Other Projects category, signifying the various workshops, networking events, etc. we have organized. We publish projects in these categories openly and widely through various channels. These categories together reach a degree of female participation of 22.8%. By contrast, the rest of the categories rely much more on repeated cooperation with established partners in Belgium or in the South. Together, they achieve just 13.2%.

Something similar can be observed when analyzing the degree of female participation for a few countries we have a lot of contact with. Our official partner countries of DRC, Benin and Burundi hover around 10% female participation, whereas Morocco and Côte d'Ivoire, where we have less institutional cooperation and more contacts at the level of workshops and traineeships, fare remarkably better (though still not clearing 50%).

The issue of the comparative lack of female participation in CEBioS projects, therefore, seems to be a "supply-side" problem. On the one hand, the institutions and locations where we are active tend to be ones where the STEM (Science Technology Engineering Mathematics) field is still very male-dominated. On the other hand, we might not be reaching all the female researchers, or more equal institutional partners, that exist locally.

Evaluation and Lessons learned

Conclusions from the executive summary of the Alesopi end-evaluation

Relevance

The CEBioS programme has demonstrated considerable relevance in aligning its goals with the needs of its beneficiaries and partner institutions. It has excelled particularly in individual capacity support activities and has shown significant relevance to biodiversity-related Sustainable Development Goals (SDGs) and Convention on Biological Diversity (CBD) objectives. Its 10-year programming framework, with a strong focus on outcomes and stakeholder communication, has provided

stability and facilitated the integration of lessons learned. However, the programme could further enhance its relevance by fostering more genuine dialogue with global partners, broadening the focus from “mirror teams” to whole partner institutions (whole-institution approach¹), and more effectively addressing the broader biodiversity-related developmental challenges of partner countries, including those related to poverty and hunger.

Coherence

The CEBioS programme exhibits a strong degree of internal coherence, aligning well with the Institute of Natural Sciences (RBINS) activities and the Belgian Biodiversity Policy Support Group (BIOPOLS). However, it could improve strategic participation in project design to further enhance internal coherence. Externally, while CEBioS has built strong ties with Belgian policy actors, there is a need to better document its policy influence and to strengthen

strategic involvement with organisations like ENABEL, the AfricaMuseum (RMCA), and other stakeholders of Belgian development cooperation sector. This would both increase the value it brings to the biodiversity sector and avoid duplication of efforts. In addition, better balancing the interests of Belgian researchers with local needs will increase the overall coherence, relevance, and impact of the programme’s interventions.

Efficiency

The CEBioS program displays commendable efficiency, achieving notable results with a lean team, modest budget increases, and operations across various countries. Its economic efficiency is evidenced by a high output of work, including manuals, policy briefs, and training with limited resources. Furthermore, despite the significant budget allocated to human resources, CEBioS has been successful in converting inputs such as funds and expertise into outputs. However, the programme can further

improve efficiency by enhancing its monitoring and evaluation practices, ensuring more systematic data collection, and addressing late reporting issues. Despite these challenges, CEBioS demonstrates strong internal communication mechanisms and adaptive practices, including agile planning, which contribute to quick decision-making and resilience against external pressures, such as the COVID crisis and caretaker government periods.

Effectiveness

The CEBioS programme demonstrates strong effectiveness, surpassing annual targets for most outputs and intermediate outcomes, and maintaining alignment with strategic objectives. Despite challenges such as the caretaker government period and the COVID crisis, the programme has displayed resilience and flexibility, delivering high-quality outputs. The effectiveness of the programme is evident in its progress between phase I and phase II, the appreciated contributions to capacity devel-

opment activities, the contribution to Belgian CBD commitment in supporting CHM focal points of partner countries and the successful partnerships established in its concentration countries. However, to further enhance effectiveness, CEBioS could focus on improving strategic participation in project design, broadening the approach to whole-institution support, and striving for more visible results improvement, the overall effectiveness of the CEBioS program is highly positive.

Impact

The CEBioS programme has made significant contributions to biodiversity conservation and knowledge building, exhibiting potential for transformative impacts on social, environmental, and economic outcomes. However, to enhance its impact, CEBioS could adopt a more strategic approach to translate knowledge into action, align with other actors for greater outcome leverage, and integrate a more profound commitment to gender-sensitivity and intersectionality. While the contributions of CEBioS to local communities, such as the bio-culture

of mushrooms project, show promising results, their long-term impact remains challenging to evaluate. The alignment of CEBioS with Aichi targets and its support to CBD national focal points in partner countries are commendable, contributing to better prospects for nature conservation and improved local implementation of CBD obligations. Further improvement in gender-sensitivity and development relevance could ensure an even broader contribution to development objectives.

Sustainability

The CEBioS programme has demonstrated progress towards sustainability, with robust environmental and institutional practices. Amongst others, it ensures access to and longevity of its physical outputs, enhancing environmental sustainability. It also fosters institutional sustainability through strategic partnerships and capacity development initiatives, which promote South-South capacity building. However, the sustainability strategy for institutional partners requires further structuring, with clear indicators and plans for part-

ner autonomy. The programme’s social and economic sustainability is still nascent and would benefit from more structured strategies, particularly involving greater engagement with local communities and businesses. Despite these areas for improvement, the programme’s commitment to knowledge sharing, capacity development, and networking opportunities present potential for enhancing its overall sustainability.

Audit

At the end of the 5 year an audit has been performed by BELSPO. The draft audit report has been received on the 27th of November 2024. It still needs to be controlled by RBINS and CEBioS in particular for eventual remarks.

Both the draft report and this five year report are to be submitted to the steering Committee 16 of December 2024 for information and formal endorsement. The entire audit report can be consulted on demand.

Short description of the audit (in French) :

1. ORIGINE DE L'AUDIT

Le Protocole de collaboration, en son article 14, prévoit la réalisation d'un "rapport financier" à mener par l'auditeur de la Politique scientifique. Le premier programme (2014-2018) a déjà fait l'objet d'un « rapport financier ». Le présent rapport couvre le deuxième programme.

2. BUT DE L'AUDIT

Cet audit a pour but, comme stipulé dans le Protocole, de procéder à une revue des dépenses effectuées et vérifier si celles-ci respectent les directives sur l'utilisation des subventions accordées par la DGD ainsi que les règles administratives et comptables mises en place par l'IRSNB.

3. TRAVAIL PRESTE

des entretiens ont eu lieu avec les principaux acteurs impliqués dans l'organisation du programme CEBioS. Une fiche synoptique sur le programme a été formalisée. Des analyses et des vérifications ont été faites sur base des documents de travail reçus des collaborateurs de l'équipe CEBioS. Des indicateurs ont aussi été développés. A l'issue de ce travail, des observations ont été faites et des recommandations ont été proposées. un suivi des recommandations du premier rapport d'audit a été effectué et intégré dans le présent rapport. un plan d'actions consolidé de toutes les recommandations (celles restantes après le suivi et celles du présent rapport) a été formalisé.

4. PLAN DU RAPPORT

Chap. I : Organisation de la mission d'audit

Chap. II : Vue synoptique du programme CEBioS

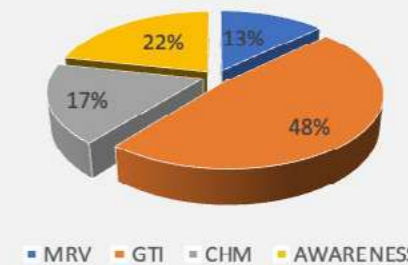
Chap. III : Avis sur l'utilisation du financement public

Chap. IV : Observations et recommandations (2019-2023)

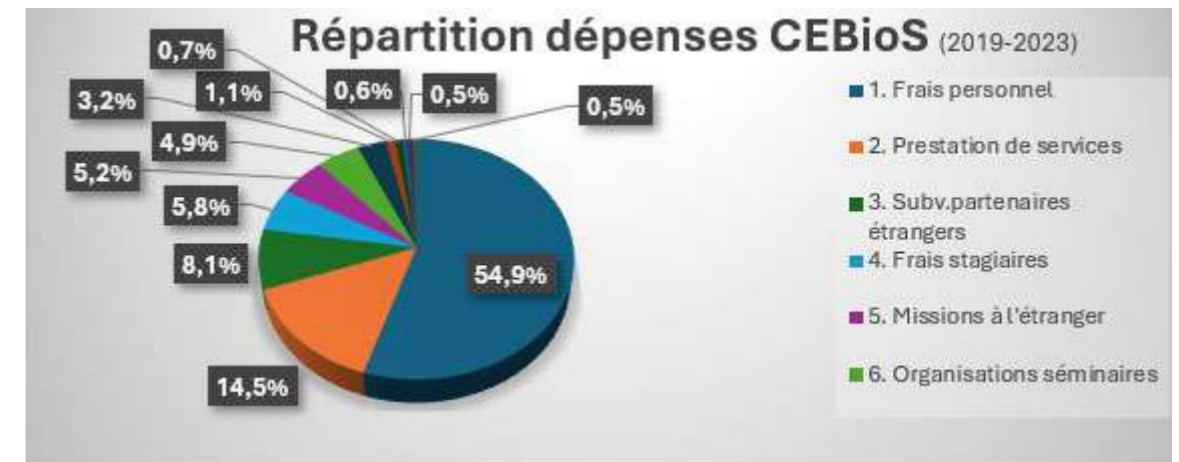
Chap. V : Rapport du suivi des recommandations de l'audit de janvier 2019

Chap. VI : Plan d'actions consolidé (audit 2019-2023 + follow up 2014-18)

Répartition des appels à projets par objectif



Répartition dépenses CEBioS (2019-2023)



Exerpt of the audit report, chapter III :

III. AVIS SUR L'UTILISATION DU FINANCEMENT PUBLIC

Nous avons passé en revue les dépenses réalisées tout le long du programme CEBioS 2019-2023, et sur base d'échantillons, nous avons vérifié si le cadre légal et administratif étaient bien respectés, à savoir :

- les conditions d'octroi de subsides mentionnés à l'art. 11 du Procole,
- l'AR du 11/09/2016 relatif à la coopération non gouvernementale,
- les règles énumérées dans les directives sur l'utilisation des subventions accordées par la DGD,
- les procédures administratives et comptables mises en place au sein de l'IRSNB.

D'une manière générale, à l'exception des points mentionnés dans le chapitre IV, nous pouvons confirmer que :

- les dépenses mises en charge de la subvention comme coût direct, répondent aux conditions cumulatives suivantes :
- elles sont documentées par une pièce justificative, identifiables et vérifiables,
- elles sont nécessaires à l'atteinte des résultats ou à la gestion du programme, et ont été engagées conformément au budget et au programme approuvés, pendant la période d'exécution de celui-ci,

- elles satisfont aux dispositions de la réglementation fiscale, sociale et de marchés publics applicables et respectent les dispositions internes de l'ESF,
- elles ne font pas l'objet d'autre financement,
- elles ont été engagées conformément à une convention de partenariat ou de collaboration, lorsqu'elles ne sont pas effectuées par l'ESF à qui la subvention a été octroyée,
- elles ne sont pas un coût non subsidié repris dans la liste en annexe de l'A.R. du 11/09/2016 relatif à la coopération no gouvernementale.

