

TERMS OF REFERENCE
STUDY PROPOSAL FOR 2023

**A STUDY ON THE ADOPTION AND ADAPTATION OF TECHNOLOGIES FOR OIL PALM
SMALLHOLDERS TO ENHANCE THEIR PRODUCTIVITY**

A. BACKGROUND

Indonesia, together with Malaysia, produce more than 80% of the global palm oil supply and meet more than 30% of the world's vegetable oil consumption. This production comes from plantations owned by large businesses, state schemes or government-owned plantations and smallholders.

Smallholders have a great impact on the economy of both countries and become the conduit of local rural economic development. However, the productivity of smallholders is relatively low, with only around 1-3 tonnes of CPO/ha/year. Their operational activities are dominated by family-run businesses with limited or no application of technology. The limited utilization and exposure to technologies are the challenges faced by smallholders to improve their productivity.

Meanwhile, the large oil palm plantations have incorporated the technologies to their business activity. Automation in harvesting, weed control, utilization of data to facilitate the harvesting and fertilizer application as well as transportation are some of the technologies used by the large oil palm plantation. They understand that, with limited source of land for new cultivation and high dependency on manual labour, the key to increase productivity is by utilizing technologies.

The approaches and technologies used by large oil palm plantations to enhance their productivity and performance can and should be emulated by the smallholders. It is important to review the technologies that can be implemented by the smallholders to enhance their operational activity. However, since smallholders are very diverse, not all technologies can be adopted by them. Therefore, the different categories of smallholder must be taken into consideration when studying the available technologies for adoption and adaptation.

B. PROBLEM STATEMENT

The majority of smallholders in Indonesia and Malaysia have limited access to technologies to support their operational activities. In contrast, large oil palm plantations have the added advantage due to automation and incorporation of technologies to support their business operation. Hence, it is important to learn from the large oil palm company on application of the technologies on managing the plantation, to identify the suitable technologies that can be adopted and adapted for use by smallholders.

C. OBJECTIVES

This study is expected to provide a comprehensive identification of technologies used by large oil palm plantations that can be adopted and adapted by the smallholders to enable better performance in their operational activity to increase their productivity. The objective of the study includes the method to transfer the technologies for adoption to suit the smallholders.

D. EXPECTED BENEFITS

This study is expected to come up with recommendations of technologies that can be used by the smallholders to increase their productivity and efficiency. The recommendation should be tailored to the needs of different types of smallholders in Indonesia and Malaysia as well as recommendation on its implementation.

E. SCOPE OF WORK

The study is a desktop study where the implementer should come up with complete literature review on related topics. However, there will be an opportunity for conducting interview, focus group discussion (FGD), and other data collection methods to garner deeper understanding on smallholders' context and feasibility to adopt and adapt the technologies. The technologies to be recommended should cover financial capacities, traceability, and productivity enhancement. Implementer(s) will develop their study framework based on agreed TOR.

F. OUTPUT

1. Comprehensive literature review on utilization of technologies by large oil palm plantations, which can be adopted and adapted to the smallholders.
2. To provide recommendations on how to adopt and adapt suitable technologies from large oil palm plantations to different categories of smallholders.
3. To share the study result/ findings to smallholders through the relevant stakeholders.
4. Dissemination of the findings of the study subjected to the recommendation and approval from the Council of Palm Oil Producing Countries (CPOPC).

G. PROJECT DURATION AND TIMELINE

The study is expected to commence in 2023. The final report would be ready within six months of the study being conducted. An interim report is to be submitted to the Secretariat within three months of the study.

Activities	2023					
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Literature Review						
Data collection and analysis						
Report writing and submission						

H. BUDGET

The budget for the study is estimated at USD15,000.

I. IMPLEMENTER

The study can be implemented by appropriate researchers/institutions from Indonesia and Malaysia as joint implementers.