

## **Junior Scientists Tandems**

### **Final Report**

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**Title: Neglected and underutilized species: The key to enhance food related biocultural diversity**

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This report provides a detailed overview of the progress made over the past 6 months of my research stay at CIFOR-ICRAF headquarters in Bogor, Indonesia. It is organized by five sections: science communication, enhancing research and public communication skills, management of field research, provisional results and conclusions.

### **Science communication**

During my research stay, the first science communication activity was attending the CIFOR-ICRAF Science Days in May. By participating in that meeting, I gained valuable insight into how CIFOR-ICRAF focuses on research, extension, and public communication through its projects. The famous senior scientists in agroforestry gathered in Bogor and shared their knowledge with juniors. A few PhD students based in the CIFOR-ICRAF Nairobi office also shared their research projects. Those presentations helped me to learn about the research projects of other doctoral researchers in the same research discipline. In addition, I gained profound knowledge related to my research interests through workshops organized by early-career scientists and keynote speeches by senior researchers.

The other activities were presenting my preliminary research findings to CIFOR-ICRAF staff at the “World Food Day” in October 2025. Furthermore, I participated in the local food festivals on Timor Island and the national food exhibition, engaging with different local communities in Indonesia (Figure 1). Based on those activities, I learned how CIFOR-ICRAF communicates science to the local community.

### **Enhancing Theoretical Knowledge and Research Skills**

Before my research stay at CIFOR-ICRAF, I applied for research ethics clearance to conduct my project in accordance with ethical standards for the research area. In addition, it is necessary to submit the research permission application to the National Research Ethics Committee of Indonesia. By applying these permissions, I learned more about the research ethics a scientist must be aware of.

To begin my research project, I first visited the study area to validate the feasibility of the research proposal. Based on the data from the scoping trip, I prepared an explicit and detailed research protocol. Before starting the fieldwork, the second field work, I have to submit the mid-term project report to the research ethics committee. These actions helped me to justify my project as culturally relevant research. Following discussions with indigenous representatives and government officials from the Department of Food Security, Indonesia, the final preparatory fieldwork was concluded. During the data collection trip, I independently managed and organized all aspects of the project. This experience enabled me to navigate the complexities of conducting fieldwork through cross-cultural collaboration and negotiation, enhancing my ability to lead effectively and ensure the project's success.

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## **Field Work**

This project was based on Timor Tengah Selatan Regency (TTS) in Nusa Tenggara Timur Province (NTT), Indonesia. In TTS, CIFOR-ICRAF is carrying out a project called Land for Lives (L4L), funded by the Government of Canada. Some components of this project focus on local food systems and the dietary diversity of local communities, as well as on establishing kitchen gardens by growing local food crops. Thus, for this study, we focused on neglected and underutilized species (NUS) to promote their role in future applications to local food security and to trigger solution-oriented research in the context of food system transformation.

In early July, I visited the study area with a research assistant who speaks Bahasa Indonesia and works with the L4L project of CIFOR-ICRAF. As the first step, I conducted qualitative interviews with CIFOR-ICRAF staff, village heads, traditional knowledge holders, and local food activists in TTS. To deepen my understanding of local food culture and gain awareness of locally available NUS, I attended a traditional cooking workshop and experienced Timor's local food. To verify that the selected NUS are widely known, used, and accessed as traditional food crops in the study area, I reviewed the local food dataset of the L4L project and conducted pilot surveys in several villages in TTS. Based on consultations and discussions with traditional and indigenous knowledge holders, our focused NUS was selected as the final choice.

For the next step, the survey was conducted with 224 respondents from 8 villages. With the help of a local research assistant, four local enumerators were trained to conduct the study. We used photographs of the selected NUS (Figure 2) as prompts to help participants recall all their stewardship memories and express perspectives that might otherwise be forgotten. In addition, photos were used to verify that respondents were referring to the exact species we are focusing on, and to compile respondents' knowledge about NUS. The interviews were conducted based on participants' availability, either at their residences or on their agricultural lands. We first met with the village head and explained our research and inclusion criteria. These survey activities were concluded by the end of October. Through CIFOR-ICRAF, the results will be shared with local communities and decision-makers to improve access to nutritious food and enhance the climate-resilient food system. The output will be published in a peer-reviewed journal article to expand the scope of science communication.

## **Provisional results**

The key informant interviews and discussion results showed that more than 60 NUS contribute to the local food system. According to their importance in the daily diet, the key informants described them as traditional food crops. Among them, some conventional varieties were reported as less used than in the past, despite being known as nutritious and culturally important. The results show that there are various actions to conserve neglected and

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underutilized species (NUS). The most common actions include growing them on their own farms and storing seeds in Ume bubu (Traditional round house). Other frequently mentioned activities include following traditional rituals during and after cultivation, storing seeds in plastic bottles inside the house, and maintaining the natural habitat. Some respondents reported sharing knowledge about NUS with younger generations, harvesting only vegetative parts to allow regeneration, sowing seeds from wild populations in similar habitats, and storing seeds in village gene banks.

## Conclusion

Over the past six months, the JST program funded by ATSAF has provided valuable and enriching experience for my doctoral studies. The strong support from my supervisors has been instrumental in helping me navigate various research challenges encountered during my research stay. I have successfully met my learning objectives, gaining insights not only in theoretical and research aspects but also in public and cross-cultural communication. The robust data set obtained from this fieldwork will facilitate the development of my third manuscript, aligning with the requirements of my PhD, which necessitates the completion of three manuscripts. This fieldwork in Indonesia has expanded my knowledge and provided me with hands-on research experience through collaboration with senior scientists from CIFOR-ICRAF and the University of Brawijaya.

