

**Strengthening Farmers' Awareness Regarding Loss of Biodiversity in Tropical Forests through  
Community Seed House in Central Borneo**



**Final Year Project Narrative Report  
(June 2022 – July 2023)**

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### Summary Table

PLAN REPORT:	Final Report
PROGRAMME:	Strengthening Farmers' Awareness Regarding Loss of Biodiversity in Tropical Forests through Community Seed House
TOTAL FUNDED AMOUNT:	26.670 EUR
SECOND PERIOD:	JUNE 2022– SEPTEMBER 2023

### Executive Summary

This document serves as the second-year report or final report for the initiative conducted by Standy Christianto (Program Manager in Borneo institute) in Manuhing Raya, Central Kalimantan, from June 2022 to September 2023. The project's primary aim was to increase farmers' awareness of biodiversity loss in tropical forests through the establishment of a Community Seed House in Central Borneo. It is worth noting that the project's original goals, including its objectives, the number of involved communities, and the total number of beneficiaries, remained consistent throughout the review period. This report marks the project's final documentation.

In the second-year report, the primary focus was on adhering to the predefined logical framework, signifying that the report closely followed the established plan and objectives. The main areas of emphasis included enhancing the skills and knowledge of farmers in seed conservation, establishing partnerships with stakeholders, and efficiently managing knowledge pertaining to seed conservation through the creation of a catalog and a website.

During the reporting period, the project achieved several important milestones through a series of activities:

- Government Collaboration for National Seed Bank: Successful lobbying efforts were undertaken with both local and national government authorities to foster collaboration in establishing a national-level seed bank and a seed conservation program involving local communities. This collaborative approach is essential to ensure the project's long-term sustainability.
- Stakeholder Engagement and improving skill and enhance knowledge via Focus Group Discussions (FGD): A total of 100 stakeholders actively participated in focused group

discussions (FGD) aimed at facilitating the efficient operation of the local seed bank for seed conservation. These discussions provided a valuable platform for diverse individuals to contribute their insights and expertise.

- Collaboration with Crop Trust, National Gene Bank, and Svalbard for Seed Duplication: The project successfully collaborated with Crop Trust, National Gene Bank, and Svalbard for the duplication of locally valuable seeds, particularly those significant to the indigenous Dayak community. This duplication ensured that if these seeds were ever lost, they could be retrieved and multiplied from the Gene Banks.
- Comparative Study of Local Seed Handling: A comparative study was conducted to assess how local seeds were managed in other regions, specifically in Lombok, West Nusa Tenggara. This study also explored the potential of transforming farmers' agriculture into ecotourism destinations, promoting sustainable agricultural practices in these areas.
- Documentation of Seed Collection: One notable accomplishment during this time frame was the thorough documentation of diverse seed types, which included 250 seeds accession, from various seeds from 55 farmers in three villages. This documentation enables easy tracking and can be accessed through the website [borneologi.com](http://borneologi.com). Furthermore, efforts to develop the seed catalog are still in progress.

These accomplishments underscore the project's dedication to forging partnerships with government bodies, involving stakeholders, conducting comparative research to enhance seed conservation efforts, and documenting a diverse range of seeds. These efforts form the groundwork for future cataloging and preservation initiatives, ensuring the project's continued success.

## Results Achieved

### **Output 1. To develop one community seed house in Manuhing Raya Village**

Output 1 has already been reported in the first-year report. You can find detailed information on it in last year's report.

#### **1.1 Building one seed house**

#### **1.2 Buying equipment and maintenance**

### **Output 2. To improve knowledge and capacities of farmers regarding seeds maintenances and biodiversity**

#### **2.1 Focused Group Discussion (4 times):**

a. A series of four Focus Group Discussions (FGDs) were conducted as part of our project, engaging approximately 150 farmers in total. The first session was held from September 5th to 9th, 2022, in the Putat Durei villages and was attended by a group of 20 farmers. This initial FGD was dedicated to addressing the various challenges faced in the cultivation of local seeds and the formal registration of new members joining the farmer groups.