Toutefois, le temps est venu après deux quinquennats, et au regard des futurs défis (budgétaires, de bonne gouvernance et environnementaux), de placer le programme CE-BioS dans une optique tournée vers la modernisation managériale. Vous trouverez, dans le prochain chapitre, nos observations et recommandations. Celles-ci sont déclinées en grands domaines de gestion :

- la gestion financière,
- la gestion du personnel,
- la gestion du pilotage,
- la gestion des risques,
- la gestion de la politique environnementale.

Excerpt, chapter VI :

VI. PLAN D' ACTIONS CONSOLIDES (follow up 2014-18+audit 2019-23)

| Actions | Owners | Ref. |
|--|---------------------|--|
| FOLLOW UP AUDIT 1 | | |
| 1. Elaboration d'un budget et d'un bilan annuel par nature de dépenses. | CEBioS | A.1 (follow up) + point A.5. (Audit 2) |
| 2. Finalisation du vademecum à l'adresse des partenaires | CEBioS | A.5 (follow up) |
| 3. Développement d'un système de pilotage et détermination d'indicateurs sur les principales activités ainsi que sur les missions. | CEBioS | B.1/B.4/B.5 (follow up) + point C. (Audit 2) |
| 4. Réalisation d'un plan du personnel consolidé. | CEBioS | B.2 (follow up) |
| 5. Formalisation d'une procédure de base pour les quatre types d'appel (MRV, GTI, CHM, Public Awareness) à l'attention des nouveaux collaborateurs. | CEBioS | B.6 (follow up) |
| AUDIT 2 | | |
| 6. Clarifier l'utilisation des overheads | IRSNB | Point A.2. |
| 7. Formaliser une procédure pour la facturation interne | C E B i o S / IRSNB | Point A.3. |
| 8. Faire respecter scrupuleusement la procédure des achats telle que communiquée dans l'Intranet de l'Institut. Faire un rappel de la recommandation dans les réunions de staff. | CEBioS | Point A.4.1. |

| | | |
|---|---------------------|----------|
| 8. Inclure dans le rapport annuel un indicateur sur le volontariat (nombre de personnes, durée, tâches) et écrire une directive interne sur les conditions et les obligations du volontariat et en informer les Directions. | C E B i o S / IRSNB | Point B. |
| 9. Développer et mettre en place un contrôle interne | C E B i o S / IRSNB | Point D. |
| 10. Ecrire et appliquer une politique environnementale | C E B i o S / IRSNB | Point E. |

The entire audit report can be consulted on demand.

Inventory all materials

In the period 2019-2023, a total of 78 items were donated to researchers in the framework of GTI. It concerns books, small IT material or some small research and field material. For each item received, the recipient had to sign a receipt, describing the item and stipulating that the item is for the institution of the recipient. Most items are a few hundred euros. Only 4 items are above 1000 EUROS.

Table 12. Inventory of materials in the period 2019-20123

| Article | Price (EURO) | Recipient |
|------------------------------------|--------------|---------------|
| Microscope Leica DM2500 LED | 21.563,41 € | UAC, Benin |
| 1 laptop HP Pavilion | 1.299,00 € | OBPE, Burundi |
| - 1 laptop HP Pavilion | 1.299,00 € | OBPE, Burundi |
| - laptop HP Pavilion | 1.299,00 € | OBPE, Burundi |
| LAPTOP LENOVO LEGION SLIM 7 16APH8 | 1.849,00 € | UAC, Benin |

The complete list is available on demand.

Expenditures

Table 13. Expenditures per SO & Result (17 december 2024)

| N°SO | Centre Frais | N° Poste Budgétaire | Category | Intitulé | | identifiant Unique | 2019 | | | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 5 ans | 5 ans | 5 ans | |
|------|--------------|---------------------|-------------|---|------|--|--------|-------------|---------------|---------|-------------|---------------|---------|-------------|---------------|---------|-------------|---------------|---------|-------------|---------------|--------------|------------------|---------------------|---------|
| | | | | | | | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget total | Dépenses totales | % utilisation total | |
| SO 1 | 2477LJB2 | 19b | Investments | 01-R1.2-19b-investments-CB-Marine Modelling in Benin : computers | SO 1 | Marine Modelling in Benin : computers | 1 | 3.000,00 € | 3.032,50 € | 101,08% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 1.699,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 3.000,00 € | 4.731,50 € | 157,72% |
| SO 1 | 2477LJB2 | 19b | Investments | 02-R1.2-19b-investments-CB-OBPE institutional cooperation for research : computers | SO 1 | OBPE institutional cooperation for research : computers | 2 | 3.000,00 € | 3.366,46 € | 112,22% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 3.897,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 3.000,00 € | 7.263,46 € | 242,12% |
| SO 1 | 2477LJB2 | 19b | Investments | 03-R1.2-19b-investments-CB-CSB/ UNIKIS : institutional cooperation for research : computers | SO 1 | CSB/UNIKIS : institutional cooperation for research : computers | 3 | 0,00 € | 0,00 € | 0,00% | 3.500,00 € | 3.500,00 € | 100,00% | 0,00 € | 0,00 € | 0,00% | 2.000,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 5.500,00 € | 3.500,00 € | 63,64% |
| SO 1 | 2477LJB2 | 1 | Operations | 04-R1.1-1-1-operation-CB-GTI for grantees from South | SO 1 | GTI for grantees from South | 4 | 55.000,00 € | 56.794,36 € | 103,26% | 45.000,00 € | 52.838,87 € | 117,42% | 55.000,00 € | 60.781,65 € | 110,51% | 45.000,00 € | 83.408,05 € | 185,35% | 45.000,00 € | 84.455,25 € | 187,68% | 245.000,00 € | 338.278,18 € | 138,07% |
| SO 1 | 2477LJB2 | 2 | Operations | 05-R1.1-2-2-operation-CB-GTI for RBINS researchers doing capacity building in the South | SO 1 | GTI for RBINS researchers doing capacity building in the South | 5 | 35.000,00 € | 33.039,61 € | 94,40% | 35.000,00 € | 37.710,61 € | 107,74% | 35.000,00 € | 55.025,49 € | 157,22% | 35.000,00 € | 45.400,17 € | 129,71% | 17.000,00 € | 64.381,19 € | 378,71% | 157.000,00 € | 235.557,07 € | 150,04% |
| SO 1 | 2477LJB2 | 3 | Operations | 06-R1.1-3-3-operation-CB-RD Congo universities, ICCN : institutional cooperation for research | SO 1 | RD Congo universities, ICCN : institutional cooperation for research | 6 | 25.000,00 € | 23.494,03 € | 93,98% | 25.000,00 € | 34.390,25 € | 137,56% | 25.000,00 € | 34.750,60 € | 139,00% | 17.000,00 € | 17.805,70 € | 104,74% | 13.000,00 € | 5.845,00 € | 44,96% | 105.000,00 € | 116.285,58 € | 110,75% |
| SO 1 | 2477LJB2 | 4 | Operations | 07-R1.1-4-4-operation-CB-Marine modeling | SO 1 | Marine modeling | 7 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% |
| SO 1 | 2477LJB2 | 4 | Operations | 08-R1.1-4-4-operation-CB-Marine modeling in Benin : data collection | SO 1 | Marine modeling in Benin : data collection | 8 | 8.000,00 € | 8.000,00 € | 100,00% | 11.500,00 € | 11.500,00 € | 100,00% | 5.000,00 € | 7.000,00 € | 140,00% | 6.000,00 € | 7.700,00 € | 128,33% | 3.000,00 € | 1.042,64 € | 34,75% | 33.500,00 € | 35.242,64 € | 105,20% |
| SO 1 | 2477LJB2 | 4 | Operations | 09-R1.1-4-4-operation-CB-Marine modeling in Benin : study grants S-N | SO 1 | Marine modeling in Benin : study grants S-N | 9 | 12.000,00 € | 11.080,73 € | 92,34% | 6.000,00 € | 10.924,26 € | 182,07% | 18.000,00 € | 23.886,91 € | 132,71% | 12.000,00 € | 11.959,95 € | 99,67% | 3.000,00 € | 3.432,63 € | 114,42% | 51.000,00 € | 61.284,48 € | 120,17% |
| SO 1 | 2477LJB2 | 6 | Operations | 10-R1.1-6-6-operation-CB-Pilot projects on monitoring and databases | SO 1 | Pilot projects on monitoring and databases | 10 | 3.000,00 € | 2.529,00 € | 84,30% | 3.000,00 € | 3.000,00 € | 100,00% | 3.000,00 € | 4.150,63 € | 138,35% | 3.000,00 € | 0,00 € | 0,00% | 3.000,00 € | 0,85 € | 0,03% | 15.000,00 € | 9.680,48 € | 64,54% |
| SO 1 | 2477LJB2 | 7 | Operations | 11-R1.1-7-7-operation-CB-OBPE institutional cooperation for research | SO 1 | OBPE institutional cooperation for research | 11 | 37.000,00 € | 28.433,27 € | 76,85% | 37.000,00 € | 46.526,24 € | 125,75% | 37.000,00 € | 36.419,67 € | 98,43% | 37.000,00 € | 42.101,35 € | 113,79% | 37.000,00 € | 33.352,09 € | 90,14% | 185.000,00 € | 186.832,62 € | 100,99% |
| SO 1 | 2477LJB2 | 8 | Operations | 12-R1.1-8-8-operation-CB-UAC institutional cooperation for research | SO 1 | UAC institutional cooperation for research | 12 | 9.000,00 € | 9.297,57 € | 103,31% | 8.000,00 € | 7.939,83 € | 99,25% | 9.000,00 € | 0,00 € | 0,00% | 9.000,00 € | 11.772,64 € | 130,81% | 7.000,00 € | 7.203,88 € | 102,91% | 42.000,00 € | 36.213,92 € | 86,22% |
| SO 1 | 2477LJB2 | 9 | Operations | 13-R1.1-9-9-operation-CB-CSB/ UNIKIS institutional cooperation for research | SO 1 | CSB/UNIKIS institutional cooperation for research | 13 | 41.000,00 € | 38.152,68 € | 93,06% | 41.000,00 € | 34.864,75 € | 85,04% | 41.000,00 € | 47.538,26 € | 115,95% | 41.000,00 € | 44.204,31 € | 107,82% | 41.000,00 € | 44.057,31 € | 107,46% | 205.000,00 € | 208.817,31 € | 101,86% |
| SO 1 | 2477LJB2 | 11 | Operations | 14-R1.3-11-11-operation-MRV-MRV projects | SO 1 | MRV projects | 14 | 24.000,00 € | 22.266,00 € | 92,78% | 30.000,00 € | 34.391,76 € | 114,64% | 6.000,00 € | -268,26 € | -4,47% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 60.000,00 € | 56.389,50 € | 93,98% |
| SO 1 | 2477LJB2 | 4 | Operations | 15-R1.4-4-4-operation-AW-Marine modelling in Benin : dissemination | SO 1 | Marine modelling in Benin : dissemination | 15 | 0,00 € | 0,00 € | 0,00% | 2.500,00 € | 3.054,00 € | 122,16% | 0,00 € | 0,00 € | 0,00% | 2.000,00 € | 2.000,00 € | 100,00% | 7.000,00 € | 6.300,00 € | 90,00% | 11.500,00 € | 11.354,00 € | 98,73% |
| SO 1 | 2477LJB2 | 5 | Operations | 16-R1.1-5-5-operation-CB-production of AbcTaxa | SO 1 | production of AbcTaxa | 16 | 18.000,00 € | 23.448,47 € | 130,27% | 18.000,00 € | 7.311,83 € | 40,62% | 18.000,00 € | 12.451,32 € | 69,17% | 18.000,00 € | 13.931,28 € | 77,40% | 12.000,00 € | 8.351,43 € | 69,60% | 84.000,00 € | 65.494,33 € | 77,97% |

