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Action Plan of Transformative Change Clustering

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Authors:	Francesca Verones, Sedona Anderson (NTNU); Laura Scherer (ULEI);
Reviewers:	Alexandra Marques (PBL); Ian Vázquez-Rowe (PUCP); Martin Bruckner (WU); Stephan Pfister (ETHZ); Verine Ingram (Wageningen -TC4BE project)

DISCLAIMER

BAMBOO PARTNERS

NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET (NTNU)
Høgskoleringen 1, Trondheim 7491, Norway

UNIVERSITEIT LEIDEN (ULEI)
Rapenburg 70, Leiden 2311 EZ, Netherlands

WIRTSCHAFTSUNIVERSITÄT WIEN (WU)
Welthandelsplatz 1, 1020 Wien, Austria

EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH (ETH)
Raemistrasse 101, 8092 Zurich, Switzerland

MINISTERIE VAN INFRASTRUCTUUR EN WATERSTAAT (PBL)
Rijnstraat 8, 2500 EX Den Haag, Netherlands

AFRICA POLICY RESEARCH PRIVATE INSTITUTE GUG (APRI)
Brunnenstrasse 9, 10119 Berlin, Germany

PONTIFICIA UNIVERSIDAD CATÓLICA DEL PERU (PUCP)
Avenida Universitaria 1801 San Miguel, 15088 Lima, Peru

SOKOINE UNIVERSITY OF AGRICULTURE (SUA)
P.O. Box 3000, Chuo Kikuu, Morogoro, Tanzania

SOCIEDADE GERAL DE SUPERINTENDENCIA S.A. (SGS)
Rua Cesina Adães Bermudes, Lote 11 n°1, Lisboa, Portugal

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BAMBOO PROJECT SUMMARY

Biodiversity and trade: mitigating the impacts of non-food biomass global supply chains

The **project's main goals** are to identify trade-offs between biodiversity impacts along global supply chains of non-food biomass and to determine leverage points for transformative change to halt and reverse biodiversity loss, both now and in the future. For this purpose, we develop new biodiversity impact assessment models, create a new, hybrid multiregional input-output (MRIO) model based on the well-known EXIOBASE and the biomass-specific FABIO models, and link the combined models to the integrated assessment model IMAGE for scenario generation. Apart from global assessments and recommendations, we showcase the applicability of our models in two local case studies of global relevance, fishmeal and fish oil production in Peru and cotton production in Tanzania, as well as two case studies with retailers.

Our project is **unique** in that we develop novel models to quantify biodiversity impacts using four indicators - species richness, mean species abundance, functional diversity, and ecosystem services - covering impacts across the terrestrial, freshwater, and marine realms. The hybrid MRIO model combines and extends existing physical and monetary MRIO models, allowing us to comprehensively track global flows of raw and processed non-food biomass in unprecedented detail. Using our system of coupled models, we assess the hotspots and leverage points of the non-food biomass economy and design future scenarios with mitigated impacts on ecosystems, identifying potential pathways for transformative change.

To facilitate transformative change towards protecting biodiversity, we develop an online tool that allows stakeholders to use all models easily. In general, our data will be freely available on Zenodo while safeguarding proprietary information from commercial partners. Overall, BAMBOO provides comprehensive and detailed knowledge of the effects of biomass trade from land and sea on biodiversity and ecosystem services and an improved way of identifying leverage points. This will ultimately contribute to better environmental decision-making by policymakers, retailers and other stakeholders, supporting the achievement of science-based targets and the SDGs.

EXECUTIVE SUMMARY

The call text requires the 11 projects that are funded under calls related to "Transformative Change for Biodiversity" to collaborate across projects in order to create synergies and contribute to providing leverage effects.

We outline the natural links to projects in the cluster, as well as the surrounding initiatives and suggest actions for increasing the linkage between projects that are either planned or ongoing.

1 INTRODUCTION

This Clustering Action Plan (CAP) is a collaborative effort among the projects CLEVER, BIOTRAILS, BAMBOO, BIOTRAILS, TC4BE, and BioValue, and other projects in the cluster aimed at fostering cooperation, knowledge sharing, and effective communication between the participating projects to achieve better results collectively. The specific objectives of this plan are to identify common arenas for the projects, identify potential synergies that can be achieved by working together, and boost results through joint efforts. This plan was developed through a series of meetings, including the Brussels clustering action plan workshop held on March 17, 2023, and subsequent group and individual meetings. The outcome is a set of activities that will be taken jointly or in smaller cooperative groups. While not all of the measures outlined in the plan will be taken by all projects, each project has agreed to collaborate on one or more measures. The action plan is structured as follows:

Network-Related Activities: These include features on each other's websites, inviting each other to annual/final events, disseminating and sharing publications, and following each other on and sharing via social media. These activities will help increase the visibility and recognition of each project's work, creating a stronger sense of collaboration and promoting the exchange of ideas. To this end, we agreed to share media to share communications and EU cluster actions plans.