The discussions during this first FGD delved deeply into the intricacies of local seed cultivation, with a specific focus on identifying and troubleshooting the obstacles encountered throughout the process. It served as an invaluable platform for farmers to share their practical experiences, knowledge, and insights related to local seed planting.



*Figure 1. Group farmer joint discussion in Putat durei villages*

Moreover, the registration of new members in the farmer groups was a crucial aspect of the dialogue during this session. Properly documenting and integrating new members into these groups is a fundamental step in fostering community collaboration and ensuring that all participants have access to the benefits of collective farming efforts. This initial FGD laid the foundation for subsequent discussions and enabled the project team to tailor their strategies and support to better address the unique challenges and needs of the local farming community.



*Figure 2. traditional rice harvesting (left). Local rice after harvesting (right)*

- b. The second Focus Group Discussion (FGD) was conducted from January 20th to 23rd, 2023, in conjunction with a visit from Weltweit. This visit marked an important juncture in our ongoing collaboration. During this period, FGD sessions were held with two farmer groups, specifically those in the villages of Tumbang Oroi and Tumbang Samui with total 25 farmers. These discussions allowed for a deep exploration of the challenges and opportunities associated with local seed cultivation within these distinct community contexts.

The Weltweit team, comprising three dedicated members, actively participated in these FGDs and played a significant role in facilitating dialogue between the project team and local farmers. In addition to the discussions, Weltweit's team members also resided at the Local Seed Building for a three-day duration. Their stay provided a valuable opportunity for direct engagement and knowledge exchange, allowing them to gain a profound understanding of the local farming practices, challenges, and opportunities.

One of the primary issues that was addressed during these discussions pertained to the infestation of aphids, which posed a significant challenge to the successful cultivation of local seeds. The shared insights and perspectives of both farmers and Weltweit team members were instrumental in devising potential solutions and strategies to mitigate this issue and improve the overall yield and quality of local seeds.

We would like to encourage those interested in a more comprehensive overview of the project visit and the insights gathered during this collaboration to access the full report in visiting, which is available for download via the link provided below. This report will provide in-depth insights into the discussions, findings, and recommendations that emerged from this significant phase of our project:

[https://drive.google.com/file/d/1It84XHxzNr\\_IWAP2TiteZbIjUnZ77mV9/view?usp=sharing](https://drive.google.com/file/d/1It84XHxzNr_IWAP2TiteZbIjUnZ77mV9/view?usp=sharing)



Figure 3. The diverse team comprising the Borneo Institute, Weltweit, and local farmers stood proudly in front of Pasah Harati, their community's local seed bank (top left). The Weltweit team engaged in a focused discussion about the challenges of pest and disease management in local farmlands with Standy Christianto as the program manager and Bapak Dewi is an experienced farmer from the local community (top Right). A moment from a focus group discussion held in Tumbang Samui (bottom left) and Tumbang Oroi (bottom right)

- c. The third Focus Group Discussion (FGD) was conducted from June 11th to 14th, 2023, in the villages of Tumbang Oroi and Tumbang Samui with 30 farmers. This FGD marked another crucial step in our ongoing efforts to engage with local farmers, gather valuable insights, and strengthen our collaboration in the realm of local seed cultivation. During this period, participants from both villages came together to discuss various aspects of their local seed cultivation practices, share their experiences, and explore potential improvements and innovations to enhance the sustainability and productivity of local seed farming.



Figure 4. In the third Focus Group Discussion (FGD), which took place in Tumbang Samui, community members and stakeholders gathered to deliberate and address critical agricultural issues affecting the region.

- d. The fourth and final Focus Group Discussion (FGD) took place from June 23rd to 25th, 2023 for 25 farmers, marking the culmination of our engagement with local farmers in this phase of the project. This FGD provided an opportunity for further discussions, knowledge sharing, and a comprehensive review of the insights and strategies

developed throughout our collaboration with the local communities. It allowed for a final round of dialogue to ensure that all perspectives and experiences were thoroughly considered and that any additional recommendations or actions could be incorporated into our ongoing efforts to support local seed cultivation.