| N°SO | Centre Frais | N° Poste Budgetaire | Category | Intitulé | | identifiant Unique | 2019 | | | 2020 | | | 2021 | | | 2022 | | | 2023 | | | Budget total | Dépenses totales | % utilisation total | |
|---------------------------------------|--------------|---------------------|-------------|--|------|--------------------|--------------|--------------|---------------|--------------|--------------|---------------|--------|--------------|---------------|---------|--------------|---------------|---------|--------------|---------------|--------------|------------------|---------------------|---------|
| | | | | | | | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | 5 ans | 5 ans | 5 ans | |
| SO 1 | 2477LJB2 | 6 | Operations | 17-R1.1-6-operation-CB-pilot projects on monitoring and databases | SO 1 | 17 | 3.500,00 € | 4.952,78 € | 141,51% | 4.000,00 € | 2.810,00 € | 70,25% | | 4.000,00 € | 0,00 € | 0,00% | 7.000,00 € | 0,00 € | 0,00% | 4.000,00 € | 0,00 € | 0,00% | 22.500,00 € | 7.762,78 € | 34,50% |
| SO 1 | 2477LJB2 | 10 | Operations | 18-R1.2-10-operation-CHM-Digitalisation | SO 1 | 18 | 8.000,00 € | 6.132,05 € | 76,65% | 8.000,00 € | 6.944,15 € | 86,80% | | 5.000,00 € | 21,80 € | 0,44% | 8.000,00 € | 7.961,59 € | 99,52% | 0,00 € | 0,00 € | 0,00% | 29.000,00 € | 21.059,59 € | 72,62% |
| SO 1 | 2477LJB2 | 4 | Operations | 19-R1.1-4-operation-CB-Marine modelling in Benin : meetings | SO 1 | 19 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | | 2.000,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 2.000,00 € | 1.800,00 € | 90,00% | 4.000,00 € | 1.800,00 € | 45,00% |
| SO 1 | 2477LJB2 | 12 | Operations | 20-R1.3-12-operation-MRV-MRV trauning and formation workshops | SO 1 | 20 | 50.000,00 € | 50.081,09 € | 100,16% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 50.000,00 € | 50.081,09 € | 100,16% |
| SO 1 | 2477LJB2 | 12 | Operations | 21-R1.3-12-operation-MRV-MRV closing workshop (in combination with training workshop ao, awareness raising for CEBioS alumni | SO 1 | 21 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 9.419,14 € | 0,00% | 18.000,00 € | 1.307,07 € | 7,26% | 0,00 € | 0,00 € | 0,00% | 18.000,00 € | 10.726,21 € | 59,59% |
| SO 1 | 2477LJB2 | 13 | Operations | 22-R1.4-13-operation-AW-Awareness methodology for CEBioS alumni | SO 1 | 22 | 20.000,00 € | 18.350,95 € | 91,75% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 32.037,06 € | 0,00% | 41.000,00 € | 322,93 € | 0,79% | 0,00 € | 0,00 € | 0,00% | 61.000,00 € | 50.710,94 € | 83,13% |
| SO 1 | 2477LJB2 | 2 | Missions | 23-R1.1-2-missions-CB-GTI for RBINS researchers doing capacity building in the South | SO 1 | 23 | 20.000,00 € | 12.603,93 € | 63,02% | 20.000,00 € | 9.837,78 € | 49,19% | | 20.000,00 € | 17.058,73 € | 85,29% | 20.000,00 € | 21.861,50 € | 109,31% | 8.000,00 € | 4.152,43 € | 51,91% | 88.000,00 € | 65.514,37 € | 74,45% |
| SO 1 | 2477LJB2 | 3 | Missions | 24-R1.1-3-missions-CB-RD Congo universities, ICCN : institutional cooperation for research | SO 1 | 24 | 3.000,00 € | 3.224,92 € | 107,50% | 3.000,00 € | 0,00 € | 0,00% | | 3.000,00 € | 4.796,62 € | 159,89% | 3.000,00 € | 3.666,43 € | 122,21% | 3.000,00 € | 5.468,82 € | 182,29% | 15.000,00 € | 17.156,79 € | 114,38% |
| SO 1 | 2477LJB2 | 4 | Missions | 25-R1.1-4-missions-CB-Marine modeling in Benin | SO 1 | 25 | 5.000,00 € | 4.648,16 € | 92,96% | 5.000,00 € | -129,56 € | -2,59% | | 5.000,00 € | 0,00 € | 0,00% | 5.000,00 € | 4.991,43 € | 99,83% | 5.000,00 € | 3.407,76 € | 68,16% | 25.000,00 € | 12.917,79 € | 51,67% |
| SO 1 | 2477LJB2 | 6 | Missions | 26-R1.1-6-missions-CB-pilot projects on monitoring and databases | SO 1 | 26 | 3.500,00 € | 2.588,64 € | 73,96% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 3.000,00 € | 0,00 € | 0,00% | 6.500,00 € | 2.588,64 € | 39,83% |
| SO 1 | 2477LJB2 | 7 | Missions | 27-R1.1-7-missions-CB-OBPE institutional cooperation for research | SO 1 | 27 | 3.000,00 € | 386,89 € | 12,90% | 3.000,00 € | 4.311,11 € | 143,70% | | 3.000,00 € | 280,03 € | 9,33% | 3.000,00 € | 6.323,59 € | 210,79% | 3.000,00 € | 3.803,15 € | 126,77% | 15.000,00 € | 15.104,77 € | 100,70% |
| SO 1 | 2477LJB2 | 8 | Missions | 28-R1.1-8-missions-CB-UAC institutional cooperation for research | SO 1 | 28 | 1.000,00 € | 0,00 € | 0,00% | 2.000,00 € | 0,00 € | 0,00% | | 1.000,00 € | 0,00 € | 0,00% | 1.000,00 € | 2.760,91 € | 276,09% | 1.000,00 € | 0,00 € | 0,00% | 6.000,00 € | 2.760,91 € | 46,02% |
| SO 1 | 2477LJB2 | 9 | Missions | 29-R1.1-9-missions-CB-CSB/UNIKIS institutional cooperation for research | SO 1 | 29 | 7.000,00 € | 7.906,60 € | 112,95% | 7.000,00 € | 10.130,19 € | 144,72% | | 7.000,00 € | 17.285,37 € | 246,93% | 7.000,00 € | 739,91 € | 10,57% | 7.000,00 € | 8.683,16 € | 124,05% | 35.000,00 € | 44.745,23 € | 127,84% |
| SO 1 | 2477LJB2 | 13 | Missions | 30-R1.4-13-missions-AW-Awareness methodology for CEBioS alumni | SO 1 | 30 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 1.771,95 € | 0,00% | 9.000,00 € | 1.360,07 € | 15,11% | 0,00 € | 584,31 € | 0,00% | 9.000,00 € | 3.716,33 € | 41,29% |
| SO 1 | 2481LJB2 | | | 31-R1-personnel-- | SO 1 | 31 | 211.700,00 € | 260.305,94 € | 122,96% | 233.500,00 € | 221.609,35 € | 94,91% | | 225.000,00 € | 218.966,93 € | 97,32% | 240.400,00 € | 290.422,83 € | 120,81% | 273.500,00 € | 323.632,72 € | 118,33% | 1.184.100,00 € | 1.314.937,77 € | 111,05% |
| TOTAL BUDGET SO1 (indicateurs 3 à 39) | | | | | | Total SO-1 | 608.700,00 € | 634.116,63 € | 104,18% | 551.000,00 € | 543.465,42 € | 98,63% | | 527.000,00 € | 583.373,90 € | 110,70% | 589.400,00 € | 627.597,71 € | 106,48% | 497.500,00 € | 609.954,62 € | 122,60% | 2.773.600,00 € | 2.998.508,28 € | 108,11% |
| SO 2 | 2478LJB2 | 19b | Investments | 32-R2.2-19b-Investments-CB-training on habitat monitoring in Burundi : computers | SO 2 | 32 | 2.000,00 € | 2.210,42 € | 110,52% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 2.000,00 € | 2.210,42 € | 110,52% |
| SO 2 | 2478LJB2 | 19b | Investments | 33-R2.2-19b-Investments-CB-training on habitat monitoring in Benin : computers | SO 2 | 33 | 2.000,00 € | 1.545,12 € | 77,26% | 0,00 € | 0,00 € | 0,00% | | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 2.000,00 € | 1.545,12 € | 77,26% |