Content-Related Activities: This includes collaboration on deliverables where common interests exist, as well as data sharing. By collaborating on specific deliverables, the projects can ensure that their work complements and enhances the work of the others, thereby maximizing the collective impact. Data sharing will enable each project to build on the findings of the others, leading to more comprehensive and robust results.

Results Boosting Activities: This includes the possibility of actively participating in two final events. Projects with the same ending year have agreed to organize two joint events (2025 and 2026). In this respect, the possibility of organizing the final conferences in Brussels with invited keynote speakers is being considered. The second activity included here is considering the development of a short document

that delivers joint results and their implications for some of the projects with similar end dates. These activities will help boost and disemninate the results of the projects and increase the impact of their findings. The EU horizon coordinators will be engaged to ascertain the format (ie scientific output or summary report/paper) and audience (aimed at EU and policymakers or other audience(s), and to discss evaluaiton of how interaction among projects also influences effectiveness of cluster activites, for example implications for outputs delivered after the end of the projects.

Monitoring Activities: In order to ensure that collaboration activities continue, and corrections are made when necessary, all projects involved have decided to meet every six months to discuss progress and collaboration, share key results and to discuss what facilitated and what hindered the collaboration.

2 NATURAL LINKS OF CLUSTER PROJECTS WITH BAMBOO

There are 11 cluster projects, plus 5 larger initiatives that are associated with the cluster. Through partners and advisory boards, BAMBOO is associated naturally with some of the projects and initiatives (see Figure 1). In addition, BAMBOO is the initiator of a Horizon Results Booster project group which includes RAINFOREST, CLEVER and BIOTRAILS. It is the idea that the partners who are linking between projects are responsible for making the liaison between the projects by reporting back information and initiatives that could be relevant for BAMBOO and the linking to the cluster.
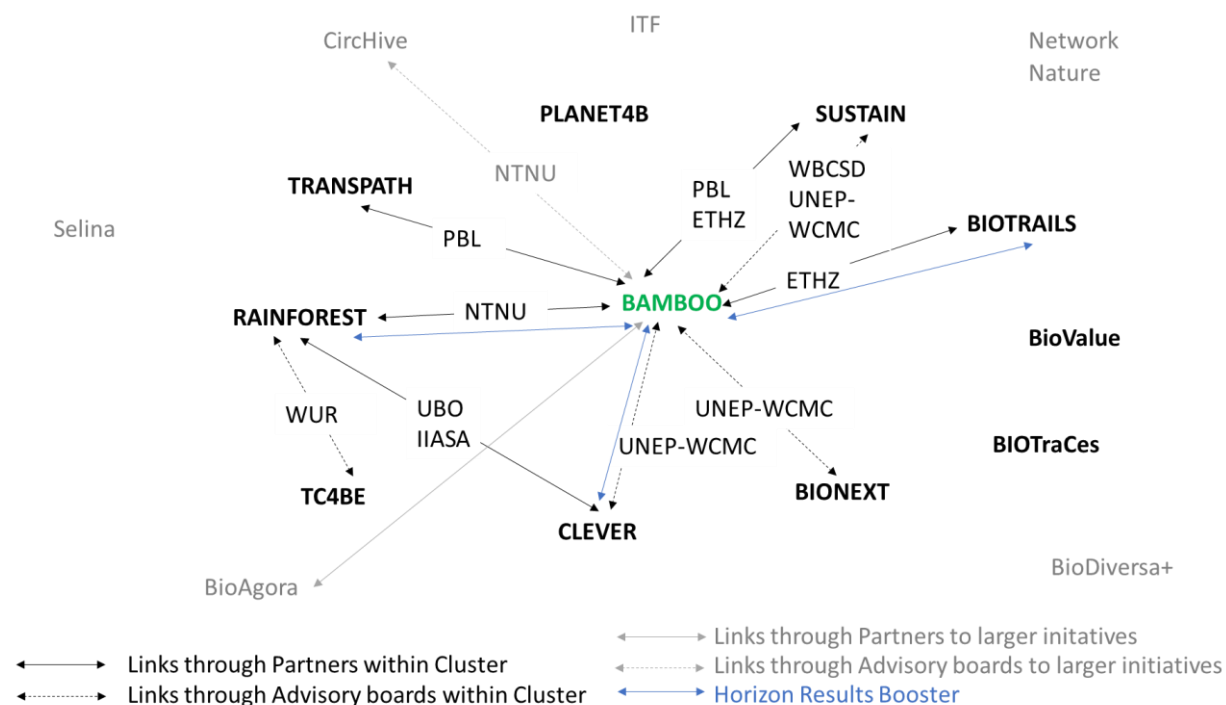
Figure 1. Overview of the links through partners (solid arrows) and advisory boards (dotted arrows) from the viewpoint of BAMBOO. In grey are links to the associated initiatives. In blue are the links with the projects in the shared Horizon Results Booster.