Figure 5. Fourth and final FGD served as the pinnacle of our engagement with the local farming community in this specific phase of the project.

## 2.2 Comparative Study:

This activity was an initiative undertaken by the Borneo Institute team. One of the phases involved a visit to Lombok, specifically to a traditional village in Lombok. The purpose of this visit was to inspect and gain a deeper understanding of the traditional rice storage methods and to observe and learn about the local seed planting practices in the area. Additionally, in the interest of deepening our knowledge and sharing experiences, we engaged in discussions with local organizations in the region. This activity took place from August 5th to August 8th, 2022.



Figure 6. The rice storage in customary villages of Lombok (left). Traditional house (center). Staff of borneo institute sitting inside of house (right)

Following the initial phase of our initiative, the second phase was executed on September 12, 2022. During this phase, our team embarked on a significant visit to the National Seed Bank, which is situated at the Center for Standard Testing of Biotechnology Instruments and Agricultural Genetic Resources. This visit was a crucial step in furthering our mission to support and preserve local seeds.

The National Seed Bank represents a key institution dedicated to the conservation and safeguarding of plant genetic resources. its vital role in ensuring the availability of diverse and valuable seeds for current and future agricultural needs.

The primary objective of this visit was to strengthen collaboration and deepen our partnership with the National Seed Bank. By engaging with this institution, we aimed to leverage their expertise, infrastructure, and resources in our collective efforts to safeguard local seeds. This collaboration allows us to benefit from their experience in seed



conservation and adds an extra layer of protection to the wealth of genetic diversity present in local seeds.

The National Seed Bank's involvement in our project significantly enhances our capacity to ensure the long-term preservation of local seeds, making them accessible for future generations. This strategic alliance underscores our commitment to the conservation of agricultural biodiversity and the sustainability of local farming practices.



*Figure 7. the national gene bank's cold storage, capable of preserving seed materials for over 20 years at a frigid -18 degrees Celsius (top left and right). Borneo institute discussed regarding seed bank and potential for collaboration with them (bottom left). Seed collections of national seed bank (bottom right).*

### **2.3. Training of seed management (once in the second project year):**

The training sessions took place over four days, from October 11th to 14th, 2022, and were designed with the primary objective of equipping farmers with the knowledge and skills required to maximize crop yields from the seeds they plant. Traditionally, farming practices in the region had relied on conventional, time-tested methods for sowing seeds. However, the training program introduced a transformative approach to local seed cultivation.

Farmers who participated in the training were provided with comprehensive instruction on a range of essential topics. This included the proper treatment and handling of seeds, ensuring that each seed was primed for optimal growth. The training emphasized the importance of seed quality, viability, and the methods to preserve these attributes, which is critical for the success of local seed farming.

Another key aspect covered during the training was effective soil preparation. Farmers were educated on how to analyze and prepare their soil to create an environment that is

conducive to seed germination and plant growth. Proper soil preparation is vital for nutrient availability and water retention, both of which are fundamental for healthy plant development.

In addition to seed treatment and soil preparation, the training program also focused on the correct techniques for harvesting. Farmers were guided on the precise timing and methods for harvesting local crops to ensure that they reach their full potential in terms of yield and quality.

The ultimate aspiration of this training program is to see a significant improvement in crop productivity. By providing farmers with these essential skills and knowledge, it is hoped that subsequent generations of local seeds will thrive and continue to exhibit heightened productivity. This not only benefits the current generation of farmers but also ensures the sustainability of local farming practices, which are integral to food security and the preservation of agricultural traditions. The comprehensive training represents a significant step towards achieving these goals and fostering a more prosperous agricultural landscape in the region



Figure 8. Various photos depict the activities carried out to preserve local seeds through a combination of traditional farming and modern tools. These activities include the collection and cleaning of local seeds, sun-drying, and growth testing (top). Women farmers were preparing the soil and planting food plant (center). Additionally, Ary Prasetyo, staff members from BIT, observed and assessed local rice seeds, then BIT learnt together with farmers to share knowledge (bottom).