| N°SO | Centre Frais | N° Poste Budgetaire | Category | Intitulé | | identifiant Unique | 2019 | | | 2020 | | | 2021 | | | 2022 | | | 2023 | | | Budget total | Dépenses totales | % utilisation total |
|------|--------------|---------------------|-------------|--|------|--------------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|---------------|--------------|------------------|---------------------|
| | | | | | | | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | 5 ans | 5 ans | 5 ans |
| SO 2 | 2478LJB2 | 19b | Investments | 34-R2.2-19b-Investments-CB-server for South and http://www.biodiv.be | SO 2 | 34 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% |
| SO 2 | 2478LJB2 | 14 | Operations | 35-R2.1-14-Operation-CB-training on habitat monitoring in Benin | SO 2 | 35 | 20.500,00 € | 20.134,44 € | 98,22% | 17.000,00 € | 16.872,13 € | 99,25% | 20.500,00 € | 20.287,14 € | 98,96% | 20.500,00 € | 20.500,00 € | 100,00% | 13.500,00 € | 13.055,00 € | 96,70% | 92.000,00 € | 90.848,71 € | 98,75% |
| SO 2 | 2478LJB2 | 15 | Operations | 36-R2.1-15-Operation-CB-training on habitat monitoring in Burundi | SO 2 | 36 | 19.900,00 € | 14.978,14 € | 75,27% | 15.400,00 € | 11.289,76 € | 73,31% | 19.900,00 € | 17.910,00 € | 90,00% | 19.900,00 € | 13.307,78 € | 66,87% | 13.900,00 € | 12.510,00 € | 90,00% | 89.000,00 € | 69.995,68 € | 78,65% |
| SO 2 | 2478LJB2 | 16 | Operations | 37-R2.1-16-Operation-CB-training on habitat monitoring in RDC | SO 2 | 37 | 2.000,00 € | 0,00 € | 0,00% | 1.000,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 3.000,00 € | 0,00 € | 0,00% |
| SO 2 | 2478LJB2 | 21 | Operations | 38-R2.3-21-Operation-MRV-awareness projects for alumni based on the MRV projects | SO 2 | 38 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 24.000,00 € | 29.199,96 € | 121,67% | 6.000,00 € | -1.531,97 € | -25,53% | 30.000,00 € | 27.667,99 € | 92,23% |
| SO 2 | 2478LJB2 | 23 | Operations | 39-R2.4-23-Operation-AW-production and dissemination of other material like brochures, policy briefs, posters, etc ... | SO 2 | 39 | 5.000,00 € | 2.602,98 € | 52,06% | 5.000,00 € | 2.697,01 € | 53,94% | 5.000,00 € | 475,75 € | 9,52% | 5.000,00 € | 509,62 € | 10,19% | 6.000,00 € | 95,10 € | 1,59% | 26.000,00 € | 6.380,46 € | 24,54% |
| SO 2 | 2478LJB2 | 17 | Operations | 40-R2.1-17-Operation-CB-production of lexica | SO 2 | 40 | 5.000,00 € | 0,00 € | 0,00% | 10.000,00 € | 10.051,10 € | 100,51% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 5.272,46 € | 0,00% | 5.000,00 € | 1.152,00 € | 23,04% | 20.000,00 € | 16.475,56 € | 82,38% |
| SO 2 | 2478LJB2 | 15 | Operations | 41-R2.1-15-Operation-CB-training on habitat monitoring in Burundi | SO 2 | 41 | 600,00 € | 0,00 € | 0,00% | 600,00 € | 439,86 € | 73,31% | 600,00 € | 540,00 € | 90,00% | 600,00 € | 290,00 € | 48,33% | 600,00 € | 540,00 € | 90,00% | 3.000,00 € | 1.809,86 € | 60,33% |
| SO 2 | 2478LJB2 | 15 | Operations | 42-R2.1-15-Operation-CB-training on habitat monitoring in Burundi | SO 2 | 42 | 0,00 € | 0,00 € | 0,00% | 17.000,00 € | 17.902,44 € | 105,31% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 17.000,00 € | 17.902,44 € | 105,31% |
| SO 2 | 2478LJB2 | 14 | Operations | 43-R2.1-14-Operation-CB-training on habitat monitoring in Benin | SO 2 | 43 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 37,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 17.000,00 € | 0,00 € | 0,00% | 17.000,00 € | 37,00 € | 0,22% |
| SO 2 | 2478LJB2 | 18 | Operations | 44-R2.2-18-Operation-CHM-workshop on CHM | SO 2 | 44 | 20.000,00 € | 5.619,04 € | 28,10% | 15.000,00 € | 12.499,48 € | 83,33% | 20.000,00 € | 6.043,04 € | 30,22% | 20.000,00 € | 95,04 € | 0,48% | 15.000,00 € | 784,09 € | 5,23% | 90.000,00 € | 25.040,69 € | 27,82% |
| SO 2 | 2478LJB2 | 19 | Operations | 45-R2.2-19-Operation-CHM-training on Bioland | SO 2 | 45 | 20.000,00 € | 1.046,33 € | 5,23% | 20.000,00 € | 20.871,63 € | 104,36% | 0,00 € | 130,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 40.000,00 € | 22.047,96 € | 55,12% |
| SO 2 | 2478LJB2 | 20 | Operations | 46-R2.2-20-Operation-CHM-networking CHM | SO 2 | 46 | 25.000,00 € | 24.678,54 € | 98,71% | 25.000,00 € | 21.000,00 € | 84,00% | 25.000,00 € | 78.901,56 € | 315,61% | 25.000,00 € | 0,00 € | 0,00% | 25.000,00 € | 35.230,08 € | 140,92% | 125.000,00 € | 159.810,18 € | 127,85% |
| SO 2 | 2478LJB2 | 24 | Operations | 47-R2.2-24-Operation-AW-punctual workshops, summer schools | SO 2 | 47 | 0,00 € | 0,00 € | 0,00% | 25.000,00 € | 47.935,61 € | 191,74% | 5.500,00 € | 1.613,36 € | 29,33% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 30.500,00 € | 49.548,97 € | 162,46% |
| SO 2 | 2478LJB2 | 14 | Missions | 48-R2.1-14-Mission-CB-training on habitat monitoring in Benin | SO 2 | 48 | 3.500,00 € | 2.487,19 € | 71,06% | 7.000,00 € | 0,00 € | 0,00% | 3.500,00 € | 0,00 € | 0,00% | 3.500,00 € | 1.022,84 € | 29,22% | 3.500,00 € | 1.638,52 € | 46,81% | 21.000,00 € | 5.148,55 € | 24,52% |
| SO 2 | 2478LJB2 | 15 | Missions | 49-R2.1-15-Mission-CB-training on habitat monitoring in Burundi | SO 2 | 49 | 3.500,00 € | 2.592,65 € | 74,08% | 7.000,00 € | 4.536,50 € | 64,81% | 3.500,00 € | 0,00 € | 0,00% | 3.500,00 € | 3.489,04 € | 99,69% | 3.500,00 € | 0,00 € | 0,00% | 21.000,00 € | 10.618,19 € | 50,56% |
| SO 2 | 2478LJB2 | 16 | Missions | 50-R2.1-16-Mission-CB-training on habitat monitoring in RDC | SO 2 | 50 | 5.000,00 € | 2.077,04 € | 41,54% | 4.000,00 € | 3.999,14 € | 99,98% | 0,00 € | 117,35 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 9.000,00 € | 6.193,53 € | 68,82% |
| SO 2 | 2478LJB2 | 18 | Missions | 51-R2.2-18-Mission-CHM-workshop on CHM | SO 2 | 51 | 20.000,00 € | 4.803,72 € | 24,02% | 7.020,00 € | -98,98 € | -1,41% | 15.000,00 € | 5.695,62 € | 37,97% | 12.330,00 € | 5.112,57 € | 41,46% | 10.000,00 € | 2.783,76 € | 27,84% | 64.350,00 € | 18.296,69 € | 28,43% |
| SO 2 | 2478LJB2 | 20 | Missions | 52-R2.2-20-Mission-CHM-networking CHM | SO 2 | 52 | 5.000,00 € | 1.915,52 € | 38,31% | 5.000,00 € | 4.031,78 € | 80,64% | 5.000,00 € | 4.391,84 € | 87,84% | 5.000,00 € | 0,00 € | 0,00% | 5.000,00 € | 0,00 € | 0,00% | 25.000,00 € | 10.339,14 € | 41,36% |

| N° SO | Centre Frais | N° Poste Budgetaire | Category | Intitulé | | identifiant Unique | 2019 | | | 2020 | | | 2021 | | | 2022 | | | 2023 | | | Budget total | Dépenses totales | % utilisation total | |
|---|--------------|---------------------|------------|---|------|--------------------|-------------------|---------------------|---------------------|---------------|---------------------|---------------------|----------------|---------------------|---------------------|----------------|---------------------|---------------------|----------------|---------------------|---------------------|---------------|-----------------------|-----------------------|---------------|
| | | | | | | | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | 5 ans |
| SO 2 | 2478LJB2 | 19b | Missions | 53-R2.2-19b-Mission-CHM-Computers and server for South and http://www.biodiv.be | SO 2 | 53 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | |
| SO 2 | 2478LJB2 | 22 | Missions | 54-R2.3-22-Mission-MRV-Coaching by CEBioS staff in dedicated MRV-workshops and other MRV-related activities | SO 2 | 54 | 16.000,00 € | 14.406,51 € | 90,04% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 7.680,17 € | 0,00% | 16.000,00 € | 10.019,32 € | 62,62% | 0,00 € | 0,00 € | 0,00% | 32.000,00 € | 32.106,00 € | 100,33% | |
| SO 2 | 2478LJB2 | 22 | Missions | 55-R2.3-22-Mission-MRV-awareness projects for alumni in the case of MRV based on the MRV projects | SO 2 | 55 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | |
| SO 2 | 2478LJB2 | 24 | Missions | 56-R2.2-24-Mission-AW-punctual workshops, summer schools | SO 2 | 56 | 0,00 € | 0,00 € | 0,00% | 15.000,00 € | 10.835,19 € | 72,23% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 15.000,00 € | 10.835,19 € | 72,23% | |
| SO 2 | 2478LJB2 | 23 | Missions | 57-R2.2-23-Mission-AW-production and dissemination of other material like brochures, policy briefs, posters etc... | SO 2 | 57 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 2.476,62 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 24,85 € | 0,00% | 0,00 € | 2.501,47 € | 0,00% | |
| SO 2 | 2481LJB2 | | | 58-R2-Personnel-- | SO 2 | 58 | 131.600,00 € | 161.064,80 € | 122,39% | 139.900,00 € | 153.708,00 € | 109,87% | 146.100,00 € | 95.824,57 € | 65,59% | 160.500,00 € | 178.177,76 € | 111,01% | 186.900,00 € | 198.286,86 € | 106,09% | 765.000,00 € | 787.061,99 € | 102,88% | |
| TOTAL BUDGET SO2 (indicateurs 40 à 58) | | | | | | | Total SO-2 | 306.600,00 € | 262.162,44 € | 85,51% | 335.920,00 € | 338.607,65 € | 100,80% | 269.600,00 € | 242.087,02 € | 89,79% | 315.830,00 € | 266.996,39 € | 84,54% | 310.900,00 € | 264.568,29 € | 85,10% | 1.538.850,00 € | 1.374.421,79 € | 89,31% |
| SO 3 | 2479LJB2 | 26 | Operations | 59-R3.1-26-operations-CB-support of South to attend international policy | SO 3 | 59 | 0,00 € | 0,00 € | 0,00% | 10.000,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 10.000,00 € | 17.860,21 € | 178,60% | 0,00 € | 4.622,72 € | 0,00% | 20.000,00 € | 22.482,93 € | 112,41% | |
| SO 3 | 2479LJB2 | 27 | Operations | 60-R3.2-27-operations-CHM-CHM call | SO 3 | 60 | 50.000,00 € | 24.024,38 € | 48,05% | 50.000,00 € | 41.218,84 € | 82,44% | 50.000,00 € | 33.132,81 € | 66,27% | 50.000,00 € | 48.222,67 € | 96,45% | 35.000,00 € | 3.247,33 € | 9,28% | 235.000,00 € | 149.846,03 € | 63,76% | |
| SO 3 | 2479LJB2 | 29 | Operations | 61-R3.4-29-operations-AW-Awareness calls, including training on awareness, including baseline studies | SO 3 | 61 | 40.000,00 € | 45.038,94 € | 112,60% | 55.000,00 € | 57.308,93 € | 104,20% | 54.500,00 € | 52.727,84 € | 96,75% | 76.075,00 € | 69.969,38 € | 91,97% | 20.000,00 € | 11.754,85 € | 58,77% | 245.575,00 € | 236.799,94 € | 96,43% | |
| SO 3 | 2479LJB2 | 30 | Operations | 62-R3.4-30-operations-AW-activities related to COPs in 2020,2022 | SO 3 | 62 | 0,00 € | 0,00 € | 0,00% | 8.000,00 € | 8.798,23 € | 109,98% | 0,00 € | 0,00 € | 0,00% | 8.000,00 € | 1.452,87 € | 18,16% | 0,00 € | 0,00 € | 0,00% | 16.000,00 € | 10.251,10 € | 64,07% | |
| SO 3 | 2479LJB2 | 31 | Operations | 63-R3.4-31-operations-AW-activities in framework of awareness calls or ad hoc, in Belgium or abroad | SO 3 | 63 | 10.000,00 € | 6.143,60 € | 61,44% | 10.000,00 € | 109,24 € | 1,09% | 3.000,00 € | 2.050,00 € | 68,33% | 10.000,00 € | 5.145,31 € | 51,45% | 5.000,00 € | 1.628,98 € | 32,58% | 38.000,00 € | 15.077,13 € | 39,68% | |
| SO 3 | 2479LJB2 | 25 | Missions | 64-R3.1-25-missions-CB-missions CEBios for policy | SO 3 | 64 | 6.000,00 € | 7.170,45 € | 119,51% | 16.000,00 € | 9.584,20 € | 59,90% | 6.000,00 € | 11.937,93 € | 198,97% | 16.000,00 € | 22.201,87 € | 138,76% | 5.000,00 € | 14.214,15 € | 284,28% | 49.000,00 € | 65.108,60 € | 132,87% | |
| SO 3 | 2479LJB2 | 28 | Missions | 65-R3.2-28-missions-CHM-participation in juries etc ... on demand (5 x 1p) | SO 3 | 65 | 3.000,00 € | 3.236,18 € | 107,87% | 3.000,00 € | 2.327,20 € | 77,57% | 3.000,00 € | 0,00 € | 0,00% | 3.000,00 € | 5.802,81 € | 193,43% | 3.000,00 € | 7.574,20 € | 252,47% | 15.000,00 € | 18.940,39 € | 126,27% | |
| SO 3 | 2481LJB2 | | | 66-R3-Personnel-- | SO 3 | 66 | 66.300,00 € | 82.323,16 € | 124,17% | 70.350,00 € | 75.976,26 € | 108,00% | 73.400,00 € | 95.824,57 € | 130,55% | 93.000,00 € | 101.457,16 € | 109,09% | 87.200,00 € | 105.101,90 € | 120,53% | 390.250,00 € | 460.683,05 € | 118,05% | |
| TOTAL BUDGET SO3 (indicateurs 59 à 66) | | | | | | | Total SO-3 | 175.300,00 € | 167.936,71 € | 95,80% | 222.350,00 € | 195.322,90 € | 87,84% | 189.900,00 € | 195.673,15 € | 103,04% | 266.075,00 € | 272.112,28 € | 102,27% | 155.200,00 € | 148.144,13 € | 95,45% | 1.008.825,00 € | 979.189,17 € | 97,06% |
| SO 4 | 2480LJB2 | 33 | Operations | 67-R4.1-33-operation-CB-Synergy fund to promote specific synergy projects with civil society and private sector in agriculture and conservation | SO 4 | 67 | 9.500,00 € | 8.111,30 € | 85,38% | 9.500,00 € | 25.392,02 € | 267,28% | 29.500,00 € | 2.127,09 € | 7,21% | 24.500,00 € | 9.817,50 € | 40,07% | 25.000,00 € | 0,00 € | 0,00% | 98.000,00 € | 45.447,91 € | 46,38% | |