3 SUGGESTED ACTIONS FOR CLUSTERING ACTIVITIES FOR BAMBOO

There are a range of different clustering activities possible, as outlined in the introduction. Not all the actions will involve all the clustering projects, and we tried to identify the relevant partners to the extent possible.

3.1 Horizon Results Booster

Inspired by an info session about the Horizon Results Booster in November 2022, the steering board of BAMBOO decided to take this opportunity. BAMBOO invited the cluster projects RAINFOREST, CLEVER and BIOTRAILS to form a project group and applied for module A of the service "Portfolio Dissemination & Exploitation Strategy" on behalf of the group in February 2023. This service request was approved. Module A is ongoing and will be completed in June 2023. During a later stage of the project, we will consider following up with module B if such services will still be offered by then.

3.2 Links and Social Media

We have linked all clustering projects and associated initiatives on our BAMBOO website in order to increase exposure to all clustering projects and allow visitors to easily switch between them.

In addition, we follow each other on Social Media (Twitter and LinkedIn) to the extent possible. We will re-tweet and share information from these projects that are also relevant for BAMBOO.

3.3 Clustering activity block at consortium meetings

Twice a year, BAMBOO has a consortium meeting. Once a year the BAMBOO consortium meets physically and once a year online. We plan to add a two-hour session in each consortium meeting to which we specifically invite the clustering projects. We will involve the coordinators of the 11 projects to identify topics that may be relevant for the majority of the group for each session. These sessions will either be fully online (if the BAMBOO meeting is online) or hybrid (when we have the physical meeting). Partners that are close to where the consortium meeting is held are invited to join physically, while the rest are encouraged to join online in order to minimize travel. BAMBOO will organize the logistics, online links, and topic suggestions. The lead of the session will depend on the topic chosen in order to have the most qualified project and partner lead the session. This contributes to the monitoring activities outlined in the introduction.

3.4 Collaborations between BAMBOO, RAINFOREST and CLEVER

We have identified synergies with the RAINFOREST and CLEVER project regarding the case studies that will be carried out. Both BAMBOO and RAINFOREST are working on case studies related to fishmeal and fish oil (FMFO) production and the environmental impacts thereof in Peru, the main producer worldwide. CLEVER develops biodiversity databases, quantifies impacts of trade in major raw and processed non-food biomass on biodiversity through multiple approaches including LCA-based models, and therefore has intrinsic connections with both Rainforest and BAMBOO. CLEVER also carries out a case study on aquaculture.We will therefore try

to coordinate the efforts between the projects, in order to benefit from each other's developments. We will also seek synergies with the Pacific Plastics Science to Solutions (PPSS) project, funded by GCRF from UKRI, which has been developed in the eastern-central Pacific and in which the team at PUCP has also been involved by quantifying plastic release to the Pacific in Peru and its affectation to fisheries.

In addition are all three projects working on models to quantify biodiversity impacts. BAMBOO does so through the further development of LC-IMPACT and additional impacts, mostly related to the marine environment for impacts that are indicated in species richness. In addition, it develops models for impacts from functional diversity loss and ecosystem services loss.

RAINFOREST will make use of the updated LC-IMPACT models, thus having a very direct link to BAMBOO.

CLEVER…

3.5 Collaborations between BAMBOO, RAINFOREST and CircHive

CircHive has a link to BAMBOO and RAINFOREST through the coordinator Francesca Verones who is joining the CircHive advisory board.