## 2.4. Training for seed regulation:

This output 2.1 has already been reported in the first-year report. You can find detailed information on it in last year's report.

## Output 3: To share knowledge between farmers and stakeholders (government, donors, and other NGOs):

### 3.1. Developing the Website

The purpose of developing a website is to share knowledge about local seeds by providing information about the geographical coordinates where these seeds are planted. This also serves as transparency in the project, making it known to the public as local seed data. In our journey, we collaborated with other organizations to develop this platform.

Our collaboration with BFDW (Brot für die Welt) included an important objective, which was the development of the web application, [www.borneologi.com](http://www.borneologi.com). This web application serves as a valuable tool for local farmers, facilitating the recording of essential information related to their land and the natives trees on their property.

The primary function of the web application is to allow farmers to document the precise location and borders of their land. This is a crucial step in land management, as it helps farmers establish property boundaries, track the areas they cultivate including local trees, and maintain accurate records of their agricultural assets. Furthermore, the application provides a platform for recording information about the various trees on their land. This includes details such as the type of tree, age, and any additional relevant data that can be used for decision-making and resource management.

We acknowledge that there is always room for improvement. In the future, we intend to focus on enhancing the platform by delving into more detailed aspects. This includes refining the user interface and experience to make the application even more user-friendly, optimizing data storage and retrieval for increased efficiency, and expanding the functionality to encompass additional features that could further assist farmers in their land and resource management.

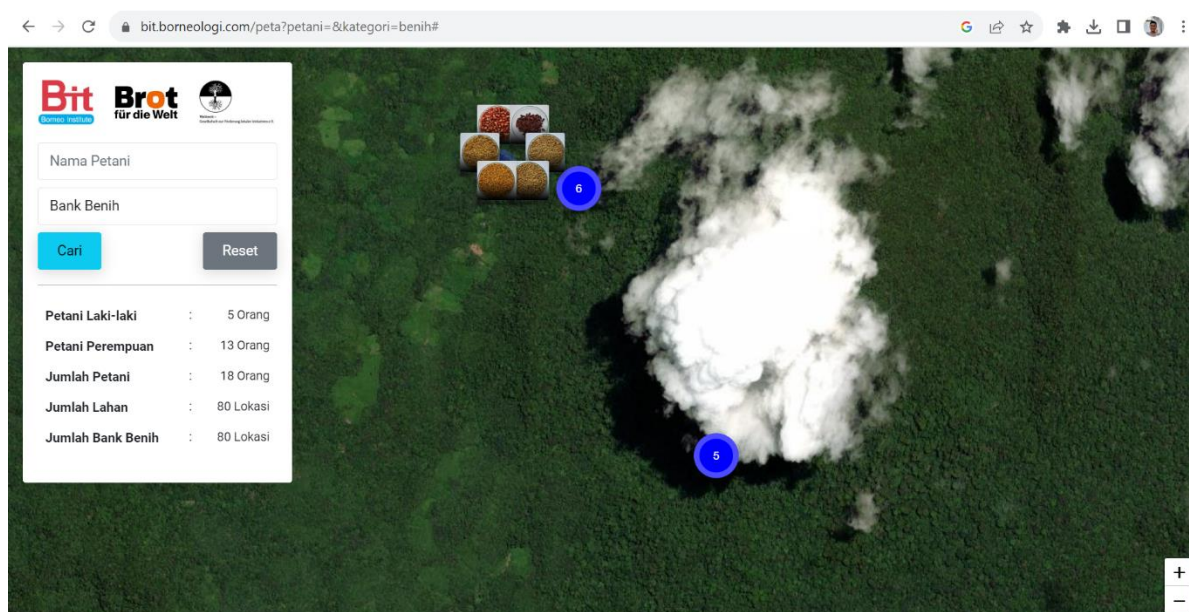


Figure 9. The landing page of the website [borneologi.com](http://borneologi.com).