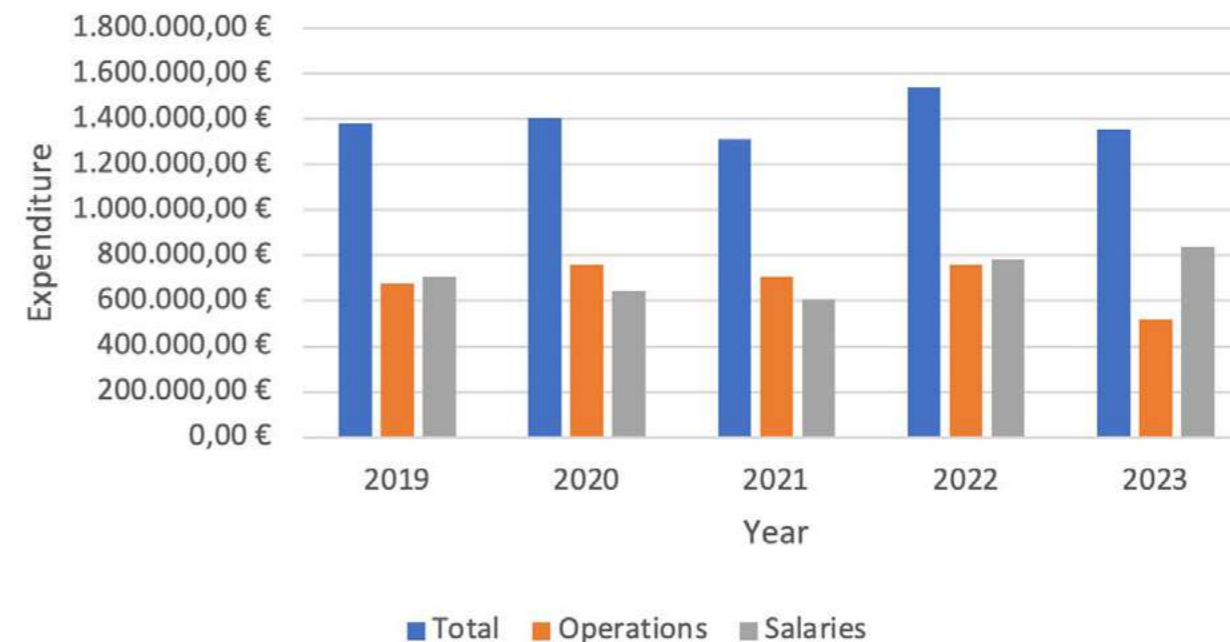
| N° SO | Centre Frais | N° Poste Budgetaire | Category | Intitulé | | identifiant Unique | 2019 | | | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 5 ans | | | 5 ans | | | 5 ans | | | |
|---|--------------|---------------------|------------|---|------|--------------------|--------------|--------------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|-------------|----------------|----------------|--------------|------------------|---------------------|--------------|------------------|---------------------|--------------|------------------|---------------------|---------|
| | | | | | | | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget | Dépenses | % utilisation | Budget total | Dépenses totales | % utilisation total | Budget total | Dépenses totales | % utilisation total | Budget total | Dépenses totales | % utilisation total | |
| SO 4 | 2480LJB2 | 35 | Operations | 68-R4.4-35-operation-AW-Special call to mesasure change in perception of biodiversity of target groups of activities financed by CEBios | SO 4 | 68 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 50.000,00 € | 0,00 € | 0,00% | 50.000,00 € | 0,00 € | 0,00% | 50.000,00 € | 0,00 € | 0,00% | 50.000,00 € | 0,00 € | 0,00% | |
| SO 4 | 2480LJB2 | 34 | Operations | 69-R4.4-34-operation-AW-increases awareness in North (CEBios) and South for the partners of the Belgian development cooperation, civil society, often back to back with attending SD-activities | SO 4 | 69 | 1.000,00 € | 198,00 € | 19,80% | 0,00 € | 0,00 € | 0,00% | 6.277,00 € | 374,00 € | 5,96% | 0,00 € | 181,00 € | 0,00% | 1.000,00 € | 1.249,95 € | 125,00% | 8.277,00 € | 2.002,95 € | 24,20% | 8.277,00 € | 2.002,95 € | 24,20% | 8.277,00 € | 2.002,95 € | 24,20% | |
| SO 4 | 2480LJB2 | 32 | Missions | 70-R4.1-32-missions-CB-budget to attend SD in South | SO 4 | 70 | 5.000,00 € | 4.913,23 € | 98,26% | 5.000,00 € | 2.962,41 € | 59,25% | 5.000,00 € | 0,00 € | 0,00% | 5.000,00 € | 0,00 € | 0,00% | 5.000,00 € | 1.593,85 € | 31,88% | 25.000,00 € | 9.469,49 € | 37,88% | 25.000,00 € | 9.469,49 € | 37,88% | 25.000,00 € | 9.469,49 € | 37,88% | |
| SO 4 | 2480LJB2 | 33 | Missions | 71-R4.1-33-missions-CB-Synergy fund to promote specific synergy projects with civil society and private sector in agriculture and conservation | SO 4 | 71 | 3.000,00 € | 2.437,35 € | 81,25% | 3.000,00 € | 2.130,51 € | 71,02% | 8.000,00 € | 2.778,23 € | 34,73% | 15.470,00 € | 6.895,38 € | 44,57% | 3.000,00 € | 105,76 € | 3,53% | 32.470,00 € | 14.347,23 € | 44,19% | 32.470,00 € | 14.347,23 € | 44,19% | 32.470,00 € | 14.347,23 € | 44,19% | |
| SO 4 | 2481LJB2 | | | 72-R4-personnel-- | SO 4 | 72 | 61.160,00 € | 70.612,24 € | 115,45% | 65.000,00 € | 69.810,00 € | 107,40% | 67.600,00 € | 69.898,75 € | 103,40% | 87.200,00 € | 102.850,85 € | 117,95% | 90.550,00 € | 100.294,76 € | 110,76% | 371.510,00 € | 413.466,60 € | 111,29% | 371.510,00 € | 413.466,60 € | 111,29% | 371.510,00 € | 413.466,60 € | 111,29% | |
| TOTAL BUDGET SO4 (indicateurs 67 à 72) | | | | | | | Total SO-4 | 79.660,00 € | 86.272,12 € | 108,30% | 82.500,00 € | 100.294,94 € | 121,57% | 116.377,00 € | 75.178,07 € | 64,60% | 132.170,00 € | 119.744,73 € | 90,60% | 174.550,00 € | 103.244,32 € | 59,15% | 585.257,00 € | 484.734,18 € | 82,82% | 585.257,00 € | 484.734,18 € | 82,82% | 585.257,00 € | 484.734,18 € | 82,82% |
| Management costs | 2481LJB2 | 36 | Operations | 73-MC 36-operation--End of term evaluation, also in the South | MC | 73 | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 0,00 € | 0,00 € | 0,00% | 40.000,00 € | 40.651,84 € | 101,63% | 30.000,00 € | 27.254,38 € | 90,85% | 70.000,00 € | 67.906,22 € | 97,01% | 70.000,00 € | 67.906,22 € | 97,01% | 70.000,00 € | 67.906,22 € | 97,01% | |
| Management costs | 2481LJB2 | 37 | Missions | 74-MC 37-mission--follow-up missions | MC | 74 | 4.000,00 € | 885,42 € | 22,14% | 2.000,00 € | 2.346,22 € | 117,31% | 4.000,00 € | 3.270,26 € | 81,76% | 6.000,00 € | 5.180,19 € | 86,34% | 4.000,00 € | 3.103,95 € | 77,60% | 20.000,00 € | 14.786,04 € | 73,93% | 20.000,00 € | 14.786,04 € | 73,93% | 20.000,00 € | 14.786,04 € | 73,93% | |
| Management costs | 2481LJB2 | | | 75-MC-personnel-- | MC | 75 | 109.240,98 € | 132.125,49 € | 120,95% | 110.231,00 € | 123.926,66 € | 112,42% | 119.291,00 € | 127.570,46 € | 106,94% | 88.843,00 € | 107.227,73 € | 120,69% | 93.270,00 € | 109.149,74 € | 117,03% | 520.875,98 € | 600.000,08 € | 115,19% | 520.875,98 € | 600.000,08 € | 115,19% | 520.875,98 € | 600.000,08 € | 115,19% | |
| TOTAL BUDGET MANAGEMENT COSTS (indicateurs 73 à 75) | | | | | | | | 113.240,98 € | 133.010,91 € | 117,46% | 112.231,00 € | 126.272,88 € | 112,51% | 123.291,00 € | 130.840,72 € | 106,12% | 134.843,00 € | 153.059,76 € | 113,51% | 127.270,00 € | 139.508,07 € | 109,62% | 610.875,98 € | 682.692,34 € | 111,76% | 610.875,98 € | 682.692,34 € | 111,76% | 610.875,98 € | 682.692,34 € | 111,76% |
| Structural Costs | 1GODN | 37 | | 76-SC 37-structural costs--Identification, Formulation, Monitoring and evaluation | SC | 76 | 98.000,00 € | 98.000,00 € | 100,00% | 98.000,00 € | 98.000,00 € | 100,00% | 85.832,00 € | 85.832,00 € | 100,00% | 100.682,00 € | 100.682,00 € | 100,00% | 88.579,00 € | 88.579,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% | |
| TOTAL BUDGET STRUCTURAL COSTS | | | | | | | | 98.000,00 € | 98.000,00 € | 100,00% | 98.000,00 € | 98.000,00 € | 100,00% | 85.832,00 € | 85.832,00 € | 100,00% | 100.682,00 € | 100.682,00 € | 100,00% | 88.579,00 € | 88.579,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% | 471.093,00 € | 471.093,00 € | 100,00% |
| TOTAL GENERAL BUDGET (indicateurs 1 à 76) | | | | | | | | 1.381.501 € | 1.381.498,81 € | 100,00% | 1.402.001,00 € | 1.401.963,79 € | 100,00% | 1.312.000,00 € | 1.312.984,86 € | 100,08% | 1.539.000,00 € | 1.540.192,87 € | 100,08% | 1.353.999,00 € | 1.353.998,43 € | 100,00% | 6.988.500,98 € | 6.990.638,76 € | 100,03% | 6.988.500,98 € | 6.990.638,76 € | 100,03% | 6.988.500,98 € | 6.990.638,76 € | 100,03% |