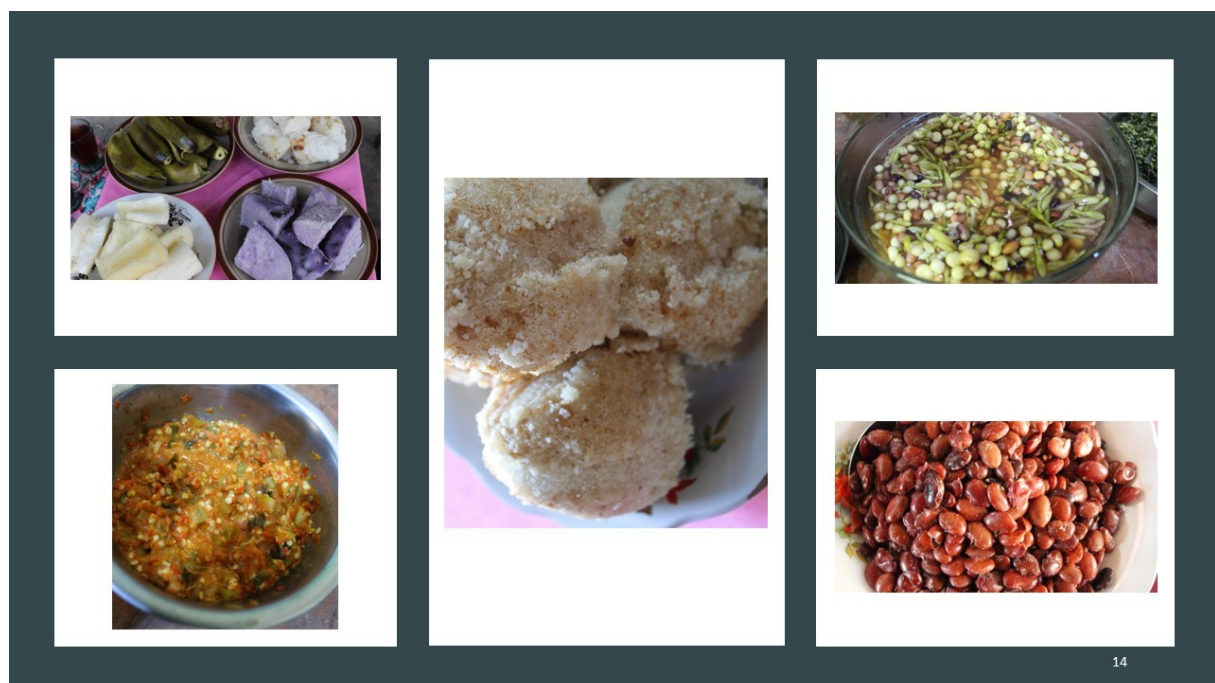


Figure 1: Some traditional food of Timor Island made of roots and tubers, cassava, corn and rice beans.

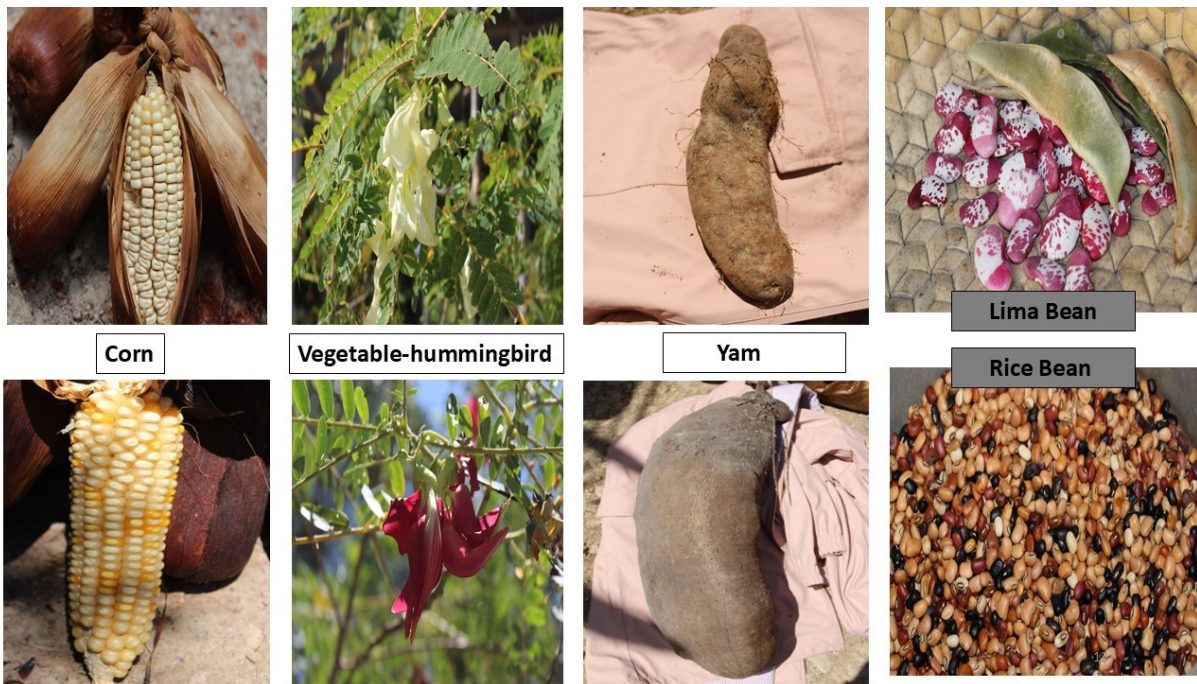


Figure 2: Studied NUS.