### **3.2. Catalog writing and publishing**

A total of 250 seed accessions have been documented in three villages in Central Kalimantan. These seed accessions encompass various local seed varieties and types that have been identified, described, and meticulously recorded in our records. With this careful documentation, we possess comprehensive data about each seed, including its origin, characteristics, and other essential information. This enables us to track and preserve the genetic diversity of local seeds, making them a valuable resource for sustainable agriculture and the conservation of biodiversity in the Central Kalimantan region. We have successfully collected and documented the seed data in the form of photos and Excel tables.

The list of photo of seeds in this link:

[https://drive.google.com/drive/folders/143Vpg8IZuCV8Cru3qZ6HbfRXt0z4PaRq?usp=drive\\_link](https://drive.google.com/drive/folders/143Vpg8IZuCV8Cru3qZ6HbfRXt0z4PaRq?usp=drive_link)

Our plan is to compile a catalog or book that explores the journey of local seeds and their connection to the traditions and culture of the Dayak community. This catalog will encompass comprehensive information including photos, and the names of local seeds, ensuring that the heritage of local seeds is preserved in written form and can be accessed by future generations. Currently, the catalog is not yet complete due to delays in the writing process, and we are awaiting the planting and harvest season in 2023 to include the latest data and photos.

On other side we have successfully produced a documentary film that delves into the captivating journey of our local seed bank. This documentary is a profound testament to our commitment to preserving the rich diversity of local seeds and the cultural heritage intertwined with them. Link of documentary local seeds:

[https://drive.google.com/file/d/1KoXKkW8pu6JEP3RCwe5IT7VWyhDE7MZQ/view?usp=drive\\_link](https://drive.google.com/file/d/1KoXKkW8pu6JEP3RCwe5IT7VWyhDE7MZQ/view?usp=drive_link)

The data collection process for local seeds represents a multifaceted initiative that goes beyond simple documentation.

On other things, our collaboration with the BOLD project, administered by the Crop Trust, is instrumental in our endeavour to ensure the regeneration and sustainability of local seeds. The BOLD project's core objective is to revitalize and regenerate seed stocks, especially those of local and indigenous varieties. This partnership enables us to leverage the project's expertise, resources, and experience in seed conservation and regeneration. By working hand-in-hand with the BOLD project, we gain access to valuable insights and best practices in seed preservation and propagation. This partnership is critical to the long-term viability of local seeds, as it seeks to ensure their continued availability for generations to come.

We also reached out to the Svalbard Global Seed Vault, commonly known as the Svalbard Gene Bank, in Norway and we are proud that our organization or project established communication or engaged with this specific gene bank. The Svalbard Global Seed Vault is a renowned facility that serves as a global backup storage for seed samples from all around the world. It is located on the Svalbard archipelago, near Longyearbyen in the remote Arctic region.

Additionally, our institution has taken a significant step by registering with the Food and Agriculture Organization (FAO). Specifically, we have joined the World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS). Our institution is identified with the unique institution code: IDN145 within this system. This registration serves as a powerful symbol of our unwavering commitment to preserving germplasm, the genetic material critical for crop development and breeding.

The FAO's WIEWS is a global platform for sharing information on plant genetic resources, and our participation underscores our dedication to the worldwide cause of preserving

agricultural biodiversity. The registration and institution code facilitate global cooperation and information sharing, enabling us to contribute to the international effort to protect plant genetic resources for food and agriculture.

(link : <https://www.fao.org/wiews/data/organizations/en/?instcode=IDN415#details>)

This activity further reinforces our collaboration with the national seed bank. As part of our commitment to preserving and safeguarding local seeds, we have taken a significant step by depositing a copy of our seed collection, specifically a first-level safety duplication, at the National Gene Bank situated in Kota Bogor, West Java, Indonesia.