Operational costs per SO and year



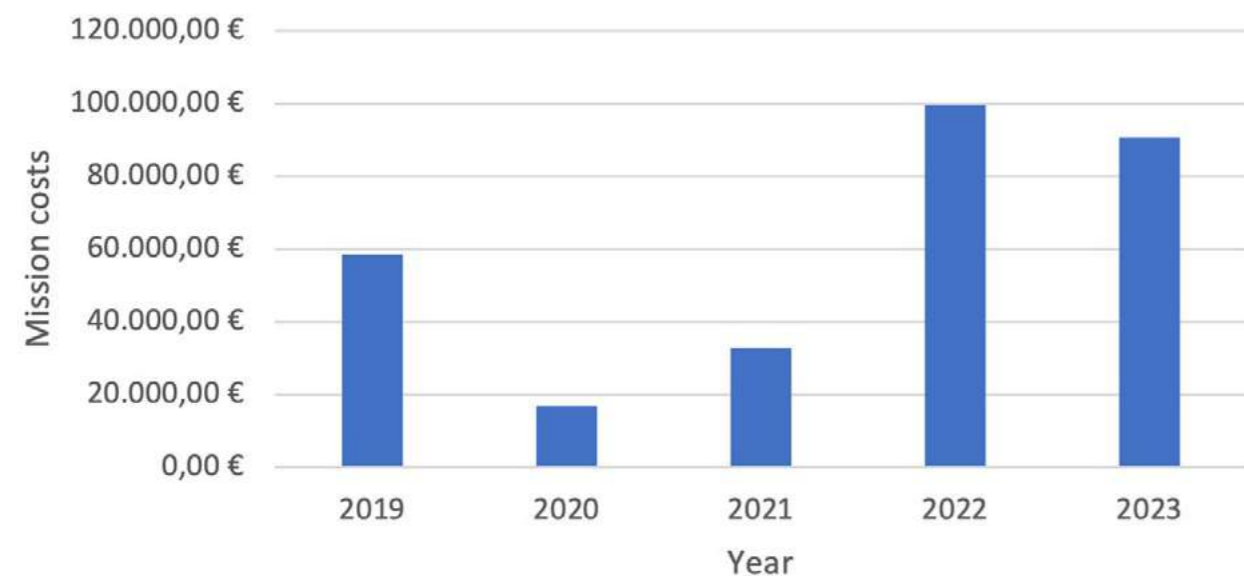
Operational costs (without the salaries) per Strategic Objective (SO) and year. MC = Management Cost, SC = Structural Cost.

Expenditure per year



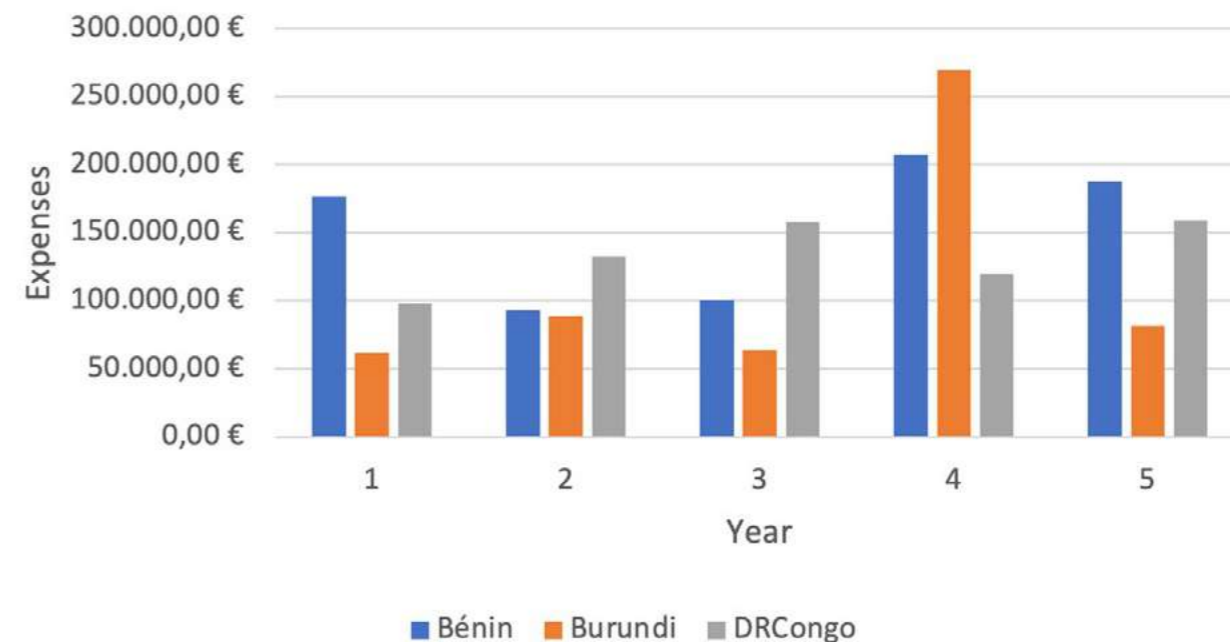
Expenditure per year, ventilated to operations, salaries and total.

Mission costs per year (CEBioS staff and GTI-tutors)



Mission costs per year (CEBioS staff and GTI-tutors). The dip in 2019 and 2020 is due to the Covid crisis.

Expenses per priority country and year



Expenses per priority country and year.

Annex 1

Evolution of female participation in CEBioS projects

Table 14. GTI external calls

| GTI Call | n | Percentage of applications from women | Percentage selected applications from women |
|----------|-----|---------------------------------------|---|
| 2014 | 114 | 29% | 17,6% |
| 2015 | 71 | 22,5% | 25% |
| 2016 | 28 | 17,9% | 14% |
| 2017 | 197 | 18,8% | 26% |
| 2018 | 12 | 16,7% | 18% |
| 2019 | 48 | 29,2% | 27% |
| 2020 | 30 | 30% | 33% |
| 2021 | 19 | 31,6% | 30% |
| 2022 | 18 | 22,2% | 23% |
| 2023 | 14 | 28,6% | 31% |
| Total | 551 | 23,6% | 24,5% |

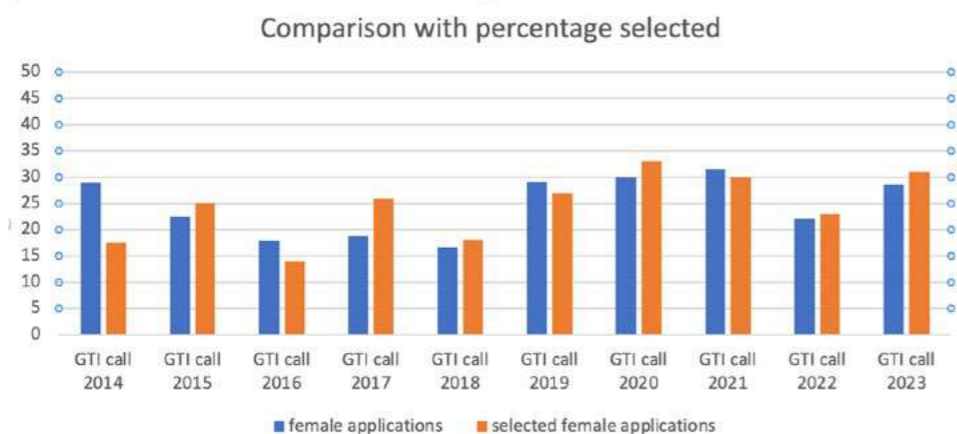


Table 15. GTI internal projects

| Year | n | Degree of female participation |
|------|----|--------------------------------|
| 2014 | 35 | 9,8% |
| 2015 | 50 | 17,5% |
| 2016 | 14 | 14,6% |
| 2017 | 39 | 13% |
| 2018 | 54 | 8,8% |

| | | |
|-------|-----|-------|
| 2019 | 57 | 20% |
| 2020 | 27 | 9,8% |
| 2021 | 27 | 17,5% |
| 2022 | 44 | 14,6% |
| 2023 | 59 | 13% |
| Total | 406 | 16,8% |