Dialogue with BAMBOO started in the 1st Cluster Event of "Transformative Change for Biodiversity" in March 2023 and continued in a Teams meeting in May 2023. BAMBOO, RAINFOREST and CircHive have common goals in the methods development to measure biodiversity impacts on products and organizations. CircHive and BAMBOO have agreed to have an internal researcher workshop in late October/early November 2023 on life cycle assessment (LCA) methods development and how LCA based approach could be linked with natural capital accounting (NCA) based approach. BAMBOO is more related to method development while CircHive has a stronger focus on applications. The models developed in BAMBOO could therefore act as input into the large network of companies (>500 to be contacted) and applications for testing the methods developed. Joint activities for CircHive, BAMBOO and RAINFORESTcould also include a stakeholder event, joint session in an international conference, and joint publications.

3.6 Interactions with IPBES

BAMBOO has a connection to IPBES activities through PBL, which is an active member of IPBES and currently hosts its technical support unit on Scenarios and Models. F.Verones (NTNU) and S.Pfister (ETHZ) have been selected as a lead authors for the upcoming biodiversity and business report of IPBES.

3.7 Joint events and conferences

In addition to bi-annual meetings at the consortium meetings, there are opportunities to organize joint events. Opportunities will develop as the project progresses, so this list is not exhaustive. In addition, information between the projects should be shared whenever possible and/or necessary.

3.7.1 Special session at ISIE 2023

The BAMBOO project submitted a special session to the Conference of the International Society for Industrial Ecology, which is held 2-5 July 2023 in Leiden, The Netherlands. This is a special session that is tightly linked with RAINFOREST, since both projects deal with life cycle impact assessment and biodiversity.

3.7.2 Discussion forum in 2024

In 2022, NTNU was organizing a discussion forum in the series of the Swiss LCA discussion fora. These are well-attended events with close to 100 participants physically present from academia, government and industry. NTNU was subsequently asked to consider organizing a discussion forum in 2024 about biodiversity. An abstract was submitted in May 2023, and acceptance is known in autumn 2023. This would be a good opportunity to link with other projects, such as CircHive, RAINFOREST, SUSTAIN and BIOTRAILS. In addition, 5 out of the 11 projects have Swiss partners (ETH Zürich, University of Geneva, Bio Suisse, FiBL, IUCN, WBCSD) who could easily join in person. The discussion forum includes presentations that are invited, and we could make sure to invite at least each of the projects with Swiss Partners to give a presentation. Participation is possible both physically and via a webstream.

3.7.3 Joint final event

We plan for a joint final event around M46 of BAMBOO, which means June 2026 in the last quarter of the project. Since the cluster involves projects from different calls and mixing 3-year and 4-year projects, the projects will finish between August 2025 and December 2026. This means a joint conference with all projects would need to take place in spring or summer 2025. It might be an idea to have two events, one for the projects that end earlier, with a contribution of the later-ending projects, and one in spring or summer 2026 for the later-ending projects. BAMBOO could be co-responsible for the organization of the event in 2026.

3.7.4 Business and Biodiversity

Engaging industry stakeholders is critical for the success of BAMBOO. During the clustering action plan workshop in March 2023, the EU BIodiversity Platforms extended an open invitation for cluster projects to join the annual European Business and Nature summit. This summit is geared towards businesses and financial institutions that are new to biodiversity with presentations from industry leaders in biodiversity- and nature-positive business modelling. Attending this summit once we have results to show would serve as a unique and valuable opportunity to both engage with other projects in our cluster, as well as reach BAMBOO stakeholders and draw positive attention to the tools produced through our project results.

3.7.5 Joint final workshop in Peru

A final hybrid workshop will be held in Peru to show the results from both BAMBOO and RAINFOREST regarding environmental impacts identified in FMFO production. Other projects with connections to FMFO production, such as CLEVER, CircHive and PPSS mentioned above will be invited to this workshop. Moreover, stakeholders from the Peruvian fishing sector, such as FMFO companies, the ministries of Production and Environment, the National Fishing Society, among others, will be invited to the event.

4 FURTHER DEVELOPMENT

This deliverable is only a starting point for possible clustering activities which will be implemented during the course of BAMBOO. We have established contacts with

all projects, but especially with RAINFOREST, CLEVER, CircHive and Biotrails. With some partners we already have concrete plans (i.e. special session at ISIE) whereas with some others we are starting to expore possible synergies.