The National Gene Bank plays a pivotal role in the conservation and protection of plant genetic resources, ensuring their availability and use for future generations. This facility serves as a critical repository for a wide range of seeds, including local and indigenous varieties. The management and administration of this gene bank are entrusted to the Center for Standard Testing of Biotechnology Instruments and Agricultural Genetic Resources. The partnership with them reflects our institution's dedication to genetic resource conservation. This collaborative effort helps secure the agricultural diversity necessary for global food security and the continued growth of sustainable farming practices.

### **3.3. Catalog Launching**

The intended activity, which involves the organization of a specific event or program, has not been executed yet. This decision is based on the plan to compile a catalog or book that provides detailed information about local seeds and their relationship with the traditions and culture of the Dayak community. This catalog is scheduled to be completed by the end of 2023, coinciding with the harvest season. The rationale behind postponing the implementation of this activity is to prioritize the creation of the catalog. By concentrating on finalizing the catalog by the end of 2023, this endeavor is expected to provide a deeper insight and a more comprehensive understanding of local seeds and their role in the lives and culture of the Dayak community.

### **Challenges**

- a. Limited Resources and a Short Timeframe: There is a substantial knowledge gap between traditional farmers and modern seed technology. Traditional farming practices often have deep-rooted local knowledge that is highly valuable and should not be overlooked or displaced by new technological advancements. Bridging this gap need time longer than expectation and we believe it is vital to preserve and maintain this local knowledge while introducing new methods and technologies for seed conservation. To address this challenge, we have established seed banks dedicated to the conservation and preservation of local seed varieties. According to the National Seed Bank's opinion, this is indeed a pioneering seed bank within the local community in Indonesia. These seed banks act as repositories for local seeds, ensuring that they remain available for future generations.

We are also committed to providing training and educational programs to farmers in the region to ensure they have the necessary skills and knowledge to maintain and cultivate these seeds effectively. This approach is aimed at both preserving the integrity of local agricultural practices and improving seed quality through proper maintenance. However, our efforts are constrained by a limited timeframe of only two years. This timeframe is proving to be quite restrictive, considering the complexity of the task at hand. As we delve deeper into the project, we have realized that more interventions are required to enhance the capacity and skills of local farmers in seed maintenance. Achieving a successful transition from traditional farming practices to a more sustainable and efficient approach necessitates a more extended engagement period. Moreover, our team faces resource constraints. We have a relatively small number of staff members (3 people) who are responsible for

assisting and training approximately 100 local farmers.

- b. Plant Diseases and Technical Challenges: At the project's outset, we hadn't initially accounted for addressing plant diseases and technical aspects in the field. However, as the project progressed, we encountered a significant challenge: pest and disease attacks posed a risk to seed preservation. Farmers pointed out that these attacks were often linked to unpredictable climate conditions. Even though local seeds tend to be more resilient, these attacks had a negative impact on overall crop yields and seed collections. Fortunately, as we continued with the project, we received support from Crop Trust, an organization that prioritizes the technical aspects of seed regeneration. Finally, we learned to address the issues related to pests and diseases step by step. This collaboration proved invaluable in developing effective strategies to combat these challenges.
- c. Infrastructure: The project area currently lacks vital infrastructure such as proper roads, internet access, and a consistent electricity supply. This creates significant challenges, especially for projects that rely on electricity for things like running equipment or processing data. Additionally, the limited communication infrastructure, including the lack of internet connectivity, makes it difficult to share information and coordinate project activities. The remote location of these areas worsens the issue, leading to poor connectivity. To overcome these challenges, it's not only time-consuming but also more costly, particularly when it comes to using alternative energy sources and communication methods.