Female participation internal GTI calls

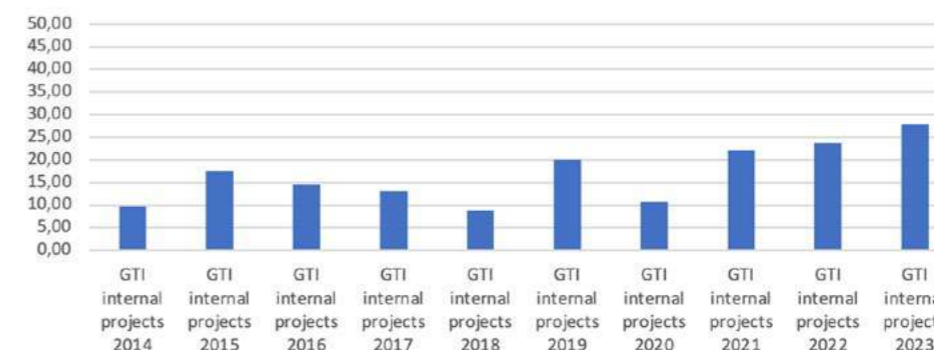


Table 16. CHM and Awareness calls

| Call | n | Percentage of applications from women | Percentage selected applications from women |
|------------------------------|-----|---------------------------------------|---|
| Awareness call 2014 | 5 | 20% | 20% |
| Awareness call 2015 | 8 | 12,5% | 20% |
| Awareness call 2016 | 6 | 0% | 0% |
| Taxonomy-awareness call 2016 | 13 | 15,4% | 15,4% |
| Awareness call 2017 | 6 | 16,7% | 20% |
| Awareness-MRV call 2017 | 27 | 11,1% | 11,1% |
| Awareness call 2018 | 12 | 16,7% | 10% |
| Awareness call 2019 | 17 | 5,9% | 0% |
| Awareness call 2020 | 15 | 7,14% | 17% |
| Awareness-GTI call 2020 | 9 | 11,1% | 12,5% |
| Awareness call 2021 | 12 | 8,3% | 13% |
| Awareness call 2022 | 19 | 10,5% | 14,1% |
| Awareness-MRV call 2022-23 | 21 | 14,3% | 13% |
| Awareness-EPA call 2023 | 12 | 8,3% | 0% |
| Awareness-GTI call 2023 | 13 | 7,7% | 11,1% |
| Total | 195 | 10,8% | 11,8% |

Female participation awareness calls

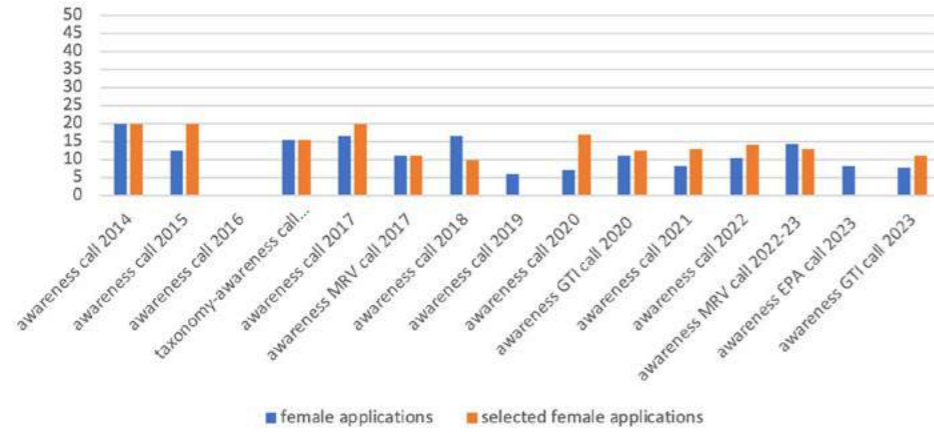


Table 17. CHM calls

| CHM calls | | | |
|------------------|----|---------------------------------------|---|
| Call | n | Percentage of applications from women | Percentage selected applications from women |
| CHM call 2014 | 8 | 12,5% | 14% |
| CHM call 2015 | 14 | 0% | 0% |
| CHM call 2016 | 8 | 0% | 0% |
| CHM call 2017 | 9 | 22,2% | 0 % |
| CHM call 2018 | 8 | 12,5% | 0% |
| CHM call 2019 | 7 | 14,3% | 20% |
| CHM call 2020 | 12 | 8,3% | 20% |
| CHM call 2021 | 10 | 10% | 17% |
| CHM call 2022-23 | 12 | 8,3% | 9% |
| Total | 88 | 9,10% | 8,9% |

Female participation CHM calls

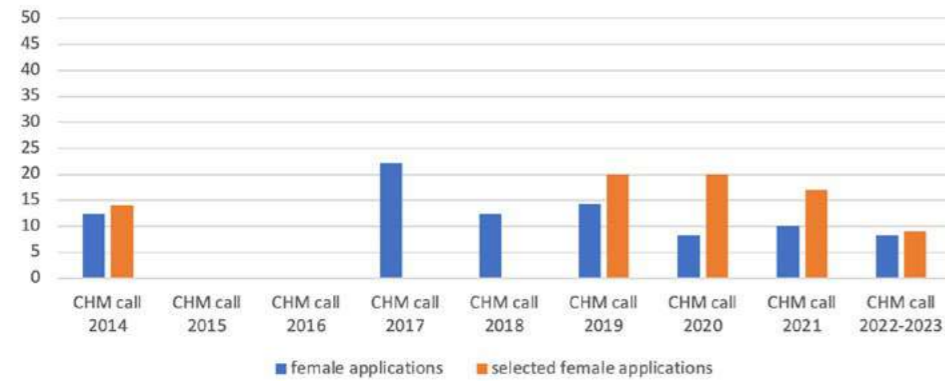


Table 18. MRV calls

| MRV calls | | | |
|---------------|----|-----------------------------|------------------------------|
| Call | n | Overall percentage of women | Percentage of women selected |
| CHM call 2016 | 39 | 12,5% | 14% |
| CHM call 2018 | 30 | 0% | 0% |
| CHM call 2020 | 27 | 0% | 0% |
| Total | 96 | 12,6% | 15,2 % |

Table 19. Publications

| Category publication | n | Overall percentage of women |
|-----------------------------|----|-----------------------------|
| Abc Taxa | 24 | 16,7% |
| Habitat Monitoring Lexicons | 18 | 16,7% |
| Total | 42 | 16,7% |

Table 20. Other projects

| Other projects | n | Female participation |
|---------------------|-----|----------------------|
| Other projects 2014 | 32 | 18,8% |
| Other projects 2015 | 102 | 25,7% |
| Other projects 2016 | 92 | 28,7% |
| Other projects 2017 | 105 | 18,6% |
| Other projects 2018 | 142 | 22,4% |
| Other projects 2019 | 87 | 24% |
| Other projects 2020 | 83 | 15,9% |
| Other projects 2022 | 98 | 21,6% |
| Total | 741 | 22% |

Female participation in other projects

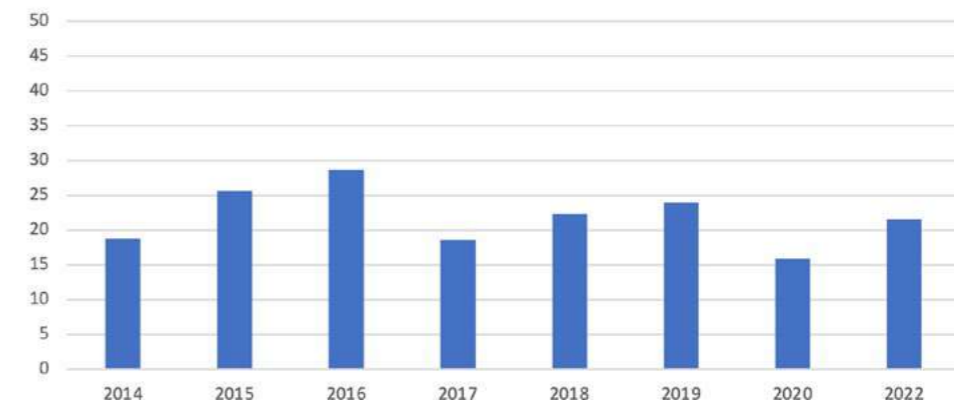


Table 21. Overall ratios 2014-2018

| Phase 2014-2018 | | |
|-----------------------|------|----------------------|
| Category | n | Female participation |
| GTI external calls | 422 | 21% |
| GTI internal projects | 192 | 12,7% |
| Awareness calls | 77 | 13,2% |
| CHM calls | 47 | 9,4% |
| MRV calls | 69 | 6,3% |
| Other projects | 473 | 22,8% |
| Publications | 24 | 12,3% |
| Total | 1304 | 14% |

Table 22. Overall ratios 2019-2023

| Phase 2019-2023 | | |
|-----------------------|-----|----------------------|
| Category | n | Female participation |
| GTI external calls | 129 | 28,3% |
| GTI internal projects | 214 | 15% |
| Awareness calls | 118 | 9,1% |
| CHM calls | 41 | 10,2% |
| MRV calls | 27 | 0% |
| Other projects | 268 | 20,5% |
| Publications | 22 | 18,8% |
| Total | 819 | 14,6% |

Comparison with percentage selected

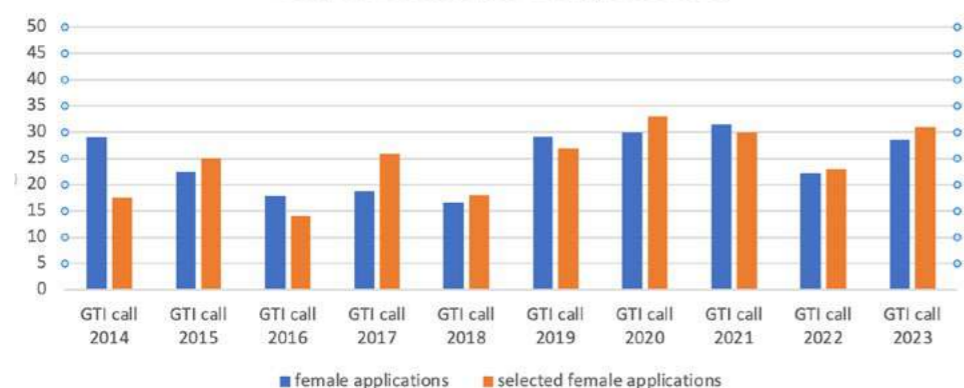


Table 23. Overall % women in project calls

| Project calls | | | |
|--------------------------|-----|-----------------------------|------------------------------|
| Call | n | Overall percentage of women | Percentage of women selected |
| GTI external calls 14-18 | 422 | 21% | 20,12% |
| GTI external calls 19-23 | 129 | 28,3% | 28,8% |
| Awareness calls 14-18 | 77 | 13,2% | 13,8% |
| Awareness calls 19-23 | 118 | 9,1% | 10,1% |

| | | | |
|--------------------|-----|-------|-------|
| CHM calls 14-18 | 47 | 9,4% | 2,8% |
| CHM calls 19-23 | 41 | 10,2% | 16,5% |
| MRV calls 14-18 | 69 | 6,3% | 7 % |
| MRV calls 19-23 | 27 | 0% | 0% |
| Total across calls | 930 | 12,2% | 12,4% |

Total degree of female participation in calls

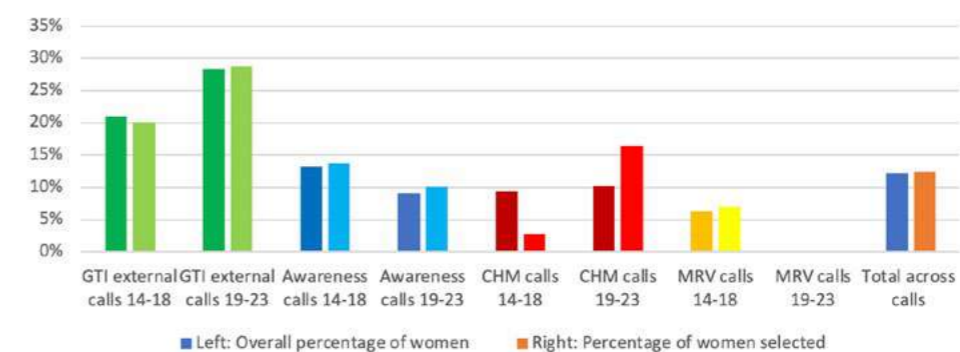
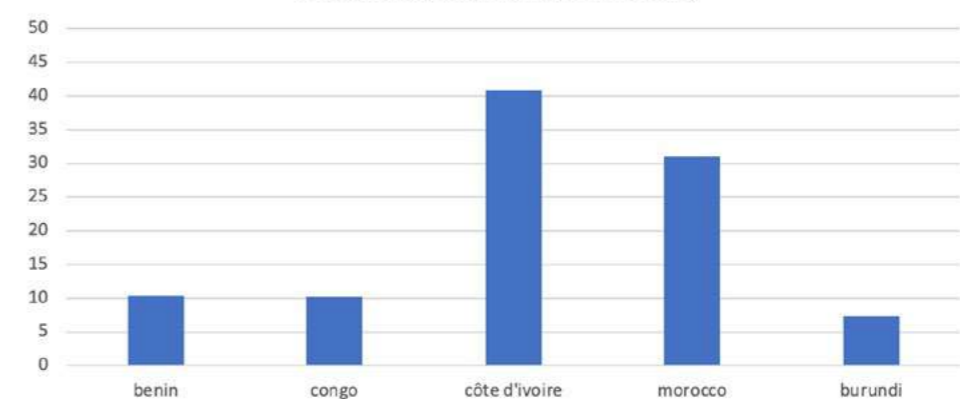


Table 24. Analysis for particular countries

| Country | n | Female participation |
|---------------|-----|----------------------|
| Benin | 411 | 10,4% |
| Congo | 384 | 10,2% |
| Côte d'Ivoire | 118 | 40,9% |
| Morocco | 68 | 31,1% |
| Burundi | 79 | 7,3% |

Female participation per country



Acronyms

| | |
|-----------|--|
| CoFMA | Community Forest Management Agreement |
| COHERENS | Coupled Hydrodynamic Ecological Model for Regional Shelf Seas |
| COO | Corals of Opportunity |
| CO-OP4CBD | Cooperation for the Convention on Biological Diversity |
| COP | Conference of the Parties |
| CORDIO | Coral Reef Degradation in the Indian Ocean |
| CPDRN | Centre de Promotion du Développement local et de gestion durables des Ressources Naturelles |
| CSB | Centre de Surveillance de la Biodiversité |
| CYBN | Congolese Youth Biodiversity Network |
| DGD | Belgian Development Cooperation |
| DGEFC | Direction Générale des Eaux, Forêts et Chasse |
| DGFRN | Direction Générale des Forêts et des Ressources Naturelles |
| DNA | Deoxyribonucleic acid |
| DRC | Democratic Republic of Congo |
| EAGLE | Eco-Activists for Governance and Law Enforcement |
| ES | Ecosystem Services |
| EU | European Union |
| EVAMAB | Economic valuation of ecosystem services in Man and Biosphere reserves testing effective rapid assessment methods in selected African MABs |
| FAO | Food and Agriculture Organisation |
| FBPU | Freshwater Biodiversity Portal for Uganda |
| FFOMI | Fertilisants Organo-Minéraux Industries |
| FR | French |

| | |
|-----------|--|
| FSA/UAC | Faculté des Sciences Agronomiques de l'Université d'Abomey-Calavi |
| FSSI | Fish Stock Status Indicator |
| GBF | Global Biodiversity Framework |
| GBIF | Global Biodiversity Information Facility |
| GEF | Global Environment Facility |
| GIS | Geographic Information Systems |
| GTI | Global Taxonomy Initiative |
| HdK | Han de Koeijer |
| IAC | Informal Advisory Committee |
| IBPES | Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services |
| ICCN | Institut Congolais pour la Conservation de la Nature, Kinshasa, D.R. Congo |
| ICMPA | International Chair in Mathematical Physics and Applications |
| ICT | Information and Computer Technology |
| IISD | International Institute for Sustainable Development |
| IMER | Institute of Marine Environment Research |
| INEP | Instituto Nacional de Estudos e Pesquisa |
| IPBES | Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem |
| IRHOB | Institut de la Recherche Halieutiques et Océanographique du Bénin |
| ISF | Ingénieurs Sans Frontières |
| IUCN | International Union for Conservation of Nature and Natural Resources |
| IUCN-PACO | International Union for Conservation of Nature and Natural Resources – Central and West Africa Program |
| JSF | Joint Strategic Framework |
| LABEF | Laboratoire de Biomathématiques et d'Estimations Forestières |
| LaRAEAq | Laboratoire de Recherche en Aquaculture et Ecotoxicologie Aquatique |

| | |
|-----------------------|---|
| LEA | Laboratoire d'Ecologie Appliquée |
| LEM | Law Enforcement Monitoring |
| M&E | Monitoring and Evaluation |
| MAB | Man and the Biosphere programme |
| MAT | Mutually Agreed Terms |
| MBG | Meise Botanic Garden |
| MEA | Multilateral Environment Agreement |
| MEDD | Ministère de l'Environnement et du Développement Durable |
| MNHN | Muséum National d'Histoire Naturelle |
| MRV | Measurement, Reporting and Verification |
| NaFIRRI | National Fisheries Resources Research Institute |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NGO | Non-Governmental Organisation |
| NM-AIST | the Nelson Mandela African Institution of Science and Technology |
| NP | National Parc |
| OBPE | Office Burundais pour la Protection de l'Environnement |
| ODDB | Organisation pour le Développement Durable et la Biodiversité |
| OECD | Organisation for Economic Co-operation and Development |
| OEWG | Open-Ended Working Group |
| OIF | Organisation Internationale de la Francophonie |
| ORT | OSS Review Toolkit |
| PADI | Professional Association of Diving Instructors |
| PAPBio | Programme d'appui pour la préservation de la biodiversité et les écosystèmes fragiles, à la gouvernance régionale et au changement climatique |
| PASCALE-B IBIDUKIKIJE | Projet d'Appui à la Société Civile Active dans Les domaines de l'Environnement et la Biodiversité au Burundi |

| | |
|------------|---|
| PB | Policy Brief |
| PIC | Prior Informed Consent |
| PK | Point Kilométrique |
| PN | Parc National |
| PNKB | Parc Nationale de Kahuzi-Biega |
| PNKi | Parc Nationale de la Kibira |
| PNRz | Parc Nationale de la Rusizi |
| PNVi | Parc Nationale de Virunga |
| PPI | Programme de Petites Initiatives |
| PROCOBU | Produits de Construction de Burundi |
| PTK | Portal Toolkit |
| qPCR | Quantitative Polymerase Chain Reaction |
| RAMPAO | Réseau régional d'Aires Marines Protégées en Afrique de l'Ouest |
| RAOS | Royal Academy of Overseas Sciences |
| RAPTA | Resilience Adaptation Pathways and Transformation Approach |
| Rb-BvO | Réserve de Biosphère de la Basse Vallée de l'Ouéomé |
| RBINS | Institute of Natural Sciences |
| RDC | Democratic Republic of Congo |
| RMCA | Royal Museum for Central Africa |
| RT-PCR | reverse transcription polymerase chain reaction |
| SAC | Scientific and Academic College |
| SBI | Subsidiary Body on Implementation |
| SBSTTA | Subsidiary Body on Scientific, Technical and Technological Advice |
| SCRID-AGRI | Synergie des Compétences pour la Réussite Intégrale du Développement Agricole |

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| SE/CNEDD | Secrétariat exécutif du Conseil national de l'Environnement pour un Développement Durable |
| SECORES | Network for Social-Ecological Resilience |
| SEPLS | Socio-Ecological Production Landscapes and Seascapes |
| SMART | Specific, Measurable, Achievable, Relevant, and Time-bound |
| SO | Strategic Objective |
| SPANB | Stratégie et Plan d'Action pour la Biodiversité |
| STEM | Science Technology Engineering Mathematics |
| STRESS | Strategic Resilience Assessment |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |
| TAWIRI | Tanzanian Wildlife Research Institute |
| TZ | Tanzania |
| UAC | Université d'Abomey- Calavi, Benin |
| UCL | Université Catholique de Louvain |
| UCODE-AMR | l'Union pour la Coopération et le Développement-Appui au Monde Rural |
| UG | Uganda |
| UK | United Kingdom |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNESCO-MAB | United Nations Educational, Scientific and Cultural Organization – Man And the Biosphere programme |
| UNGA | United Nations General Assembly |
| UNIGOM | Université de Goma |
| UNIKIS | Université de Kisangani |
| UNILU | Université de Lubumbashi |

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| UOB | Université Officielle de Bukavu |
| VLIR-UOS | Vlaamse Interuniversitaire Raad-Universitaire Ontwikkelingssamenwerking |
| VLIZ | Vlaams Instituut voor de Zee |
| VNMN | Vietnam National Museum of Nature |
| VUB | Vrije Universiteit Brussel |
| VVOB | Vlaamse Vereniging voor Ontwikkelingssamenwerking en technische Bijstand |
| W NP | W National Park |
| WB | World Bank |
| WEP | Women Environmental Programme |
| WG | Working Group |
| ZACORES | Zanzibar Coral Restoration |