## Recommendations

Based on the learning from this first project year, the following recommendations and assumptions can be made for the continuation of this project:

- We need additional time and resources to broaden the scope of our activities and effectively implement the next phase of our idea within farmer communities to upscale the project and maximize its social, ecological, and economic impact. These resources are essential for providing comprehensive training, materials, and ongoing support, which are all crucial for equipping farmers with the knowledge and skills necessary to become self-sufficient in next level of seed preservation. By extending our investment in these activities, we can facilitate the transition to self-reliance within these communities, ensuring that they can confidently preserve their seeds without external assistance. This approach is pivotal for fostering sustainable practices and enhancing the resilience of farmer communities.
- If feasible, the establishment of a small permanent laboratory in the city is of paramount importance. During project implementation, we have had the privilege of entering a collaboration with Crop Trust, an international organization dedicated to seed biodiversity. Through this partnership, we have been furnished with equipment from Crop Trust, intended to bolster our efforts in local seed regeneration and storage. Notwithstanding the substantial progress achieved, we continue to rely on rented laboratory and seed storage facilities within the city. In this context, permanent laboratory holds paramount importance. It will serve to alleviate the existing financial strain associated with rental costs for our project. The provision of dedicated space will bestow upon us heightened control over the laboratory and seed storage environment, a factor of paramount importance for the preservation of the quality and long-term sustainability of our local seed bank project. This strategic investment holds the potential to enhance the efficiency of the resources at our disposal and thereby engender enduring sustainability for our project.
- Collaboration with a wide range of stakeholders, such as the National Gene Bank, Crop Trust, Svalbard Global Seed Vault, Weltweit e.V. and other global networks, is a fundamental aspect of our project. It is essential that this collaboration not only continues but also remains sustainable in the long term. This is because it has multifaceted impacts. On a global scale, this collaboration contributes to broader perspectives, especially in the context of global seed and genetic resource conservation and biodiversity preservation. Simultaneously, the effects of this collaboration are palpable at the local level, benefiting the communities directly involved. The concept of "thinking globally while acting locally" becomes a tangible reality when this project is perpetuated. It means that by continuing this collaborative effort, we are not only addressing global challenges but also making a meaningful difference in the day-to-day lives of people in the local communities engaged in the project.
- The catalog book depicting the journey of local seeds within the project area, in alignment with the plan outlined in the proposal, will be brought to fruition using the remaining budget. This activity will serve as the project's concluding phase and will be comprehensively documented, in addition to the documentary that has been previously created. This book will serve as our guide to introduce the potential to prospective donors and the social impact generated through this project.

## **Conclusion**

Over the past two years, thanks to the support from the Merz foundation, our work to protect the rainforest and its diverse wildlife has improved significantly. This support has been crucial in making these positive changes possible. A key part of our project has been about saving plant seeds and preserving traditional customs. These two things are important pieces of our broader plan to protect the rainforest. By carefully collecting and preserving seeds from different plants, we are making sure that the rainforest's plants stay healthy.

Alongside preserving the seeds, we have also worked to keep traditional customs alive in the local communities. These customs have been closely linked to the delicate balance of the rainforest for many generations. Thanks to our efforts, we've seen a renewed interest in these customs among the community members. This isn't just a return to the past; it's a promising movement toward the future.

We have concrete examples of this: farmers who have gone back to their traditional farming methods. This not only brings back traditional and sustainable farming practices but also directly helps protect the rainforest. By keeping these customs alive, the communities are playing a vital role as guardians of the forest. One of the most inspiring things about this revival is its influence on the younger generations in these communities. We've noticed that more young people are eager to embrace the traditional way of life and get involved in preserving their natural surroundings. This is not only great for keeping cultural traditions alive but also ensures that these communities remain dedicated to long-term nature conservation.

As we look to the future, we genuinely hope that this renewed interest and commitment will continue to grow and spread. We believe that more people, especially young ones, will choose to live in the village and keep looking after the forest's biodiversity for generations to come. Weltweit E.v together with The Merz foundation have made a meaningful and positive difference in our mission. The real results, the return of traditional practices, the increased interest among the younger generation, and the brighter future for long-term conservation all show how important their support has been in our journey to protect the rainforest and nature. We are very thankful for their partnership, and together, we are building a better and more sustainable future for our natural world.

Sincerely,  
Standy Christianto  
Program Manager Borneo Institute, Networking of Weltweit.ev